CITY OF GRANDVIEW

WATER SYSTEM PLAN

HLA
Engineering and Land Surveying, Inc.

PROJECT NO. 21033E

CITY OF GRANDVIEW

2022 WATER SYSTEM PLAN

Prepared by:

HLA
Engineering and Land Surveying, Inc.

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INTRODUCTION

AND

EXECUTIVE SUMMARY

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INTRODUCTION

The City of Grandview is located in the lower Yakima Valley, within the south-eastern corner of Yakima County. The City lies along Interstate 82, approximately six miles south and east of the City of Sunnyside, and six miles north and west of the City of Prosser, in a dry, sunny area consisting of flat and cultivated lands. Incorporated in 1909, Grandview's economy depends largely on the agricultural industry.

Grandview recognizes the need to improve and expand its water system if it is to meet the demands of its system users and to keep pace with other growth-oriented improvements in this vital Yakima County community. HLA Engineering and Land Surveying, Inc. (HLA) was authorized by the City of Grandview to prepare this Water System Plan, which represents the culmination of planning and data collection efforts.

PLANNING REQUIREMENTS

Water systems with 1,000 or more services are required to have a water system plan approved by the Washington State Department of Health (DOH) pursuant to the Washington Administrative Code, WAC 246-290-100 and WAC 246-291-140.

To assist water utilities in preparing their plans, DOH has published the *Water System Planning Guidebook* dated August 2020. This handbook identifies information needed to develop a "well-conceived and clearly-stated" water system plan. The handbook is organized into 10 major chapters, with each chapter representing a basic water system plan component. The 10 chapters are:

1. Description of Water System
2. Basic Planning Data
3. System Analysis and Asset Management
4. Water Use Efficiency Program
5. Source Water Protection
6. Operation and Maintenance Program
7. Distribution Facilities Design and Construction Standards
8. Capital Improvement Program
9. Financial Program
10. Miscellaneous Documents

Each chapter is divided into several sections to address specific topics in detail. The City of Grandview *2022 Water System Plan* update has been prepared in the format of DOH *Water System Planning Handbook*.

OBJECTIVE

The principal goal of water system planning is to make efficient use of available resources. This is accomplished by making decisions about water system capital improvements and operations which are in accordance with overall system policies and directions expressed in a utility's water system plan.

An equally important reason for developing a water system plan is to assure orderly growth of the system while maintaining reliable delivery of high-quality water. The plan is intended to guide water utility actions in a manner consistent with other activities taking place in the community.

The water system plan is intended to look ahead at least 20 years into the future. Development of a definite improvement schedule and financial program is required for the first ten-year period, while the planning approach for the second period may be more conceptual. To continually provide adequate guidance to decision makers, the plan requires regular updating, with approvals lasting up to ten (10) years.

Once adopted by the City of Grandview and approved by DOH, the Water System Plan is considered by DOH "to be a commitment to implement the actions identified in the improvement schedule." Future water system decisions shall be in accordance with the Water System Plan.

PROJECTED WATER DEMANDS

To plan for Grandview's future water needs, the following items were examined:

Basic Planning Data (CHAPTER 2): Land use, future service area boundary, and population growth are used to evaluate demands on the Grandview water system. The City's 2014 service population was estimated to be 11,170 by the Washington State Office of Financial Management (OFM), and the future population is projected to be 11,881 by the year 2022. Grandview's 2014 number of residential water service connections was 3,158, and the future number of residential service connections is projected to be 3,232 by the year 2022.

Current Water Demands (CHAPTER 2): Grandview's greatest year of water consumption in the last seven years was in 2014 when 630.494 million gallons was consumed. This is equal to an average daily consumption of 1,727,381 gallons. The maximum month of water consumption was experienced in October 2014, when the average daily consumption for the month was 2,777,516 gallons. Maximum day consumption (based upon the maximum day of water production in the month) was 3,816,924 gallons on October 21, 2014, and peak hour consumption was calculated to be 4,771 gpm.

Projected Water Demands (CHAPTER 2): Grandview's average day water demand forecast for the year 2042, and the City's current source capacity and water rights are below:

	PROJECTED YEAR	CURRENT SOURCE	CURRENT
	2042 Demand	2022 Capacity	Water Rights
ERUs	12,001	---	---
Annual	983 MG	1,073 MG	4,640 acre-feet
Maximum Day	5.856 MGD	4.751 MGD	---
Peak Hour	6,544 gpm	3,299 gpm	6,955 gpm

SUMMARY OF SYSTEM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The following is a listing of the major water system deficiencies and recommended improvements which have been identified in the existing water system. A more detailed description of these deficiencies and related improvements can be found in CHAPTER 8.

SUPPLY

Water Rights – A City's water right status is crucial in determining the amount of possible future growth. Currently, Grandview has annual rights (Q_a) of 4,640 acre-feet per year and instantaneous rights (Q_i) of 6,955 gpm. As discussed in CHAPTER 3, current water rights are adequate in providing for existing and projected year 2042 demands.

As discussed in CHAPTER 1, the City currently requires that any proposed new development, which will exceed the City's current water right capacity, to transfer any water right the developer may hold to the City, prior to approval of the new development.

Industrial water consumption is still the highest among all user categories and projected future demands will need to be closely monitored by the City.

Source Well Capacity – Grandview's source wells have decreased in capacity since original construction and previous rehabilitation projects. If all source wells were to operate at original capacity, total production would equal 5,420 gpm. However, the current system source well capacity is 3,299 gpm. The year 2021 source capacity is inadequate to meet anticipated average day and maximum day demands until 2032.

STORAGE

Storage Capacity – The City's reservoir storage capacity is sufficient for current demands, but inadequate to meet the 10-year and 20-year projected demand. Based on projected growth, additional water storage capacity will be needed to meet year 2032 system demands and associated storage requirements. Other alternatives may be investigated at the City's request.

Reservoir Cleaning and Maintenance – Both City reservoirs should be inspected and cleaned, based on a five-year maintenance cycle. The 3.0 MG standpipe reservoir was last cleaned in 2019 and painted in 1990. The elevated 0.5 MG reservoir was last rehabilitated in 2007, including interior and exterior painting, new hatch, catwalk, and overflow modifications.

DISTRIBUTION

Fire Flow Capacity – Figure 3-3 identifies existing system fire flow capacities along with the minimum fire flow requirements for regions within the City. As shown on the figure, some locations are deficient based on the computer hydraulic model. Refer to CHAPTER 8 for suggested improvements to address deficiencies.

Water Main Upsizing and Replacement – Most of the deficiencies identified shown in Figure 3-3, can be addressed by upsizing water mains. Suggested improvements for water main upsizing are shown in CHAPTER 8.

Pressure – The existing City of Grandview domestic water system consists of one distribution pressure zone between elevations 740 feet and 840 feet above sea level, as shown in Figure 3-1 Water System Service Area/Elevations Map. The static pressure level ranges from 30 to 87 psi.

TELEMETRY

Grandview's telemetry control system was updated in 2015 consisting of hardware and software upgrades to the City's existing HMI computer. Additional phases of work are planned to continue improving the City's telemetry system. Phase 2 telemetry improvements will consist of servicing, replacing, and adding chlorination system equipment, submersible level transducers, and door intrusion sensors to existing source controls. Phase 3 telemetry improvements will consist of installing telemetry control panels and radios at sources S01 and S11. Additional information on planned telemetry improvements is available in CHAPTER 8.

PROPOSED WATER SYSTEM FINANCIAL PROGRAM

Recommended system improvements are scheduled for completion in annual increments for the next ten (10) years, as shown in Table 8-1 and Table 8-2 in CHAPTER 8. Scheduling of the remaining improvements beyond this ten-year period needs to be reviewed yearly as priorities and City growth patterns change and progress. Major recommended improvements for future years (2033 through 2042) have been estimated but not scheduled at this time. The estimated improvement costs are provided in Table 8-1 and Table 8-2, as well as the total projected yearly cost.

To fund the recommended water system improvements discussed in this Plan, a proposed financial program has been developed and is provided in Table 9-4 in CHAPTER 9. The proposed financial program incorporates projected operations, improvements, and loan costs for the next ten-year period. Projected revenues and expenditures of the water system include growth factors and inflation rates, in addition to the recommended rate increases, to account for estimated growth within the City, as discussed in CHAPTER 9.

The City of Grandview will continue annual reviews of the water system's financial program during their budget preparation process. The financial program will also be reviewed and revised as needed during the next update of the *Water System Plan*. This continued review will allow for modifications to the proposed rate and revenue increases, should financial conditions change.

CHAPTER 1 -

DESCRIPTION OF THE WATER SYSTEM

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1.1 OWNERSHIP AND MANAGEMENT

1.1.1 Water System Ownership

The City of Grandview, a municipal corporation located within the south-eastern part of Yakima County as shown in Figure 1-1 State Vicinity Map, owns and operates its own water system. Decisions regarding daily water system operations are made by the City Administrator/Public Works Director. Financial decisions regarding major water system improvements and establishment of water rates are made by the Grandview City Council. The following parties are involved in the operation, maintenance, and planning for the Grandview water production, storage, and distribution facilities:

WATER SYSTEM NAME, OWNER, OPERATOR, AND IDENTIFICATION NUMBER:

City of Grandview Water System

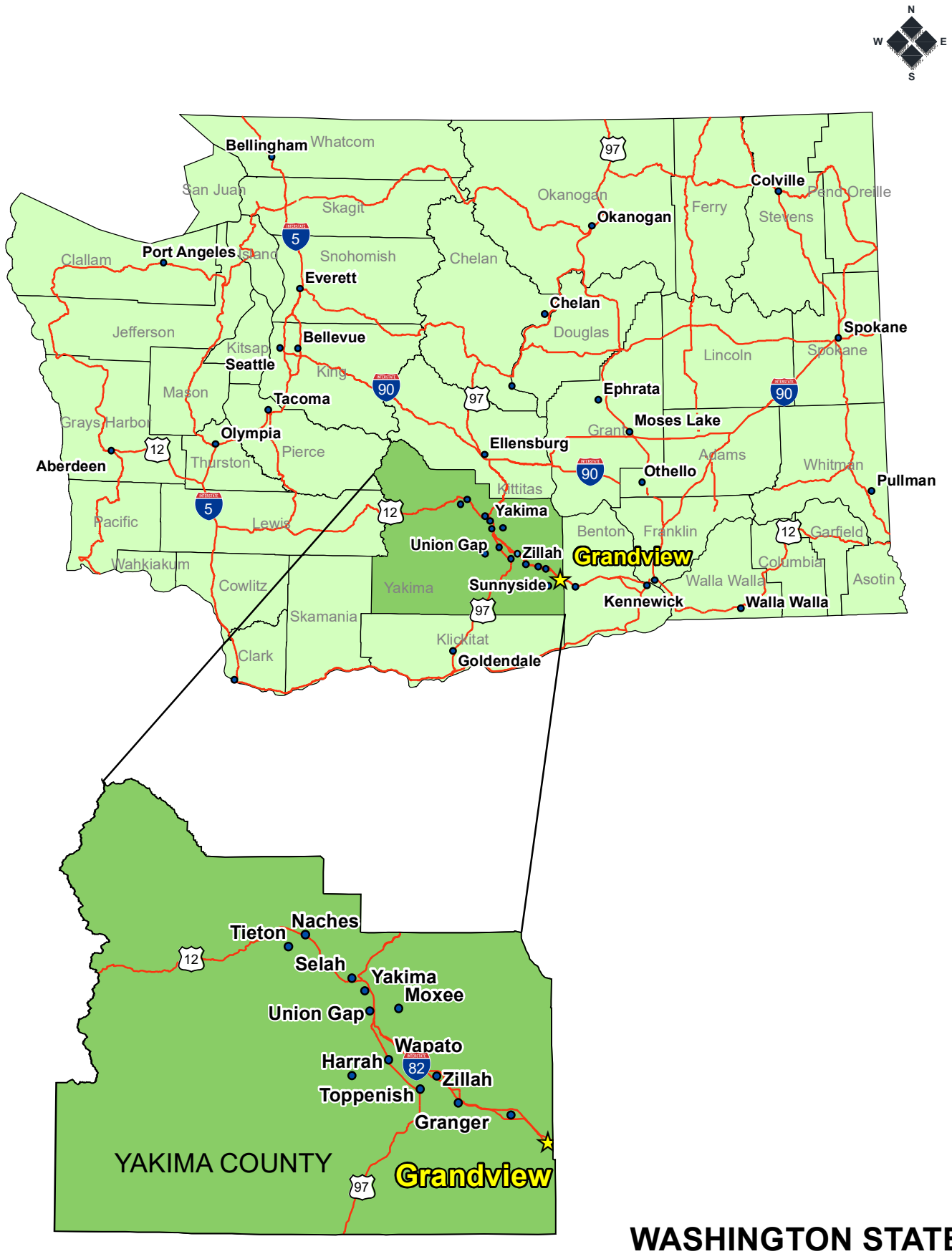
City of Grandview
207 W. 2nd Street
Grandview, WA 98930
Phone: (509) 882-9213

Mayor: Gloria Mendoza
City Administrator/Public Works Director: Cus Arteaga, WDM3 #3401
Assistant Public Works Director: Todd Dorsett
Public Works Foreman: Hector Mejia, WDM1 #14443
Water System Identification Number: 28970 J

WATER SYSTEM CONSULTING ENGINEER:

HLA Engineering and Land Surveying, Inc. (HLA)
2803 River Road
Yakima, WA 98902
Phone: (509) 966-7000
Project Engineer: Justin L. Bellamy, PE

A description of the City's water system management structure is presented in CHAPTER 6. A copy of the City's Water Facility Inventory (WFI) form is included in CHAPTER 10.



WASHINGTON STATE VICINITY MAP FIGURE 1-1

CITY OF GRANDVIEW

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P:\arcview\2021\21033 Grandview WSP\FIG 1-1a.mxd

1.2 SYSTEM HISTORY AND BACKGROUND

1.2.1 History of Water System Development and Growth

Table 1-1 provides some information as to the development of the City's water system.

TABLE 1-1 MAJOR WATER SYSTEM IMPROVEMENTS

Year	Improvement Description
1913	City water system constructed
1935	Work begun on pressure irrigation system
1950	500,000-gallon elevated tank reservoir constructed
1952	Orchard Tract Well constructed
1962	Safeway Well and Springs Well constructed
1965	Cohu Well constructed
1969	Highland Well constructed
1974	Comprehensive Water Plan by Walter Woodward completed
1978	North Willoughby Well constructed
1982	South Willoughby Well constructed
1989	5th Street water main replaced
1989	Interior of 3,000,000-gallon storage tank reservoir repainted
1990	Avenue E water main replaced (2nd Street to 5th Street)
1991	Butternut Well constructed
1992	Bonnieview Road transmission project (Euclid Road to Avenue B) completed
1992	Birch Street – 5th Street – Welch Plant transmission main project completed
1998	Elm Street water main extension project completed
1999	3rd Street water main replacement project completed
1999	Wine Country Road – Viall Road water main project completed
1999	Eastside transmission main project completed
1999	Appleway Road water main replacement project completed
2000	Cohu Well, Highland Well, and Pecan Well rehabilitation project completed
2001	Stover Road water main improvement project completed
2002	Bethany Road water main improvement project completed
2005	Orchard Tracts Well and Springs Well rehabilitation project completed
2006	Balcom Well and Velma Well redevelopment project completed
2007	South Willoughby Well rehabilitation project completed
2007	500,000-gallon elevated tank reservoir rehabilitation project completed
2009	Grandridge Area Street and Water Main Improvements – Water main replacement
2010	"Alive" Downtown Improvement – Water main replacement
2012	North Birch Street Neighborhood – Water main replacement
2013	Euclid Road – Apricot Road to Groom Lane – Water main replacement
2014	Bonnieview Road – Wilson Highway to Madison Drive – Water main replacement
2014	Old Inland Empire Water Improvements
2014	Water system plan update
2015	Water telemetry system upgrades
2016	Water telemetry system upgrades – phase 2A
2017	Asahel Curtis Well (S17) rehabilitated
2021	South Willoughby Well (S13) pump rebuilt and motor, VFD, and meter replaced

Grandview's first *Comprehensive Water System Plan (*CWP*)*, completed in 1974, provided the City with an in-depth look at its water system, deficiencies, and potential growth. Updates to the 1974 CWP were completed in 1986, 1995, 2001, 2008, and again in 2015. This *2022 Water System Plan* is intended to update the *2015 Water System Plan*.

TABLE 1-2 WATER SYSTEM GROWTH SUMMARY

	Year							% Increase 1985-2013
	1985	1993	2000	2007	2010	2013	2020	
Population*	6,344	7,590	8,377	9,408	10,862	11,010	11,762	173.5%
Total Water Services	2,150	2,219	2,425	2,796	2,739	2,788	2,991	29.7%
Total Annual Metered Consumption (MG)	505	765	681	614	554	582	646	15.2%
Total Source Capacity (MGD)	5.98	6.84	6.84	6.84	7.85	7.85	4.75	31.3%
Total Storage Capacity (MG)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	0.0%
* Based on Washington State Office of Financial Management (OFM) census data and estimates.								

1.2.2 Geography

The City of Grandview and its Urban Growth Area are in the Lower Yakima Valley, the south-eastern part of Yakima County, in the south-central portion of Washington State, as shown on Figure 1-1. The City lies along Interstate 82 between the City of Sunnyside, approximately six miles to the northwest, and the City of Prosser, approximately six miles to the southeast.

Grandview lies north of the Yakima River, between the Rattlesnake Hills to the north and the Horse Heaven Hills to the south. The topography in Grandview is relatively flat, sloping generally from the northeast to the southwest. A few rolling hills exist, mostly in the southern areas of the City. Ground elevations vary from 840 feet to 740 feet above sea level within the existing City limits.

Like the rest of the Yakima Valley, Grandview and its Urban Growth Area have a warm and dry climate. The Cascade Mountain Range acts as a barrier between Yakima County and the Pacific Ocean, Keeping precipitation low and temperatures warm. The mean annual temperature from 2015 to 2020 ranges from 39.8°F to 63.9°F with an extreme minimum of -1.0°F and extreme maximum of 103.8°F. The median temperature is 52.0°F and mean annual precipitation is 6.6 inches (*AgWeatherNet*, Grandview). With a warm climate and rich volcanic soils, Yakima County is a significant agricultural region, as well as a recreational area.

Grandview's economy depends largely on the agricultural industry. Fruit and produce grown locally are processed, packaged, and shipped from Grandview's industries. The City also has a viable commercial and service business community.

1.2.3 Ordinances/Bylaws

The City of Grandview operates its water system in accordance with the following municipal code chapters and ordinance(s):

Chapter 13.04	General Provisions
Chapter 13.18	Cross-Connection Control
Chapter 13.24	Water Service Regulations
Chapter 13.28	Rates and Charges
Chapter 13.30	Low-Income Senior Citizens and Low-Income Disabled Persons Utility Rates
Chapter 13.32	Cross-Connections to Water System (Repealed by Ord. 1649)
Chapter 13.36	Water Use
Chapter 13.40	Capital Facilities Plan for Public Works Facilities
Chapter 13.44	Recommended Standards for Water Works
Resolution 2012-59	Yakima River Basin Integrated Water Resource Management Plan
Resolution 2010-8	Sunnyside Division Water Rights Settlement Agreement

Copies of these Grandview Municipal Code chapters and ordinance(s) are included in CHAPTER 10.

1.3 RELATED PLANS

1.3.1 Previous Comprehensive Water Plans

The City's first Comprehensive Water Plan was completed in 1974, which provided Grandview with an in-depth look at its water system, deficiencies, and potential growth. Updates to the *1974 Comprehensive Water Plan* were completed in 1986, 1995, 2001, 2008, and 2015.

1.3.2 Water System Plans for Adjacent Water Systems

No other Group A water systems exist within Grandview's Urban Growth Area. The City of Sunnyside, located six miles northwest of Grandview, adopted its current water system plan in 2016. The City of Mabton, located five miles to the southwest, adopted its current water system plan in 2013, and the City of Prosser, located six miles to the southeast, adopted its current water system plan in 2016. There are currently no water service area agreements between these neighboring communities and the City of Grandview.

1.3.3 Urban Growth Area Comprehensive Plan

The City of Grandview completed and adopted its Growth Management Act (GMA) comprehensive plan in 1995 and adopted revisions to the original GMA Plan in 2008 and 2016. This Plan identifies many of the physical, environmental, and economic elements within the City and its Urban Growth Area and attempts to forecast anticipated changes within that geographical area. Understanding and predicting future changes within the City and its Urban Growth Area are critical in forecasting future demands on the City's water system. The City's existing GMA Plan, and information currently being developed for its future Plan, are important tools and have been used in developing this Comprehensive Water Plan.

1.3.4 Wellhead Protection Program

In 2000, the City of Grandview completed its Wellhead Protection Plan. This plan identifies potential sources of contamination near ground water supplies, proposes management strategies to prevent contamination of those supplies, and develops a contingency plan for contamination mitigation if ground water becomes contaminated. The document contains the following elements:

1. Identification of the wellhead protection areas for each well.
2. An inventory of potential ground water contaminant sources.
3. A contingency plan which includes short and long-term alternate water sources, and emergency and spill response procedures; and
4. A local wellhead protection management plan.

A copy of the Wellhead Protection Plan is available at the Public Works office. Grandview's Wellhead Protection Plan was last updated in 2014. The potential contaminate list has been updated as part of this plan. Refer to CHAPTER 5 for additional information.

1.3.5 General Sewer Plans

In 1997, the City of Grandview completed a General Sewer Plan for the City and its Urban Growth Area. The General Sewer Plan was updated in 2011 and is in the process of being updated. This document:

1. Describes existing and future sewer service areas (Urban Growth Area).
2. Describes existing conditions including the condition and location of existing trunk and interceptor sewers, pumping stations, the collection system, current system operation and maintenance, and problem areas.
3. Forecasts future wastewater loadings based upon growth projections.
4. Recommends a wastewater system improvement plan and a financial plan; and
5. Includes design standards for recommended wastewater collection system improvements.

The General Sewer Plan provides Grandview with one component of its Capital Improvement Plan for providing future services within both the City and its Urban Growth Area and is the wastewater counterpart to the Water System Plan.

1.3.6 Watershed Plan

In 1998, the Washington State Legislature passed the Watershed Planning Act (RCW 90.82), providing a framework for developing local solutions to water issues on a watershed basis. Framed around watersheds, this voluntary comprehensive planning process was designed to allow local citizens, governments, and tribes to form watershed management planning units to develop watershed management plans.

The watershed planning process consists of three phases. In Phase 1 (Organization), initiating governments (the counties, largest city, and largest water utility in the watershed) identify and appoint Watershed Planning Unit members who represent water resource interests within the watershed. Phase 1 activities also include the development of operating and decision-making structures and goals, and development of a scope of work for Phase 2.

Phase 2 (Technical Assessment), directed by the watershed planning unit, focuses on developing strategies for improving water quality, protecting, or enhancing fish habitat, setting instream flow recommendations, and applies for funding for the collection, management and distribution of data. Phase 2 is at least a one-year process.

Phase 3 (Plan Development and Approval) requires actual development of the watershed plan. The plan must include water supply strategies to meet minimum flows for fish and to provide for future out-of-stream uses. Phase 3 is at least a one-year process.

The City of Grandview is in the Lower Yakima River Basin Watershed Planning Area (WRIA 37). In 1998, the Yakima River Basin Watershed Planning Unit was formed to develop a comprehensive watershed management plan for the entire Yakima River Basin and the Naches River Basin watersheds. In December 2002, the Watershed Planning Unit completed and approved the *Yakima River Basin Watershed Management Plan* (Phase 3 of the planning process) and forwarded the Plan to the county commissioners of Yakima, Benton, Klickitat, and Kittitas Counties. In late 2005, Yakima, Benton and Klickitat Counties approved and adopted the Plan, while Kittitas County opted to withdraw from the process. The watershed plan contains no obligations for county or state agencies. There is not an operating lead agency for the purposes of adopted watershed plan implementation needs. Instead, water quantity-related plan implementation needs are being addressed by the Yakima River Basin Water Enhancement Project working group.

In 2009, Department of Ecology (Ecology) and Bureau of Reclamation formed the Yakima River Basin Water Enhancement Project Working Group to help develop a solution to the basin's water problems. The group includes the Yakama Nation, irrigation districts, federal, state, county, and city governments, and environmental organizations. The group developed the *Yakima River Basin Integrated Water Resource Management Plan* (YBIP). Elements of the YBIP include construction of fish passages at dams, habitat restoration, watershed protection, development of new surface water retention and groundwater storage, enhanced agricultural and municipal water conservation programs, and more effective water banking processes. In total, approximately $3.8 billion is needed to complete the priority projects identified in the YBIP.

The *Final Programmatic Environmental Impact Statement* (FPEIS) was issued in March 2012 for the YBIP. The FPEIS evaluates two alternatives to meet the water supply and environmental needs in the Yakima River Basin: "No Action Alternative" and "Yakima River Basin Integrated Water Resource Management Plan Alternative," the latter as the preferred alternative.

In July 2013, the Legislature approved more than $130 million in state funding to advance the YBIP. The funding will purchase 50,000 acres of privately owned timber land in the Teanaway River basin, east of Cle Elum, helping to preserve the area's watershed.

The City of Grandview's *Water System Plan* is consistent with the YBIP. In showing support of the YBIP, the City Council passed Resolution 2012-59 in December 2012.

1.4 SERVICE AREA

Grandview's service area is where the water system currently provides service, and where the City plans to provide service in the future. The City's existing service area and Retail Service Area generally corresponds to the City Limits as shown in Figure 1-2. Grandview's Urban Growth Area (UGA) boundary, as adopted in the City's 2016 Comprehensive Plan, shows the projected future area the City expects to provide and maintain water services in the next 20 years. The City's Service Area/UGA boundary also represents its water rights place of use. The location of the City's existing source wells is also shown on Figure 1-2 for reference.

1.4.1 Neighboring/Adjacent Purveyors

According to DOH records, three small water systems are currently operating within Grandview's Urban Growth Area. Information on these small water systems is presented in Table 1-3.

TABLE 1-3 NEIGHBORING SMALL WATER SYSTEMS

Name Location	System ID No.	Group Type	Residential Population	Approved Connections	Number of Sources	Permit Status
Bill Garrison Water System 571 Forrest Road	05180	B	6	2	1	unknown
Wagon Wheel Inn Sec 15 T9N R23E	92064	B	10	undetermined	1	unknown
J & R Apartments 751 E. Bonnieview Road	18117	B	13	undetermined	1	unknown

Other residences currently within Grandview's Urban Growth Area, which are not connected to the City's water system or to one of these other small systems, utilize individual wells for water supply. Extension of water service to neighboring small water systems (including existing system consolidation) and residences within the City's current and future service area will be in accordance with the applicable service area policies provided in Section 1.5.

Neighboring municipal water systems in the area include the City of Sunnyside (DOH water system ID No. 85400), located approximately six miles to the northwest, the City of Mabton (DOH water system, ID No. 49650), located approximately five miles to the southwest, and the City of Prosser (DOH water system ID No. 85400), located approximately six miles to the southeast. As of 2001, the City of Grandview entered an Interlocal Agreement with the City of Sunnyside and City of Prosser whereby neighboring purveyors are allowed to obtain water under provisions found in Resolution 2001-33 (see Chapter 10).

CITY OF GRANDVIEW

Water System Plan Update

SERVICE AREA MAP

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LEGEND

- CITY LIMITS / RETAIL SERVICE AREA
- SERVICE AREA BOUNDARY (UGA) AND WATER RIGHT PLACE OF USE
- EXISTING SOURCE WELL
- EXISTING RESERVOIR

CITY OF GRANDVIEW

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FIGURE 1-2

1.4.2 Existing Zoning and Future Land Use

The existing water system serves a combination of residential, commercial, industrial, and public users. The Grandview City Limits, including the wastewater treatment plant, which is not served by the water system, are approximately 3,724 acres. Existing zoning within the City is presented in Table 1-4, and is shown in Figure 1-3**.**

TABLE 1-4 EXISTING ZONING WITHIN GRANDVIEW CITY LIMITS

Land Use Category	Total Acreage*	Percent of Total
Single-Family Residential (R-1)	719.90	19.33%
Single Family Residential Mobile Home (R-1M)	--	--
Duplex-Family Residential (R-2)	72.24	1.94%
Multi-Family Residential (R-3)	82.91	2.23%
Mobile Home, Platted (MR-1)	7.19	0.19%
Mobile Home Park (MR-2)	73.90	1.98%
Light Commercial (C-1)	2.95	0.08%
Commercial (C-2)	190.71	5.12%
Light Industrial (M-1)	779.47	20.93%
Heavy Industrial (M-2)	77.80	2.09%
Agricultural (AG)	355.96	9.56%
Public Facility (PF)	1359.40	36.50%
PUD	1.84	0.05%
TOTAL	3,724	100.0%

* Source: Yakima County Geographic Information Services, February 2021.

As shown in Table 1-4, Public Facility (PF) is the largest zoning total within the City, comprising approximately 1,359 acres (36.5% of the land within the City Limits), which is largely the wastewater treatment plant area. Light Industrial (M-1) is the second-largest area, totaling approximately 779 acres (20.9%). Of the residential lands, Single-Family Residential (R-1) lands make up the largest area, approximately 720 acres (19.3%) of the total area within the City. Agricultural (AG) land also has a large presence in the City of Grandview, approximately 356 acres (9.6%). Commercial (C-2) zoned land in the City of Grandview totals approximately 191 acres (5.1%).

The City of Grandview UGA includes an area of approximately 4,792 acres total, 2,000 acres of which is outside the City Limits. The wastewater treatment plant is designated as within City Limits, but not within the UGA. A breakdown of future land use within the City Limits is provided in Table 1-5 and future land use within the UGA is presented in Table 1-6.

TABLE 1-5 FUTURE LAND USE WITHIN GRANDVIEW CITY LIMITS

Land Use Category	Total Acreage*	Percent of Total
Residential	991	28%
Low Density Residential	70	2%
Commercial	203	6%
Industrial	870	25%
Public	1,367	39%
TOTAL	3,506	100.0%

* Source: Yakima County Geographic Information Services, September 2014.

TABLE 1-6 FUTURE LAND USE WITHIN GRANDVIEW UGA*

Land Use Category	Total Acreage*	Percent of Total
Residential	365	21%
Low Density Residential	637	37%
Commercial	107	6%
Industrial	614	36%
Public	0	0%
TOTAL	1,723	100.0%

*Source: Yakima County Geographic Information Services, September 2014.

As shown in Table 1-5, public area is the largest future land use within Grandview's City limits comprising of approximately 1,367 acres (39%), and as shown in Table 1-6, Low Density Residential area is the largest future land use within Grandview's UGA, comprising of approximately 637 acres (37%) of the land within the UGA. Figure 1-3 below shows the City's future land use.

CITY OF GRANDVIEW

Water System Plan Update

EXISTING ZONING MAP

N W E S

0 1100 2200

LEGEND

- EXISTING CITY LIMITS
- SERVICE BOUNDARY (UGA)
- (AF-1) AGRICULTURAL FOREST
- (C-1) NEIGHBORHOOD BUSINESS
- (C-2) GENERAL BUSINESS
- (C-2) HIGHWAY COMMERCIAL
- (M-1) LIGHT INDUSTRIAL
- (M-2) HEAVY INDUSTRIAL
- (MR-1) MOBILE HOME PARK
- (PF) PUBLIC FACILITY
- (PUD) PLANNED UNIT DEV.
- (R-1) SINGLE FAMILY RESIDENTIAL
- (R-1M) SINGLE FAMILY / MANUFACTURED HOME
- (R-2) MEDIUM DENSITY RESIDENT.
- (R-3) HIGH DENSITY RESIDENTIAL

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FIGURE 1-3

CITY OF GRANDVIEW

Water System Plan Update

FUTURE LAND USE MAP

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W E
S

0 1100 2200

LEGEND

- EXISTING CITY LIMITS
- SERVICE BOUNDARY (UGA)
- INDUSTRIAL
- LOW DENSITY RESIDENTIAL
- COMMERCIAL
- HIGHWAY COMMERCIAL
- PUBLIC
- RESIDENTIAL

CITY OF GRANDVIEW

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FIGURE 1-4

1.5 SERVICE AREA POLICIES

Many policies are established by a utility which affect its growth and development. Some policies deal specifically with drinking water and have a direct impact upon utility development within its future service area. The City of Grandview has identified the following policies which directly or indirectly affect the water system:

1. The City will make every effort to provide domestic water service to new customers within Grandview's future service area (Urban Growth Area) under the following conditions:

    - All costs associated with providing water service, e.g., extending water mains to the site, shall be the responsibility of the proponent/developer. Requirements to be met by proponents/developers when extending the City's water system are identified in "Extension by Developers" which is provided in the Miscellaneous Documents (CHAPTER 10).
    - The City may choose to participate in such improvements through grant, loan, and/or City funding on a case-by-case basis, if it is determined that such an investment is in the interests of the community.
    - The City maintains adequate water rights capacity per DOH required "water rights self-assessment" to serve the proposed property/properties.
    - The City maintains adequate physical source and/or storage capacity to serve the proposed property/properties.
    - The proponent/developer shall transfer all potable water rights associated with the property/properties to the City.
    - The proponent/developer shall "decommission" all groundwater wells on the property in accordance with the applicable Washington Administrative Code (WAC) requirements unless a well is to become part of the City's water system.
    - The proponent/developer shall allow the City the opportunity to purchase any irrigation water rights/shares associated with the property/properties prior to offering said irrigation rights/shares to any other interested party.

2. The City may choose to require a water main extension to be oversized for future demand. The difference in material and construction costs between the two sizes may be paid for by the City, or it may enter into an agreement requiring those costs to be repaid by the future users.

3. Service will not be provided to proposed structures which have fire flow requirements greater than the capacity of the system. The cost of upgrading the existing water system which is required by a development to meet fire flow requirements shall be the responsibility of the developer including, but not limited to:

    - Upsizing existing water mains.
    - Looping the distribution system by installing new water mains.
    - Increasing storage and/or pumping capacities.

4. The City will administratively assist property owners who wish to establish a Local Improvement District for the purposes of constructing water system improvements.

5. In accordance with Chapter 13.28.170 of the Grandview Municipal Code, the City has established a Line Extension/Latecomer Provision for extension of water mains. A copy of this ordinance is provided in Chapter 10.

6. The City will not wholesale water to other utilities. The terms and conditions of the service shall be negotiated and formalized in a written agreement at the time service is requested. The City's water rights will be adjusted as part of the terms and conditions of any wholesaling of water.

7. The City will not allow its mains to be used to transmit another water purveyor's water through the City's system to other non-City water users (wheeling of water).

8. The City may provide water service to properties outside the City Limits in accordance with Chapter 13.28.010 of the City Municipal Code, a copy of which is provided in the Miscellaneous Documents (CHAPTER 10). The "outside customers" will be assessed water rates which are higher than those charged to customers within the City Limits.

9. As a prerequisite to obtaining domestic water service, the City requires property owners of existing lots of record to connect to sanitary sewers which are within 200 linear feet or less of the nearest property corner. Should sanitary sewer not be available within 200 linear feet, the property owner shall be required to sign a waiver prohibiting the property owner from opposing a future Local Improvement District (LID) for sewer service.

10. The City may choose to manage and operate or provide specific contract services for a satellite water system outside the City Limits but within the City's service area. In making its decision, the City will take into consideration such factors as:

    * Construction materials, standards, and specifications of the satellite system.
    * Condition of the various components of the satellite system including, but not limited to, pipes, valves, pumps, reservoirs, and sources of supply.
    * Easements and access of the satellite system.
    * Fire protection capability of the satellite system.
    * Cross-connection control of the satellite system.
    * Specific operation, management, or contract service responsibilities to be provided; and
    * Conditions for assuming management and operation of the satellite system.

    City operation of satellite systems will be made on a case-by-case basis. In those cases where agreements for City operation are reached between the City and the satellite system, contracts for ownership, operation, and maintenance will be developed and included within the Miscellaneous Documents (CHAPTER 10).

11. The City shall not accept ownership or operation of existing private water systems annexed into the City unless said systems meet the City of Grandview standards. Substandard systems shall be upgraded or replaced prior to integration into the City's water system.

12. Newly annexed properties will transfer the balance of unused domestic and/or irrigation water rights to the City.

1.5.1 Service Area Agreements

There are currently no other large water purveyors within Grandview's Urban Growth Area (UGA) boundary. In addition, Grandview currently has no water service area agreement with its nearest municipal neighbors, the City of Sunnyside, the City of Mabton, or the City of Prosser. Further, the City of Grandview has no intention to connect its water system to that of its neighbors

1.5.2 Conditions of Service

The City of Grandview has a water service application form, available at the Public Works Department, which includes water service charges and billing information. Other information regarding conditions of service such as developer extension requirements, meter and material specifications, connection fee schedule, cross-connection control requirements, and latecomer payback provisions (if applicable) are presented to builders and developers when they apply to the City for building permits.

1.5.3 Satellite Management Agencies

As discussed previously in Section 1.6, the City of Grandview may, in the future, choose to manage and operate a satellite water system outside the City Limits, but within the City's Urban Growth Area boundary. However, the City has no specific plans at this time to become a satellite management agency. When Grandview has specific plans to manage and/or operate a satellite water system, the City will develop a Satellite Management Program.

1.5.4 Complaints

Grandview operates and maintains a written record of water system complaints. This system is administered by the City's Public Works Department. Grandview's complaint response program is discussed in more detail in CHAPTER 6.

1.6 DUTY TO SERVE

The City of Grandview recognizes that municipal water suppliers have a duty to provide service to all new connections within their retail service area when sufficient water rights and capacity exists, when the service request is consistent with the City code, and when service can be provided in a timely and reasonable manner. Each of these factors is discussed within this *Water System Plan*.

The City of Grandview is committed to providing water service to those persons and commercial and industrial establishments in accordance with City Municipal Code Chapters 13.04, 13.18, 13.24, 13.28, 13.30, 13.36, 13.40, and 13.44. Copies of these City codes and ordinances are included in CHAPTER 10.

The Public Works Department receives and reviews service requests for consistency with adopted local plans and development regulations such as the City's *Water System Plan*, *GMA Comprehensive Plan,* and the *Extension by Developers Policy*. The requested service's location is compared to the City's Retail Service Area, City Limits, and Urban Growth Area Boundary. Large water service requests (i.e. a new industry, residential development, etc.) are reviewed by the City's Engineer for consistency with water rights, pressures, and fire flows.

The following is a summary of the City's procedures for addressing requests for water service:

Service Requests – Applications for water service within the City and within the UGA are addressed (either by an approval or through a request for additional information) within thirty (30) days and in accordance with City Code Chapter 13.24.010. Applicants are required to complete a request for service form furnished by the City.

Water Rights Adequacy – Each application for water service is reviewed by the City to determine the amount of water requested, and that the City has sufficient water rights and capacity to provide service.

Conditions of a Non-Technical Nature – Conditions for connection to the City's water system are addressed in accordance with City Code Chapters 13.04, 13.24, 13.28, 13.30, and 13.36. Copies of these City code chapters are included within the Miscellaneous Documents (CHAPTER 10).

Procedures for Handling Time Extensions, Disputes, and Appeals – The City currently has no procedures established for addressing denial of water service, as denials have never occurred. Such procedures will be developed as needed.

1.7 LOCAL GOVERNMENT CONSISTENCY

Local government consistency review was completed by City planning staff and Yakima County in accordance with WAC 246-290-100(7) to ensure consistency between the water system plan and local comprehensive plans, development regulations, and other local codes. Consistency review is also necessary to support orderly planning and development, minimizing conflicts and legal entanglements. Yakima County's review is discussed further in Section 2.5.1, and copies of the completed and signed Local Government Consistency Determination forms (DOH 331-568) are provided in Chapter 10.

CHAPTER 2 -

BASIC PLANNING DATA

HLA
Engineering and Land Surveying, Inc.

2.1 CURRENT POPULATION, SERVICE CONNECTIONS, AND ERUS

2.1.1 Current Population

According to the U.S. Census Bureau, the 2010 population of the City of Grandview was 10,862, an increase of 29.7%, or 2,485 people since 2000. The resulting average annual growth rate for the period 2000-2010 is approximately 2.6%. This ten-year growth rate is relatively consistent with previous decades. Population trends in the City of Grandview, Yakima County, and the State of Washington for the period 1910 through 2010 are presented in Table 2-1.

TABLE 2-1 CENSUS POPULATION TRENDS

Year	City of		Yakima County		State of Washington	
	Population*	Percent Change	Population	Percent Change	Population	Percent Change
1910	320		41,709		1,141,990	
1920	1,011	215.9%	63,710	52.7%	1,356,621	18.8%
1930	1,085	7.3%	77,402	21.5%	1,563,396	15.2%
1940	1,449	33.5%	99,019	27.9%	1,736,191	11.1%
1950	2,503	72.7%	135,723	37.1%	2,378,963	37.0%
1960	3,366	34.5%	145,112	6.9%	2,853,214	19.9%
1970	3,605	7.1%	145,212	0.1%	3,413,244	19.6%
1980	5,615	55.8%	172,508	18.8%	4,132,353	21.1%
1990	7,169	27.7%	188,823	9.5%	4,866,692	17.8%
2000	8,377	16.9%	222,581	17.9%	5,894,121	21.1%
2010	10,862	29.7%	243,231	9.3%	6,724,540	14.1%

Source: U.S. Census Bureau

Every year, the Washington State Office of Financial Management (OFM) develops population estimates for the state, individual counties, and all cities. OFM population estimates for Grandview, Yakima County, and the State of Washington for the period 2011 through 2020 are presented in Table 2-2.

TABLE 2-2 OFM POPULATION TRENDS						
Year	City of		Yakima County		State of Washington	
	Population	Percent Change	Population	Percent Change	Population	Percent Change
2011	10,920	0.5%	244,700	0.6%	6,767,900	0.6%
2012	11,000	0.7%	246,000	0.5%	6,817,770	0.7%
2013	11,010	0.1%	247,250	0.5%	6,882,400	0.9%
2014	11,170	1.5%	248,800	0.6%	6,968,170	1.2%
2015	11,200	0.3%	249,970	0.5%	7,061,410	1.3%
2016	11,160	-0.4%	250,900	0.4%	7,183,700	1.7%
2017	11,170	0.1%	253,000	0.8%	7,310,000	1.7%
2018	11,180	0.1%	254,500	0.6%	7,427,570	1.6%
2019	11,200	0.2%	255,950	0.6%	7,546,410	1.6%
2020[1]	11,230	0.9%	258,200	0.9%	7,656,200	1.4%

Source: Washington State Office of Financial Management (OFM)
[1] City of Grandview 2016 Comprehensive Plan estimates an adjusted 2020 population of 11,762 people.

The OFM estimated that the total population within the City of Grandview in 2015 was 11,200, which is approximately a 0.6% annual increase over the 2010 census value. A decrease in projected population occurred from 2015 – 2016 by 40 people, or -0.4%. The final OFM population estimate for 2020 was 11,230 people. The City of Grandview is the only municipality in Yakima County to have a year with negative projection between 2010 and 2020.

As a result of the adjusted growth rate in the City's 2016 Comprehensive Plan, the 2020 population was modified from the OFM's estimate of 11,230 people to 11,762 people. In 2020, there was an average of 2,257 Single-Family Residential water services, 280 Mobile Home Residential water services (413 dwelling units), 88 Outside Residential water services, and 60 Apartment water services (474 dwelling units). Assuming the average household sizes of these services are similar, the average persons per residential service would be:

$$\frac{11{,}762}{2{,}257 + 413 + 88 + 474} = \mathbf{3.6}\ persons$$

This will be the basis for projecting future population and future water service demands in both the City and UGA.

2.1.2 Existing Water Service Connections and ERUs

The location and user category of each water service are critical components in assessing demands throughout a water system. The current number of metered water services by user category is used as a basis for projecting the number of future water services from population estimates provided in Section 2.1. DOH defines a "service connection" or "connection" as the number of dwelling units (single family and/or multi-family residential) the City provides water to. Equivalent residential units (ERUs) are defined as the amount of water consumed by a typical full-time single-family residential service. More information on ERUs is provided in Section 2.2.5. The average number of metered water services and service connections by user category for the year 2020 is shown in Table 2-3.

TABLE 2-3 YEAR 2020 AVERAGE METERED WATER SERVICES AND SERVICE CONNECTIONS BY USER CATEGORY		
User Category	Metered Services	Service Connections
Residential Connections		
Single-Family Residential	2,257	2,257
Single-Family Residential – Outside	88	88
Mobile Home*	280	413
Apartments**	60	474
Non-Residential Connections		
Commercial	234	234
Industrial	38	38
Government	77	77
Total Connections	3,034	3,581

* All mobile home court units are metered individually except for the Lamplighter mobile home court, which is served by a single 6-inch meter. The total number of mobile home units in the Lamplighter mobile home court is 134. Therefore, the average number of mobile home service connections in 2020 was 413.

** Exact apartment units unknown for years 2014 – 2019. Average of 60 apartment accounts and 474 units total in 2020. Assume 8.0 units average per apartment building.

2.2 WATER PRODUCTION AND USAGE

Current and historical metered water consumption and production data records are the preferred method for determining demand trends and establishing a basis for forecasting future demand. All water system sources and services in the City of Grandview are metered. Production meters are typically read daily, and consumption meters are read monthly.

2.2.1 Existing Water Production

Annual water production by source well for the period 2014 through 2020 is presented in Table 2-4. As can be seen from this table, the City has 14 wells, four of which are inactive. The primary wells which routinely produce over 75 million gallons annually are West Main (S01), Olmstead A (S07), North Willoughby (S10), South Willoughby (S13), and Butternut (S14). Production from Well S13 was increased significantly beginning in 2017 and production from other sources was decreased. However, it was recently determined the source meter inaccurate, resulting in under reported production from this well for several years. The impacts of the inaccurate source meter and resulting negative DSL since 2017 is discussed further in Section 2.3. The S13 source meter was replaced in April 2021.

TABLE 2-4 GRANDVIEW ANNUAL WATER PRODUCTION 2014-2020 *(VALUES ARE IN MILLION GALLONS)*							
Source	2014	2015	2016	2017	2018	2019	2020
West Main (S01)	77.37	78.34	75.49	75.86	74.30	72.90	71.17
Balcom (S02)	20.74	19.88	9.59	15.33	14.78	4.82	33.30
Velma (S03)	55.36	37.26	42.19	41.90	47.56	52.38	53.80
Olmstead A (S07)	105.99	80.86	80.41	34.08	33.50	75.66	1.83
North Willoughby (S10)	155.47	147.12	151.37	106.23	114.50	100.48	100.58
Highland (S11)	14.93	14.34	15.43	0.00	4.40	29.25	20.25
South Willoughby (S13)	0.00	34.17	35.76	154.23	130.72	226.12	187.38
Butternut (S14)	152.15	192.20	165.62	115.18	103.34	20.30	107.20
Ashael Curtis (S17)	0.00	0.00	0.00	43.63	33.50	27.62	41.40
Pecan B (S18)	50.82	40.83	41.63	37.79	33.69	28.17	34.84
TOTAL	632.83	645.00	617.49	624.23	590.29	637.70	651.75

TABLE 2-5 GRANDVIEW MONTHLY WATER PRODUCTION 2020 *(VALUES ARE IN MILLION GALLONS)*													
	JAN.	**FEB.**	**MAR**	**APR**	**MAY**	**JUN.**	**JUL.**	**AUG.**	**SEP.**	**OCT.**	**NOV.**	**DEC.**	**TOT.**
W. Main (S01)	5.25	5.84	6.14	5.91	6.09	5.74	6.08	6.05	5.94	6.22	5.91	6.01	71.17
Balcom & Moe (S02)	0.00	0.00	0.00	0.00	5.67	2.79	1.82	5.75	6.90	7.36	3.03	0.00	33.30
Velma (S03)	4.51	3.72	4.25	4.61	4.76	4.64	4.80	4.79	4.53	4.49	4.43	4.26	53.80
Euclid (S06)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Olmstead (S07)	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83
Appleway (S08)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
N. Willoughby (S10)	5.80	7.46	7.41	9.21	11.20	10.86	11.96	7.89	10.86	3.09	6.05	8.80	100.58
Highland (S11)	2.29	1.89	1.95	1.78	1.82	1.75	0.92	1.36	1.41	1.58	1.59	1.91	20.25
S. Willoughby (S13)	15.79	16.32	17.32	21.42	23.62	20.02	22.52	11.17	8.80	4.33	0.24	25.84	187.38
Butternut (S14)	0.01	0.00	1.34	2.28	3.69	6.00	8.30	21.25	20.88	29.92	12.58	0.96	107.20
Ashal Curtis (S17)	2.77	2.62	2.81	3.25	3.39	3.56	3.89	4.02	3.73	3.93	4.01	3.42	41.40
Pecan (S18)	3.01	2.84	2.79	2.85	2.63	3.03	3.14	3.10	2.86	3.03	2.88	2.67	34.84
TOTAL	41.26	40.69	44.01	51.30	62.87	58.39	63.42	54.20	65.91	63.94	40.73	53.86	651.75

2.2.2 Existing Water Consumption

Currently, water consumption data is maintained by a computer database at Grandview City Hall. Services are divided and billed based upon meter size, relation to city boundary, and consumption. In June 2014, the City updated its billing software. Average service connections in 2014 appear to be less that other years because the previous billing software only recorded active accounts, and not total number of accounts. Therefore, because a greater data set is available for consumption per total number of accounts in each user category, the July 2014 – December 2020 data will be based on total number of user accounts per category. The number of service connections by user category for the period 2014 through 2020 is presented in Table 2-6.

TABLE 2-6 AVERAGE SERVICE CONNECTIONS BY USER CATEGORY 2014-2020

User Category	2014	2015	2016	2017	2018	2019	2020	Average
Residential Connections								
Single-Family Residential	2,193	2,248	2,243	2,247	2,245	2,246	2,257	2,240
Single-Family Residential – Outside	85	85	86	86	87	87	88	86
Mobile Home Units	406	410	410	403	410	410	413	409
Apartment Units	474	474	474	474	474	474	474	474
Non-Residential Connections								
Commercial	209	225	226	225	227	231	234	225
Industrial	33	35	35	35	38	38	38	36
Government	54	73	72	74	75	75	77	71
TOTAL	3,454	3,550	3,546	3,551	3,556	3,561	3,581	3,543

The annual volume of water consumed (in million gallons per year) by user category for the period 2014 through 2020 is presented in Table 2-7.

TABLE 2-7 ANNUAL WATER CONSUMPTION BY USER CATEGORY 2014-2020
(values are in million gallons per year)

User Category	2014	2015	2016	2017	2018	2019	2020	Average
Single-Family Residential	181.03	181.43	179.20	173.15	180.72	184.05	186.19	180.83
Single-Family Residential – Outside	7.61	7.56	7.13	6.98	7.35	7.85	7.68	7.45
Mobile Home Units	28.30	27.58	27.01	27.56	26.98	25.73	26.37	27.07
Apartment Units	38.41	37.20	34.34	31.60	35.51	34.57	39.65	35.90
Commercial	35.27	32.74	31.00	28.34	27.96	33.99	35.11	32.06
Industrial	316.09	293.67	293.63	326.34	360.48	364.29	318.72	324.75
Government	23.79	23.11	23.10	22.18	24.61	23.46	20.46	22.96
TOTAL	630.49	603.29	695.41	616.15	663.61	673.94	634.19	651.23

During the period 2014 through 2020, the total number of services increased from 2,709 to 2,889 (a 6.6% increase), and the volume of water consumption increased from 630.49 MG to 634.19 MG (a 0.6% increase).

The average day water consumption per service by user category (in gallons per service per day) for the period 2014 through 2020 including averages is presented in Table 2-8. It can be seen from Table 2-8 that the average day consumption per service for Government and Industrial user categories has generally increased from 2014 to 2020, while the Commercial user category has decreased. Outside Residential, Apartment, and Mobile Home Court users appear to be consistent, with slight decline when comparing 2014 consumption per service to average consumption per service from 2014 – 2020.

TABLE 2-8 AVERAGE DAY WATER CONSUMPTION BY USER CATEGORY 2014-2020
(values are in gallons per service per day)

User Category	2014	2015	2016	2017	2018	2019	2020	Average
Single-Family Residential	226	221	218	211	221	225	229	222
Single-Family Residential – Outside	245	244	227	222	232	247	241	237
Mobile Home Units	191	184	180	184	180	172	176	181
Apartment Units	222	215	198	183	205	200	200	208
Commercial	462	399	375	345	337	403	424	392
Industrial	26,242	22,988	22,922	25,546	25,990	26,264	23,439	24,770
Government	1,207	867	877	821	899	857	693	889
TOTAL	884	864	824	800	838	844	881	848

2.2.3 Maximum and Peak Consumption

Between the years 2014 and 2020, the largest month of consumption occurred in October 2014 during the peak industrial season when 86.1 MG was used. The largest month of consumption during the peak residential season occurred in July 2015, when 74.4 MG was consumed. These consumption months represent the highest recorded reliable demand. There were a few months that were slightly higher, but not used because DSL was excessively high (likely due to mistiming of monthly meter reads) or they occurred during years with the S13 source meter was inaccurate, resulting in negative DSL. Therefore, the values from 2014 and 2015 are most accurate. For comparison, a breakdown of the maximum consumption per connection for both October 2014 and July 2015 are provided in Table 2-8 and Table 2-9, respectively. The City of Grandview is unique in that while industrial consumption accounts for more than half of the systems current annual demand, the peak usage does not occur in summer, but in the fall when peak fruit harvest occurs. The peak month of July 2015 is more representative of a typical system peak, as opposed to October 2014, which only shows the industrial peak. As a result, data from both peak demand seasons will be utilized throughout the plan. More information on seasonal consumption is provided in Section 2.2.4.

TABLE 2-9 MAXIMUM MONTH WATER CONSUMPTION, OCTOBER 2014					
User Category	No. of Connections	Maximum Month Consumption (gallons)	Average Day Consumption (gallons)	Maximum Month Consumption per Service (gallons)	Average Day Consumption per Service (gallons)
Residential					
Single-Family Residential	2,245	13,861,000	447,129	6,174	199
Single-Family Residential – Outside	86	556,000	17,935	15,904	209
Mobile Home Units	410	2,493,000	80,419	6,080	196
Apartment Units	474	2,992,000	96,516	6,312	204
Non-Residential					
Commercial	221	3,639,000	117,387	16,466	531
Industrial	34	60,057,000	1,937,323	1,766,382	56,980
Government	70	2,505,000	80,806	35,786	1,154
TOTAL	3,540	86,103,000	2,777,516	-	-

TABLE 2-10 MAXIMUM MONTH WATER CONSUMPTION, JULY 2015					
User Category	No. of Connections	Maximum Month Consumption (gallons)	Average Day Consumption (gallons)	Maximum Month Consumption per Service (gallons)	Average Day Consumption per Service (gallons)
Residential					
Single-Family Residential	2,249	30,079,000	970,290	14,128	431
Single-Family Residential – Outside	85	1,320,000	42,581	15,904	501
Mobile Home Units	410	3,732,000	120,387	9,170	294
Apartment Units	476	6,309,000	203,516	13,254	428
Non-Residential					
Commercial	227	5,268,000	169,935	29,596	749
Industrial	35	23,997,000	774,097	888,778	22,117
Government	72	3,667,000	118,290	69,189	1,643
TOTAL	3,554	74,372,000	2,278,710	-	-

The maximum day of recorded water production within the maximum consumption months of October 2014 and July 2015 is used to calculate maximum day demand (MDD). Utilizing the percentage breakdown of demand per user category from the information provided in Table 2-9 and Table 2-10, MDD is calculated as shown in Table 2-11 and Table 2-12.

Peak hour demand (PHD), also shown in Table 2-11 and Table 2-12, was calculated by multiplying the maximum day demand by a peaking factor of 1.8 and dividing by 1,440 minutes per day. A peaking factor of 1.8 is considered reasonably conservative and is consistent with the *2020 Water System Design Manual (WSDM),* Equation 3-1. Using the maximum day of water production to calculate the MDD and PHD for projection of future system demand will account for the highest possible demand on the system, based upon available historical data.

Equation:

$$PHD = (\frac{MDD_{ERU}}{1440})[(C)(N) + F] + 18 \quad \text{(WSDM, Equation 3-1)}$$

Where,

C $= Coefficient\ associated\ with\ range\ of\ ERU = 1.6$ (WSDM, Table 3-1 >500 ERUs)
N_O $= Number\ of\ ERUs\ (October\ 2014) = 13{,}946$ (ERUs for the maximum month)
N_J $= Number\ of\ ERUs\ (July\ 2015) = 5{,}561$ (ERUs for the maximum month)
F $= Factor\ associated\ with\ range\ of\ ERUs = 225$ (WSDM, Table 3-1 >500 ERUs)

$$MDD_{ERU,O} = \frac{3.817\ MG}{13{,}946\ ERUs} = 274\ gpd/ERU$$
$$MDD_{ERU,J} = \frac{2.992\ MG}{5{,}264\ ERUs} = 538\ gpd/ERU$$

Therefore,

October 2014

$$PHD_O = \left(\frac{274}{1440}\right)[(1.6 \times 13{,}946) + 225] + 18 = \mathbf{4{,}307}\ gpm$$

$$Peaking\ Factor_{\ O} = \frac{PHD}{MDDgpm} = \frac{4{,}307\ gpm}{2{,}650\ gpm} = \mathbf{1.63}$$

July 2015

$$PHD_J = \left(\frac{538}{1440}\right)[(1.6 \times 5{,}561) + 225] + 18 = \mathbf{3{,}426}\ gpm$$

$$Peaking\ Factor_{\ J} = \frac{PHD}{MDDgpm} = \frac{3{,}616\ gpm}{2{,}078\ gpm} = \mathbf{1.65}$$

For calculations, a peaking factor of 1.63 is used.

TABLE 2-11 MAXIMUM DAY AND PEAK HOUR WATER CONSUMPTION, OCTOBER 21, 2014

User Category	No. of Connections	Maximum Day Demand (gallons)	Maximum Day Demand per Service (gallons)	Peak Hour Demand (gpm)	Peak Hour Demand per Service (gpm)
Residential					
Single-Family Residential	2,245	614,455	274	693	0.3
Single-Family Residential – Outside	86	24,647	287	28	0.3
Mobile Home Units	410	110,514	270	125	0.3
Apartment Units	474	132,635	280	149	0.3
Non-Residential					
Commercial	221	161,316	730	182	0.8
Industrial	34	2,662,311	78,303	3,001	88.3
Government	70	111,046	1,586	125	1.8
TOTAL	3,540	3,816,924	81,729	4,302	92

TABLE 2-12 MAXIMUM DAY AND PEAK HOUR WATER CONSUMPTION, JULY 31, 2015					
User Category	No. of Connections	Maximum Day Demand (gallons)	Maximum Day Demand per Service (gallons)	Peak Hour Demand (gpm)	Peak Hour Demand per Service (gpm)
Residential					
Single-Family Residential	2,249	1,210,330	538	1,364	0.6
Single-Family Residential – Outside	85	53,115	625	60	0.7
Mobile Home Units	410	150,170	366	169	0.4
Apartment Units	476	253,864	536	286	0.6
Non-Residential					
Commercial	227	211,976	934	239	1.1
Industrial	35	965,600	27,589	1,088	31.1
Government	72	147,554	2,049	166	2.3
TOTAL	3,554	2,992,609	32,637	3,373	37
* 2,928,200 gallons production less 6.47% DSL (2015 average DSL) to arrive at a maximum daily consumption of 2,738,745 gallons.					

2.2.4 Seasonal Water Consumption

Water consumption in the City of Grandview varies throughout the year with the seasons, primarily due to irrigation use in the summer months and industrial consumption in early fall. A very small separate non-potable irrigation system exists within the City, but domestic water is used for irrigation by most residences. Most services use a single meter for domestic and irrigation uses, resulting in increased consumption during the months of June, July, and August. Per customer class, only Single-Family Residential will be evaluated because its connections exceed 1,000.

Figure 2-1 shows the seasonal change in residential consumption per service from 2014 through 2020. Because the industrial peak occurs in the fall, rather than the summer, Figure 2-2 is provided to show the changes in peak industrial demand per service from 2014 through 2020. Additionally, Figure 2-3 shows seasonal consumption for all user categories for the most recent year, 2020.

FIGURE 2-1
SEASONAL SINGLE-FAMILY RESIDENTIAL CONSUMPTION

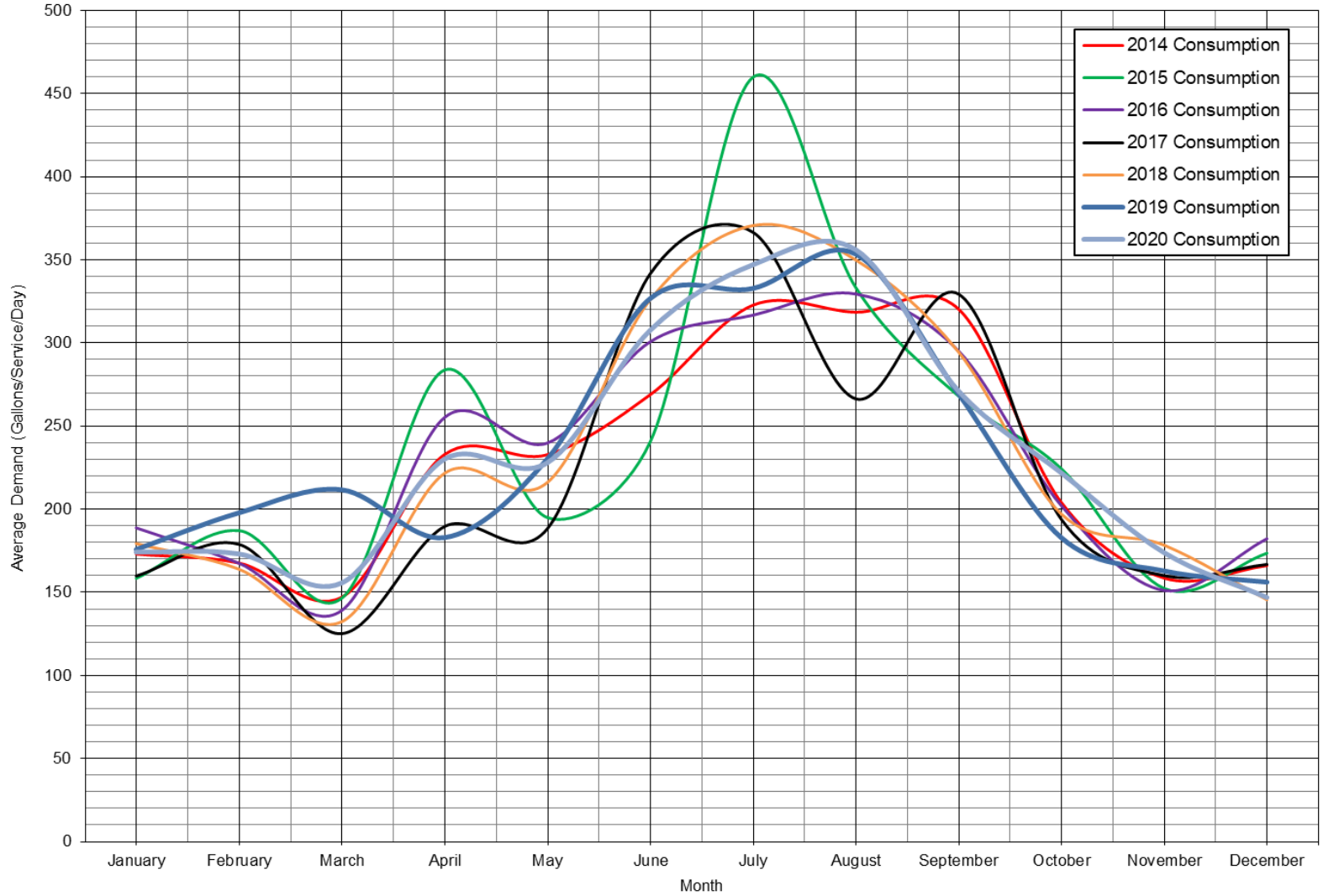


FIGURE 2-2
SEASONAL INDUSTRIAL DEMAND FROM 2014 - 2020

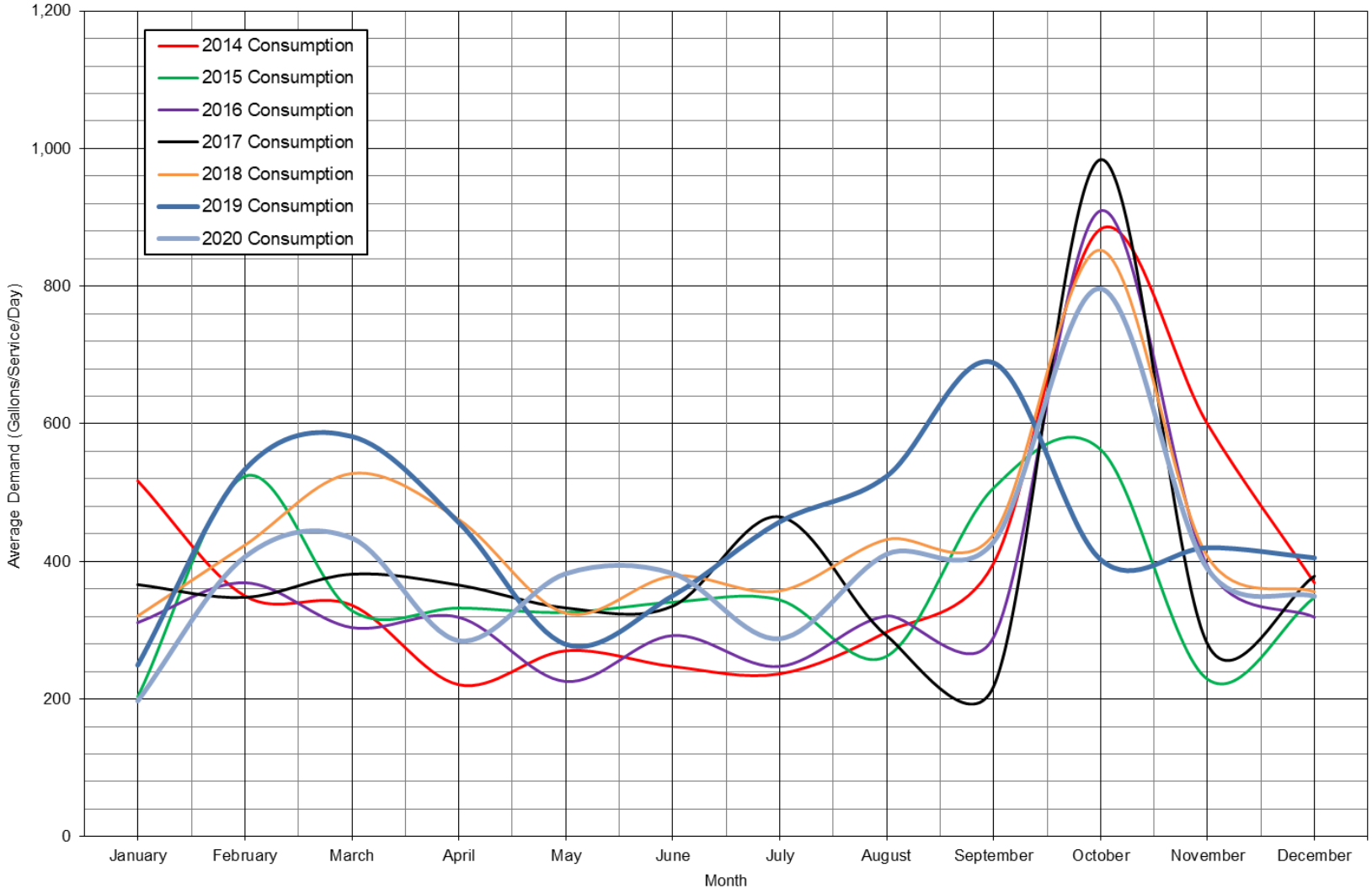
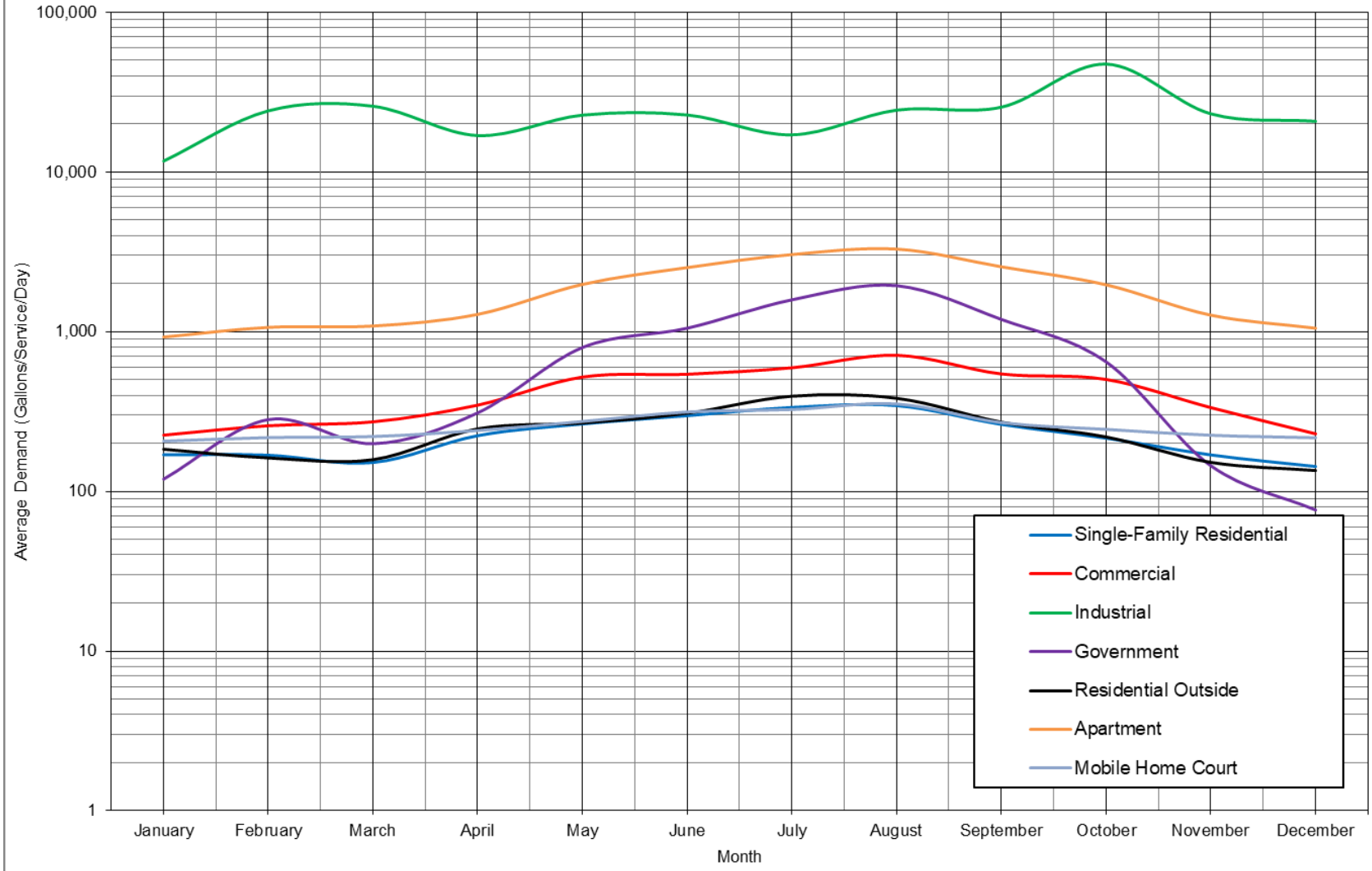


FIGURE 2-3
SEASONAL CONSUMPTION BY USER CATEGORY 2020



2.2.5 Existing Equivalent Residential Units (ERUs)

An Equivalent Residential Unit (ERU) is defined as the amount of water consumed by a typical full-time single-family residence. The actual quantity of water represented by an ERU is related to the type of demand (average day or peak) being considered. As discussed previously, maximum day demand (MDD) and peak hour demand (PHD) were calculated from the maximum day of production in the maximum month of consumption for the period between 2014 and 2020, while average day demand (ADD) is an actual measurement for a specified time period. As a result, the peaking factor from an average day demand (ADD) to a maximum day demand (MDD) is not the same for all service categories. Therefore, ERU values for ADD, MDD, and PHD have been calculated as shown in Table 2-13. This ERU information is useful for forecasting and analyzing future water system demand.

Single-Family Residential ADD per service values from the 2014 to 2020 period vary from a low of 211 gallons per service per day in 2017 to a high of 230 gallons per service per day in 2020. Similar variation in consumption per service occurs in the other user categories. The City has generally seen consistent residential demands from 2014 to 2020, providing a suitable representation of existing conditions. The average ADD from each user category for the seven-year period from 2014 through 2020 as shown in Table 2-8, were used in producing Table 2-13.

The maximum day demand per service and peak hour demand per service provided in Table 2-13, are based upon the calculated demand for July 31, 2015, and October 21, 2014, which are the maximum day of production for the maximum month of consumption during the summer (June – August) and fall between 2014 and 2020. Both summer and fall ERU values are shown for comparison. Current demand in the fall is higher and represents the largest demand on the system, but the peak day ERU values in the summer are more representative of typical usage for residential services and may be important in evaluating proposed future uses as residential demand begins to exceed industrial demand.

TABLE 2-13 EQUIVALENT RESIDENTIAL UNIT FACTORS (ERUS)

User Category	ADD (2014-2020)		MDD (July 2015)		MDD (October 2014)	
	GPD/ Connection[a]	ERUs	GPD/ Connection[b]	ERUs	GPD/ Connection[a]	ERUs
Residential						
Single-Family Residential	222	1.0	538	1.0	274	1.0
Single-Family Residential – Outside	237	1.1	625	1.2	287	1.0
Mobile Home Units	181	0.8	366	0.7	270	1.0
Apartment Units	208	0.9	536	1.0	280	1.0
Non-Residential						
Commercial	392	1.8	934	1.7	730	2.7
Industrial	24,788	111.7	27,589	51.3	78,303	286.1
Government	889	4.0	2,049	3.8	1,586	5.8

[a] ADD values based upon 2014 through 2020 average.
[b] Peak Day Demand is based upon calculated demand for July 31, 2015, as provided in Table 2-11.

2.3 DISTRIBUTION SYSTEM LEAKAGE (DSL)

The distribution leakage standard is a significant element of the WUE requirements. This standard requires that all water systems monitor total water consumption by all services. The difference between water consumption and water production is considered DSL. DSL includes meter inaccuracies, water theft, leaking water mains, and reservoir overflows. DSL may also include un-metered uses such as hydrant use for firefighting, and water used for distribution system flushing (if these uses are un-metered or un-estimated). The WUE Rule requires water distribution leakage to be 10% or less of total production based on a three-year rolling average.

All of Grandview's water sources are metered, and these source meters are read daily. All services in Grandview's distribution system are metered and read monthly. Table 2-14 presents Grandview's water production and water consumption values for the last six years.

TABLE 2-14 WATER PRODUCTION, CONSUMPTION, AND DSL

Year	Production	Consumption	DSL	% DSL
2014	633,187,600	630,494,000	2,693,600	0.43%
2015	645,004,780	603,290,000	41,714,780	6.47%
2016	617,506,000	595,411,000	22,095,000	3.58%
2017	624,236,372	616,151,000	8,085,372	1.30%
2018	590,299,680	663,614,000	-73,314,320	-12.42%
2019	637,701,586	673,937,000	-36,235,414	-5.68%
2020	651,759,000	645,971,008	5,787,992	0.89%
2021 (WUE)	657,968,000	631,552,000	26,416,000	4.0%

As discussed in Section 2.2.1, source meter issues beginning in 2017 through 2019 have led to negative system DSL. Therefore, a three-year rolling average which includes 2019 cannot be used to accurately determine DSL. In concurrence with the City's 2021 Water Use Efficiency Annual Performance Report (WUE), years 2016, 2020, and 2021 were used to determine DSL. Based on this data, the three-year average DSL was 3.7%, meeting the 10% DSL standard. Although the City currently satisfies the 10% DSL standard, the City plans to continue making repairs to or replacing potential leaking system components such as service lines, old service meters, and aging and leaking main line water valves to further reduce the DSL percentage and accuracy in volume measurement.

2.4 WATER SUPPLY CHARACTERISTICS

The single most important aspect of a water utility is its domestic water supply source. The City of Grandview's water supply is dependent on ground water sources. As previously discussed, the City utilizes 14 source wells. The locations of these wells within the water system are shown in Map A in CHAPTER 10. All 14 City wells are located on property owned by the City, and seven City wells have protective covenants establishing a 100-foot sanitary radius. Copies of the property deeds and protective covenants for each well are provided in CHAPTER 10.

As discussed in CHAPTER 3, there has been no significant change in source well water quality from any of Grandview's wells as demonstrated by inorganic chemical and volatile organic chemical monitoring over time.

Grandview has taken steps to protect its aquifers through implementation of its *Wellhead Protection Plan* and participation in a regional wellhead protection plan. Completed in 2000, Grandview's *Wellhead Protection Plan*, is intended to protect Grandview's aquifers through a combination of regulatory measures, best management practices, and public education and awareness. Details of Grandview's *Wellhead Protection Program* are provided in CHAPTER 5.

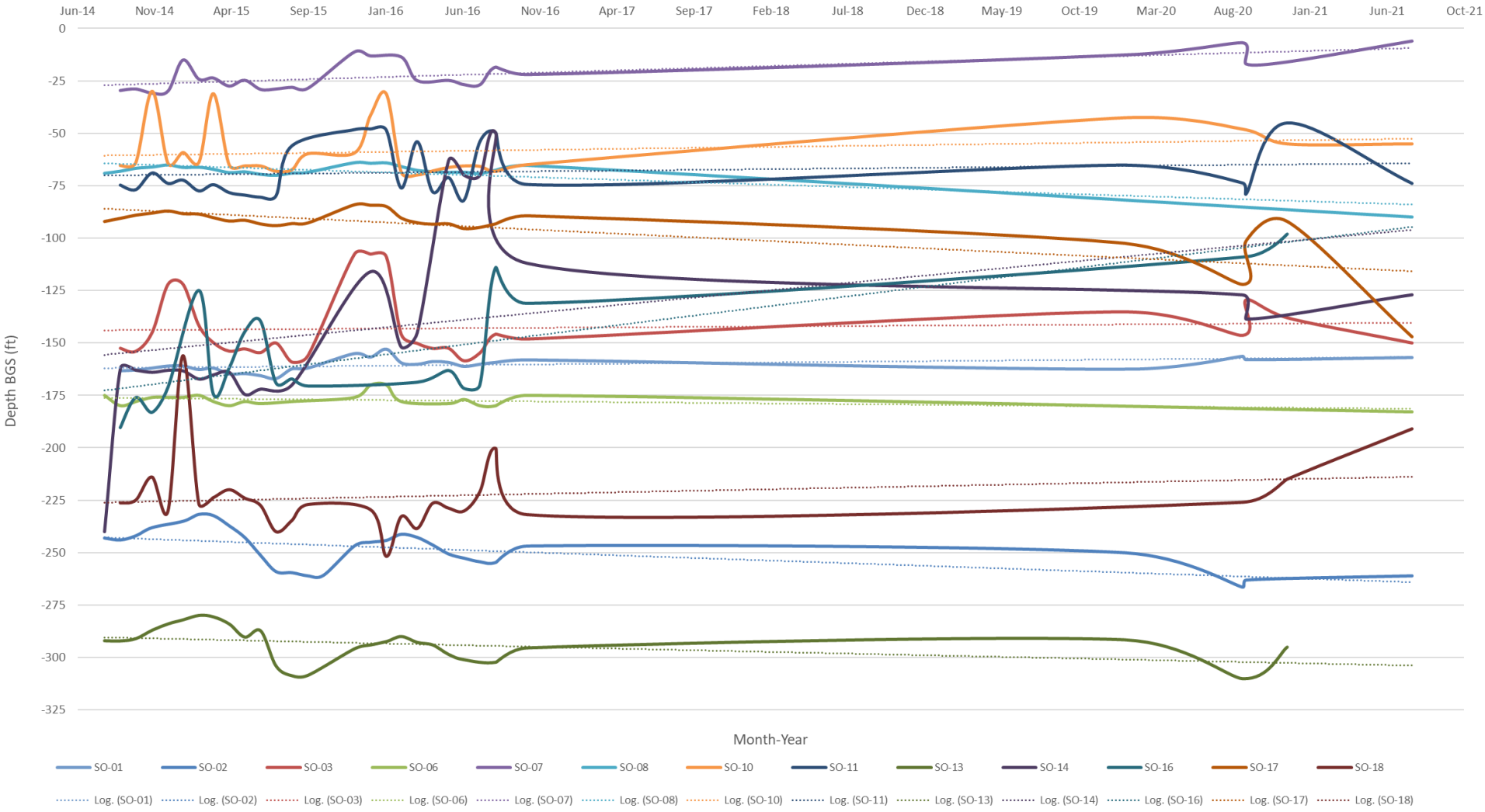
The existing City wells all withdraw water from the Columbia River Basalt Group. This geologic formation consists of four distinct hydrogeologic units. Starting with the oldest, these four units are known as the Grande Ronde, Wanapum, and Saddle Mountain Units (made up primarily of basalts of the same name, but also include sedimentary interbeds), and the Overburden Unit.

The Grande Ronde, Wanapum, and Saddle Mountain Units vary in thickness in South-Central Washington. Each unit is composed of numerous to several hundred individual basalt flows, which can range in thickness from a few inches to more than 300 feet, with sedimentary interbeds. Distinct, thick sedimentary interbeds separate the Grande Ronde, Wanapum, and Saddle Mountain Units.

Eleven of Grandview's existing City wells penetrate and withdraw water from the Saddle Mountain Basalt Aquifer and three from the Wanapum Basalt Aquifer of the Yakima Fold Belt. Review of the well logs of each source provided in CHAPTER 10 show layers of sand, gravel, clay, shale, sandstone, and basalt consistent with the geologic definition of Saddle Mountain and Wanapum materials.

Irrigation wells for agricultural use also penetrate and withdraw from the above-described Formations. Consequently, many of the Yakima area communities have experienced diminishing capacities and/or lowering drawdown levels in their source wells over years. Trends in groundwater levels are one of several factors important in determining source reliability. The United States Geological Survey (USGS) recently completed reports determining and analyzing such trends. The *Groundwater Status and Trends for the Columbia Plateau Regional Aquifer System, Washington, Oregon, and Idaho* (Scientific Investigations Report 2012-5261), published in 2012 by USGS, concluded that groundwater levels in the aquifer have risen since the 1950s in areas heavily irrigated with surface water and have declined since the 1970s in areas irrigated with groundwater. For wells examined in the Report, typical rises in water level under surface-water irrigation areas were 50 feet. Declines of 200 feet or greater were common in areas where pumping groundwater is the dominant source of irrigation water. The USGS Report concluded that 72% of the wells within the aquifer experienced declines over the study period, 1968-2009. Furthermore, the trends for all wells within the aquifer declined at a mean rate of 1.9 ft/year. Source wells within Grandview were not directly involved with the USGS studies and reports. Because of this exclusion, an accurate determination of diminished capacities and lower drawdown cannot be concluded for the City's source wells. However, the City has noticed a decline in well capacity because of a combination of declining groundwater levels and other performance related reasons. The City will continue to track static and drawdown water levels in the future as wells are rehabilitated to establish a record of water levels and anticipate potential source deficiencies. See Figure 2-4 for trend in groundwater levels.

FIGURE 2-4 GRANDVIEW WATER LEVEL TRENDS 2014 - 2020



2.5 FUTURE POPULATION PROJECTIONS AND LAND USE

Water use is contingent upon a number of varying and uncertain factors, which makes forecasting future demand difficult. Of primary importance are the following factors:

1. Population
2. Type of residential development (i.e., single-family, multi-family, rural, large or small lot)
3. Per capita income
4. Types of commercial and industrial enterprises
5. Climate
6. Irrigation use of water
7. Price charged for water and type of rate structure (i.e. the base water quantity and cost for individual service meters)

Forecasting future system demands is based upon the projected number of single-family residential, outside residential, multi-family residential, mobile home court, commercial, industrial, and government service categories, as well as the annual average day, maximum day, and peak hour water demand.

The population projections for the City of Grandview are estimated based on reviewing past population trends and confirming with the City's Comprehensive Plan. Future water services are based upon the projected population growth within the City and the UGA. However, to mitigate impacts to Grandview's existing water rights and reservoir storage capacity, the City Council has determined the City will only provide water service to new customers within their UGA under specific conditions.

Other factors such as income, climate, and water cost will be assumed to remain consistent with current trends. Climate does have a major influence on Grandview's water consumption during summer months due to use of domestic water supply for irrigation purposes. However, the area's climate has generally remained consistent with historical averages.

2.5.1 Projected Population

The City's 2016 Comprehensive Plan utilizes population projections developed by Yakima County Planning Division (YCPD). The YCPD has provided the County-Wide Planning Policy Committee (CWPPC) population projections for each community within Yakima County for the years 2025, 2030, 2035, and 2040. The population estimate for the year 2025 of 12,239 was made for Grandview, based on the County's "Preferred Alternative Medium Population Projection."

The preferred alternative projection compares OFM's 2015 – 2040 medium annual population projection for Yakima County to OFM's City of Grandview estimates from 2010 – 2014. If the city's growth projection is higher than the county's, the city's rate is used. If the county's rate is higher, the average of the two rates is used. The following Table 2-15 summarizes Grandview's projected growth to 2040 in accordance with the City's Comprehensive Plan.

TABLE 2-15 CITY OF GRANDVIEW ADJUSTED GROWTH RATES

OFM City-Wide Growth Projection 2010-2014	OFM Medium County-Wide Growth Projection 2015-2040	Comp. Plan Adjusted Growth Projection	Adjusted Growth Rates						
			2015	2020	2025	2030	2035	2040	Average
0.70%	1.08%	0.89%	0.89%	0.84%	0.77%	0.71%	0.67%	0.61%	0.71%

Projecting Grandview's population growth has proven difficult due to inconsistent and widely ranged growth over the past few decades. Despite stagnant projections by the City's Comprehensive Plan, the State's OFM report, and YCPD's *Report 1*, Grandview's actual future growth is proving to be much greater. Recently, the City has gained much attention by housing developers, and five subdivisions are in the approval process, while three have already been approved. Table 2-16 details various housing subdivisions to be built within the next 10 years.

TABLE 2-16 PLANNED HOUSING DEVELOPMENTS

Housing Development	Status	# of Lots
Grandridge Estates Subdivision	Approved	437
Appleway Estates Subdivision	Approved	18
Butternut Short Plat	Approved	9
Euclid meadows	Pre-plat submitted	123
Forsell Subdivision	Pre-plat submitted	110
N. Elm Subdivision	Proposed	300
Wilson Highway East	Proposed	200
Wilson Highway West	Proposed	150
	TOTAL	1,347

The proposed subdivisions are to be classified under the single-family residential designation. A full buildout of the proposed subdivisions would provide an additional 1,347 single-family homes in City jurisdiction, resulting in a direct population increase of 4,849 people in the next 10 years at 3.6 people per dwelling average. Instead of 0.71% average growth per year, the City is poised for 4.74% average growth in single family homes per year for the next 10 years.

Residual growth in the Outside Residential, Apartment, and Mobile Home service designations is expected, and rates are estimated to increase from 0.71% to 1% during the years of subdivision growth. Because these are growing at a slower rate than single-family residential, the calculated population growth rate from 2023 - 2032 will range between 3.67% and 3.92%.

After rapid initial growth, the City's average population projection will likely fall back into the 0.71% Yakima County/OFM projections for years 2032 – 2040. Therefore, instead of concurring with the City's Comprehensive Plan, it is suggested that the projections follow the increased growth rate from 2023 – 2032, and the 0.71% growth rate from 2032 – 2040, based on development interest. Table 2-17 outlines the adjusted city growth for the next 20 years, should all housing subdivisions be built.

TABLE 2-17 CITY POPULATION PROJECTIONS					
Year	Future Population	% Increase from Previous Year	Year	Future Population	% Increase from Previous Year
2021	11,797	-	2032	17,246	3.92%
2022	11,881	0.71%	2033	17,368	0.71%
2023	12,317	3.67%	2034	17,492	0.71%
2024	12,772	3.70%	2035	17,616	0.71%
2025	13,248	3.73%	2036	17,741	0.71%
2026	13,745	3.76%	2037	17,867	0.71%
2027	14,265	3.78%	2038	17,994	0.71%
2028	14,809	3.81%	2039	18,121	0.71%
2029	15,378	3.84%	2040	18,250	0.71%
2030	15,973	3.87%	2041	18,380	0.71%
2031	16,595	3.89%	2042	18,510	0.71%

2.6 FUTURE WATER DEMAND

2.6.1 Future Water Service Connections

The number of residential water services within the City Limits is anticipated to increase consistent with the population growth rate projection. However, locations of increases in population will vary depending on the availability of undeveloped land, and potential for new construction. Locations of anticipated future residential water services for the years 2021, 2025, and 2035 were determined by identifying vacant lots and development patterns using aerial imagery and the Yakima County Assessors GIS map.

It is difficult to predict how population increases within the City and the UGA will affect increases in other user categories. The water service totals in remaining user categories were projected to increase at a 1% rate for the first 10 years and 0.71% thereafter. The future service locations were determined based on the existing zoning and future land uses within the City. Future water services by user category from 2022 to 2032, and 2042 are shown in Table 2-18.

TABLE 2-18 FUTURE WATER CONNECTIONS BY USER CATEGORY												
User Category	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2042
Residential Connections												
Single-Family Residential	2,289	2,398	2,511	2,630	2,755	2,885	3,022	3,165	3,315	3,472	3,636	3,903
Single-Family Residential – Outside	89	90	91	92	93	94	95	96	97	98	99	106
Mobile Home Units	419	423	427	432	436	440	445	449	454	458	463	497
Apartment Units	481	486	490	495	500	505	510	515	521	526	531	570
Non-Residential Connections												
Commercial	237	240	242	245	247	249	252	254	257	260	262	281
Industrial	39	39	39	40	40	41	41	41	42	42	43	46
Government	78	79	80	80	81	82	83	84	85	85	86	93
Total Services	3,632	3,754	3,881	4,014	4,152	4,296	4,447	4,605	4,769	4,940	5,120	5,495

2.6.2 Future ERUs and ADD

The projected number of water system services, ERUs, and ADD, are calculated from the current water services by user category as shown in Table 2-19, and the average 2014 through 2020 demand per service for each user category, provided in Section 0.

The calculated future number of services, ERUs, and projected ADD for years 2022, 2032 and 2042 are presented in Table 2-19, Table 2-20, and Table 2-21. To accommodate for uncertainties in projecting future water demand and to account for system losses, a 10% contingency factor has been applied to the final ADD projections, as shown.

TABLE 2-19 YEAR 2022 ERU AND ADD

User Category	No. of Connections	ERUs/ Connection	ADD/ Connection (gallons)	Total ERUs	Total ADD (gallons)
Residential Connections					
Single-Family Residential	2,289	1.0	222	2,289.2	508,194
Single-Family Residential – Outside	89	1.1	237	98.2	21,153
Mobile Home Units	419	0.8	181	335.1	75,818
Apartment Units	481	0.9	208	432.7	99,997
Non-Residential Connections					
Commercial	237	1.8	392	427.2	93,035
Industrial	39	111.7	24,788	4,305.1	955,367
Government	78	4.0	889	312.4	69,428
Subtotal	3,632			8,200	1,822,993
10% Contingency				820	182,299
TOTAL*	3,632			9,020	2,005,293

TABLE 2-20 YEAR 2032 ERU AND ADD					
User Category	No. of Connections	ERUs/ Connection	ADD/ Connection (gallons)	Total ERUs	Total ADD (gallons)
Residential Connections					
Single-Family Residential	3,636	1.0	222	3,636.2	807,228
Single-Family Residential – Outside	99	1.1	237	108.5	23,366
Mobile Home Units	463	0.8	181	370.2	83,751
Apartment Units	531	0.9	208	477.9	110,459
Non-Residential Connections					
Commercial	262	1.8	392	471.9	102,769
Industrial	43	111.7	24,788	4,755.5	1,055,320
Government	86	4.0	889	345.1	76,692
Subtotal	5,120			10,165	2,259,584
10% Contingency				1,017	225,958
TOTAL*	5,120			11,182	2,485,543

TABLE 2-21 YEAR 2042 ERU AND ADD					
User Category	No. of Connections	ERUs/ Connection	ADD/Connection (gallons)	Total ERUs	Total ADD (gallons)
Residential Connections					
Single-Family Residential	3,903	1.0	222	3,902.7	882,356
Single-Family Residential – Outside	106	1.1	237	116.4	24,010
Mobile Home Units	497	0.8	181	397.3	89,890
Apartment Units	570	0.9	208	513.0	118,557
Non-Residential Connections					
Commercial	281	1.8	392	506.5	110,303
Industrial	46	111.7	24,788	5,104.1	1,132,687
Government	93	4.0	889	370.4	82,315
Subtotal	5,495			10,910	2,425,239
10% Contingency				1,091	242,524
TOTAL*	5,495			12,001	2,667,763
*Total accounts for service connections as defined by DOH.					

2.6.3 Future MDD and PHD

Future Maximum Day Demand (MDD) and Peak Hour Demand (PHD) on the water system were calculated for the years 2022, 2032, and 2042 using the projected number of services for each user category and the MDD per service for October 21, 2014, as discussed in Section 2.5.3. Calculated future MDD and PHD values for 2022, 2032, and 2042 are presented in Table 2-22, Table 2-23, and Table 2-24. To accommodate for uncertainties in projecting future water demand and to account for system losses, a 10% contingency factor has been applied to the ERU, MDD and PHD projections, as shown.

TABLE 2-22 YEAR 2022 MDD AND PHD

User Category	No. of Connections	ERUs/ Connection	Total ERUs	MDD/ Connect. (gal/day)	Total MDD (gal/day)	Total PHD (gpm)	PHD/ Connect (gpm)
Residential Connections							
Single-Family Residential	2,289	1.0	2,289.2	274	627,231	686.7	0.3
Single-Family Residential – Outside	89	1.0	89.3	287	25,616	26.8	0.3
Mobile Home Units	419	1.0	418.9	270	113,099	125.7	0.3
Apartment Units	481	1.0	480.8	280	134,611	144.2	0.3
Non-Residential Connections							
Commercial	237	3.0	712.0	730	173,254	189.9	0.8
Industrial	39	286.0	11,022.9	78,303	3,017,916	3,403.2	88.3
Government	78	6.0	468.6	1,586	123,862	140.6	1.8
Subtotal	3,632		15,482		4,215,590	4,717	
10% Contingency			1,548		421,559	472	
TOTAL	3,632		17,030		4,637,149	5,189	

TABLE 2-23 YEAR 2032 MDD AND PHD

User Category	No. of Connections	ERUs/ Connection	Total ERUs	MDD/ Connect. (gal/day)	Total MDD (gal/day)	Total PHD (gpm)	PHD/ Connect. (gpm)
Residential Connections							
Single-Family Residential	3,636	1.0	3,636.2	274	996,309	1,090.8	0.3
Single-Family Residential – Outside	99	1.0	98.6	287	28,296	29.6	0.3
Mobile Home Units	463	1.0	462.7	270	124,932	138.8	0.3
Apartment Units	531	1.0	531.1	280	148,695	159.3	0.3
Non-Residential Connections							
Commercial	262	3.0	786.5	730	191,380	209.7	0.8
Industrial	43	286.0	12,176.1	78,303	3,333,657	3,759.3	88.3
Government	86	6.0	517.6	1,586	136,821	155.3	1.8
Subtotal	5,120		18,209		4,960,090	5,543	
10% Contingency			1,821		496,009	554	
TOTAL	5,120		20,030		5,456,099	6,097	

TABLE 2-24 YEAR 2042 MDD AND PHD							
User Category	No. of Connections	ERUs/ Connection	Total ERUs	MDD/ Connect. (gal/day)	Total MDD (gallons)	Total PHD (gpm)	PHD/ Connect (gpm)
Residential Connections							
Single-Family Residential	3,903	1.0	3,902.7	274	1,069,350	1,170.8	0.3
Single-Family Residential – Outside	97	1.1	106.5	586	56,733	31.7	0.3
Mobile Home Units	472	0.6	283.4	338	159,674	149.0	0.3
Apartment Units	553	0.9	497.6	490	270,917	171.0	0.3
Non-Residential Connections							
Commercial	281	3.0	844.2	730	205,411	225.1	0.8
Industrial	46	286.0	13,068.8	78,303	3,578,054	4,034.9	88.3
Government	93	6.0	555.6	1,586	146,852	166.7	1.8
Subtotal	5,495		19,544		5,323,723	5,949	
10% Contingency			1,954		532,372	595	
TOTAL	5,495		21,498		5,856,096	6,544	

CHAPTER 3 -

SYSTEM ANALYSIS AND ASSET MANAGEMENT

HLA
Engineering and Land Surveying, Inc.

3.1 ASSET MANAGEMENT – ASSET INVENTORY AND ANALYSIS

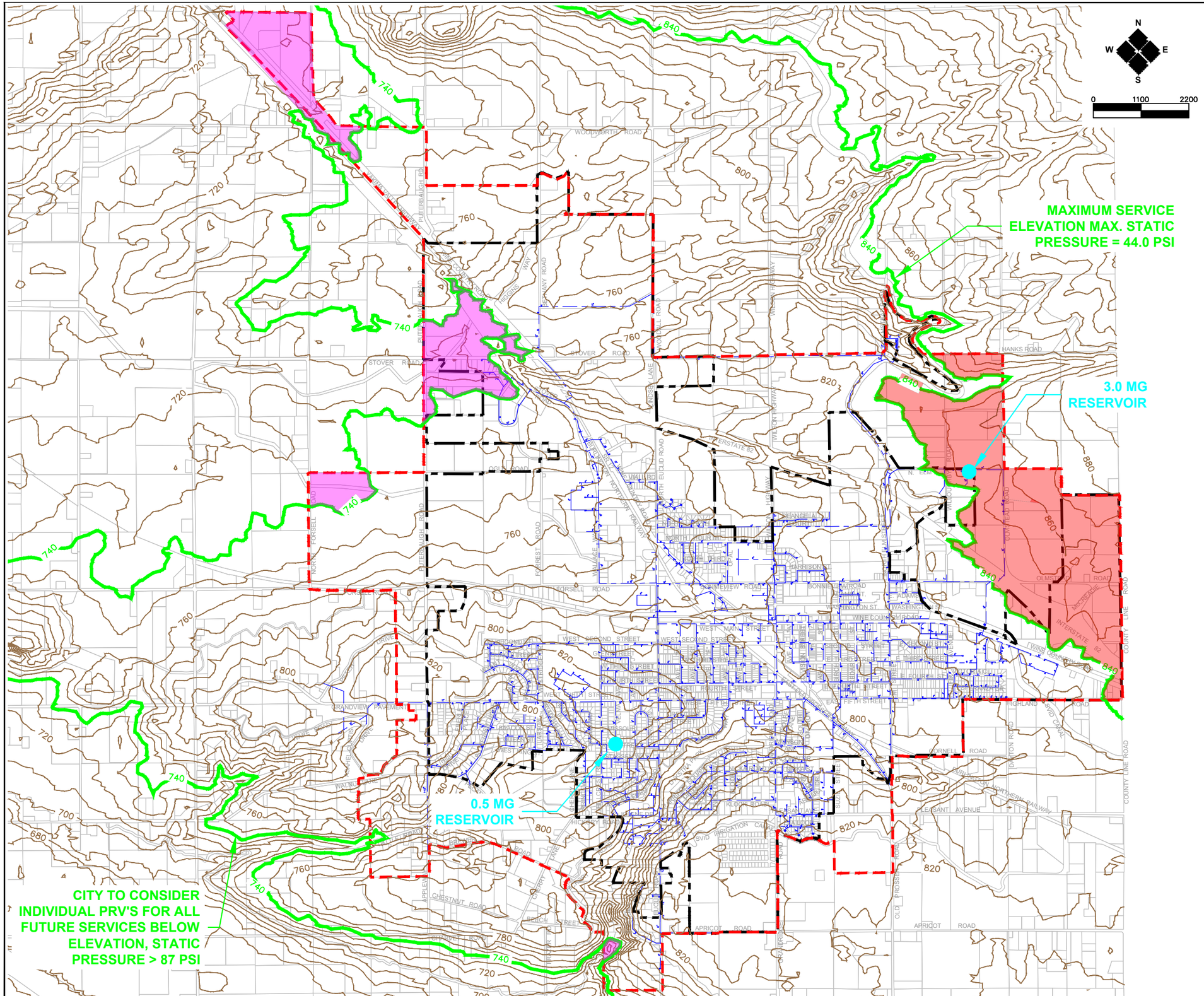
The existing City of Grandview domestic water system consists of one distribution pressure zone, as shown in Figure 3-1, which provides a minimum of 30 psi static service elevation, as required by DOH. Information on Grandview's pressure zone including the service elevations, and pressure range is also provided in Figure 3-1.

The City is supplied water from fourteen (14) primary source wells, three of which are no longer in service. The current maximum pumping capacity of the 12 active primary wells is 3,529 gallons per minute (gpm) or 5.08 million gallons per day (MGD), which includes two emergency sources. Water rights allow source capacity to increase to 6,955 gpm or 10.02 MGD. Further discussion on the City's existing water rights is provided in 3.10.

Grandview's water storage is provided by a 3.017-million-gallon (MG) standpipe reservoir and a 0.544 MG elevated reservoir, totaling 3.561 MG. During normal operation, static pressures throughout the existing water distribution system range from a low of 30 psi to a high of 87 psi, based upon the reservoir overflow elevations and well telemetry controls. Future water services within locations of static pressures above 87 psi should consider use of individual pressure reducing valves (PRV's). The City will advise developers and property owners within these areas that high pressures are likely and will recommend the use of PRV's at each lot per the Uniform Plumbing Code Chapter 608. The property owner is responsible for ownership, operations, maintenance, installation, and testing of the PRV's. PRV's will be installed by the property owner on the customer side of the water meter, inside the customer property lines. The devices shall be installed and tested per manufacturer's recommendations.

The entire water system is controlled by a comprehensive PLC (Programmable Logic Controller) based telemetry system. PLC telemetry units are located at most system wells and both reservoirs and are linked via radio communication. The telemetry system's master control station is located at the City's Public Works Shop.

Grandview's water transmission and distribution system is comprised of over 261,000 lineal feet of pipe, ranging in diameter from under 2-inch to 16-inch. The system is looped where possible, and most of the material is 6-inch or larger ductile iron, cast iron pipe, and PVC pipe. The layout of Grandview's water distribution system, including pipe sizes and valve, hydrant, reservoir, and well locations is shown in Figure 3-1. The maximum water service elevation of the system is also indicated in Figure 3-1. An enlarged map (Map A) of the water system is included in CHAPTER 10. Figure 3-2, provides a schematic depicting the interrelationship between the major water system components.



CITY OF GRANDVIEW

Water System Plan Update

WATER SYSTEM SERVICE AREA/ELEVATIONS MAP

LEGEND

- RETAIL SERVICE AREA (CITY LIMITS)
- FUTURE SERVICE AREA (URBAN GROWTH AREA)
- 800 — SERVICE ELEVATION CONTOUR
- WATER MAINS
- RESERVOIR
- 800 — YAKIMA COUNTY 20' CONTOURS
- SERVICE AREA ABOVE ELEVATION 840 FT.
- SERVICE AREA BELOW ELEVATION 740 FT.

CITY OF GRANDVIEW

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FIGURE 3-1

CITY OF GRANDVIEW

Water System Plan Update

WATER SYSTEM MAJOR COMPONENTS MAP

N
W E
S

0 750 1500

SOURCE WELL S16
OLMSTEAD B
DEPTH 623 FT
20 GPM CAPACITY

SOURCE WELL S07
OLMSTEAD A
DEPTH 112 FT
180 GPM CAPACITY

SOURCE WELL S10
NORTH WILLOUGHBY
DEPTH 610 FT
315 GPM CAPACITY

STANDPIPE RESERVOIR
TOTAL CAPACITY 3.0 MG
OVERFLOW ELEV. 941.6 FT

SOURCE WELL S13
SOUTH WILLOUGHBY
DEPTH 1,200 FT
1,000 GPM CAPACITY

SOURCE WELL S06
EUCLID DEPTH 248 FT
30 GPM CAPACITY
(EMERGENCY)

SOURCE WELL S14 BUTTERNUT
DEPTH 1,294 FT 1,275 GPM
CAPACITY

SOURCE WELL S02
BALCOM & MOE
DEPTH 1,150 FT
268 GPM CAPACITY

SOURCE WELL S01
WEST MAIN DEPTH 247 FT
135 GPM CAPACITY

SOURCE WELL S17
ASHAEL CURTIS
DEPTH 720 FT
92 GPM CAPACITY

ELEVATED RESERVOIR
TOTAL CAPACITY 0.5 MG
OVERFLOW ELEV. 941.6 FT

SOURCE WELL S11
HIGHLAND
DEPTH 250 FT
42 GPM CAPACITY

SOURCE WELL S03
VELMA
DEPTH 760 FT
102 GPM CAPACITY

SOURCE WELL S08
APPLEWAY
DEPTH 342
FT 0 GPM (INACTIVE)

SOURCE WELL S18
PECAN DEPTH 495 FT
70 GPM CAPACITY

SOURCE WELL S12
PECAN A DEPTH 269 FT 0
GPM (INACTIVE)

LEGEND

- CITY LIMITS
- FUTURE SERVICE AREA
- WATER MAINS (10" AND LARGER)
- STORAGE RESERVOIR
- GROUNDWATER WELL - SADDLE MOUNTAIN BASALT AQUIFER
- GROUNDWATER WELL - WANAPUM BASALT AQUIFER

CITY OF GRANDVIEW

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FIGURE 3-2

3.1.1 Water Sources

The City of Grandview has fourteen (14) source wells, all located on City-owned properties within a single service pressure zone, as shown in Figure 3-1 and Map A in CHAPTER 10. The following are descriptions of the City's wells and pump installations.

Source No. S01 (West Main Well, previously known as the Old Shop Well): This well is located at 303 W. Wine Country Road, in the northwest corner of the intersection of Wine Country Road and Wilson Highway as shown on Map A. Drilled in 1977 to a depth of 247 feet, the well has a 10-inch casing from the surface to a depth of 212 feet, and an 8-inch casing from 212 feet to 247 feet. The well is equipped with a Franklin 50 hp, 3-phase, 460-volt submersible pump installed in 2007. The well's initial capacity was 290 gpm, but its current capacity is 135 gpm. A 2-inch air release valve, 4-inch check valve, 4-inch butterfly valve, and 2-inch Mueller Hersey Solid State flow meter are installed on the discharge piping.

The well is housed in a 14-foot by 14-foot plywood and sheet metal pumphouse which was constructed in 2001. Within the pumphouse is a separate 8-foot by 8-foot chlorine room which houses an Advance 200 Series gas chlorinator (Model No. VR6020) for disinfection, a Wallace Tiernan AcuTec 35 gas detection system, and a Scaletron digital scale for measuring chlorine usage. The well is equipped with an Onan 1,800 rpm auxiliary diesel generator (Model No. DGDB3375673) for emergency well operation.

Source No. S02 (Balcom & Moe Well): This well is located at 311½ Division Street, immediately north of the Grandview School Training Center, as shown on Map A. Drilled in 1944 to a depth of 1,154 feet and reconditioned in 2006, the well has a 12-inch casing from the surface to a depth of 253 feet. The well is equipped with an ITT Goulds 5-stage submersible turbine pump, Model 8RJHC, with a Franklin Electric submersible 100 hp, 3-phase, 460-volt, 3525 rpm motor, installed in 2006. The well's initial capacity was 690 gpm, but its current capacity is 268 gpm. A 2-inch air release valve and 8-inch butterfly valve are installed on the discharge piping as well as a 12-inch Ex 80 Series Insertion Electromagnetic flow meter.

The well is housed in a 17-foot by 22-foot concrete block pumphouse. Due to the presence of hydrogen sulfide gas in the well water, the well pump discharges through 12-inch piping to a 14-foot by 12-foot aeration building which cascades the water over a series of concrete steps. The water then travels to a wet well under the pump room from which it is pumped by a vertical turbine booster pump equipped with a 30 hp, three phase, 460-volt, 1,800 rpm US Motor. The booster pump discharge piping is equipped with a 2-inch air release valve, 8-inch gate valve, 8-inch check valve, and an 8-inch Ex 80 Series Insertion Electromagnetic flow meter. A Wallace Tiernan S10K gas chlorinator for disinfection, a Scaletron digital scale for measuring chlorine usage, and a Wallace Tiernan AcuTec 35 gas detection system is located within the same room as the booster pump and electrical equipment.

Source No. S03 (Velma Well): This well is located at 1206 Velma Avenue, immediately east of the City's 500,000-gallon elevated storage reservoir at Velma Avenue and King Street, as shown on Map A. Originally drilled in 1948 to a depth 1,362 feet, the well was rehabilitated in 2005 and reduced to a depth of 760 feet. The well has a 10-inch casing from the surface to a depth of 308 feet, and an 8-inch casing from 308 feet to 760 feet, equipped with a screen and filter pack. The well is equipped with an ITT Goulds vertical turbine 13-stage pump, Model 7CHC, powered by a 30 hp, 3-phase, 460-volt, 1750 rpm U.S. Motor, Model BF39. The well's initial capacity was 130 gpm, but its current capacity is 102 gpm. A 2-inch air release valve and a 4-inch gate valve are installed on the discharge piping as well as a 4-inch Ex 80 Series Insertion Electromagnetic flow meter.

The well is housed in a 15-foot by 22-foot concrete block pumphouse with a sheet metal roof. Within the pumphouse is a separate 5-foot by 6-foot chlorine room which houses a Capital Control Advance 200 series gas chlorinator for disinfection, a Scaletron digital scale for measuring chlorine usage, and a Wallace Tiernan AcuTec 35 gas detection system. A sand trap tank (size unknown) is located on the south side of the pumphouse. Associated with the sand trap tank are three 2-inch gate valves assembled in a manifold which connects to a 2-inch blow-out flush line with a 2-inch ball valve.

Source No. S06 (Euclid Well, previously known as Safeway Well): This well is located at 200 Euclid Road, on the west side of Euclid Road just north of the Union Pacific Railroad tracks (600 feet south of Bonnieview Road), as shown on Map A. Drilled in 1962 to a depth of 248 feet, the well has an 8-inch casing from the surface to a depth of 52 feet. The well is equipped with a submersible 30 hp, three phase, 440-volt, 3,450 rpm pump. The well's initial and current capacity is 30 gpm. This well is currently offline and only used as an emergency source. There are two 4-inch gate valves on the well's 4-inch discharge piping, and a 2-inch Hersey flow meter is located outside the east side of the well vault.

The well is housed in a 7-foot by 7-foot concrete block vault with a metal roof. There is no disinfection system associated with this well. This source is considered an emergency source well and is currently inactive.

Source No. S07 (Olmstead A Well, previously known as Springs Well): This well is located at 580 Olmstead Road, at the intersection of Stover Road and Olmstead Road along the Sunnyside Canal, as shown on Map A. Originally drilled in 1963 to a depth of 112 feet, the well has a 12-inch casing from the surface to a depth of 36 feet. The well is equipped with an ITT Goulds 2-stage submersible 20 hp, 460-volt pump (Model No. 7WAHC) with a design capacity of 245 gpm at 225 feet TDH. The pump was installed in 2004, and its current capacity is about 180 gpm. A 2-inch air release valve, two 4-inch butterfly valves, and a 6-inch gate valve are installed on the discharge piping as well as a 6-inch McCrometer flow meter. Water pumped from this well is blended with Source Well No. S16 to reduce nitrate levels below the maximum contaminant level. The well is currently offline due capacity issues with S16 and the inability to blend with another source to reduce nitrate levels below the MCL.

The well is housed in a 15-foot by 21-foot plywood and sheet metal pumphouse. Within the pumphouse is a separate 7-foot by 10-foot chlorine room which houses a Wallace Tiernan S10K chlorinator and a Wallace Tiernan AcuTec 35 gas detection system. This well shares the building with Source Well No. 16, and both are currently inactive due to high nitrate levels and blending issues (see section 3.2).

Source No. S08 (Appleway Well, previously known as Cohu Well): This well is located at 801 Appleway, along the east side of Appleway approximately 150 feet north of Hill Drive, as shown on Map A. Drilled in 1999 to a depth of 342 feet, the well has a 12-inch casing from the surface to a depth of 134 feet, and an 8-inch casing from 134 feet to 342 feet. The well was equipped with a Goulds model 5CLC 8-stage, 4-inch diameter pump, powered by a Franklin 15 hp, three phase, 460-volt, 3,450 rpm submersible motor (Model 2366139020). Due to biological build-up and subsequent pump failures, the pump has been removed from service and the well is inactive. The well's initial capacity was 93 gpm and its current capacity is unknown. A 1-inch air release valve, 4-inch check valve, and a 4-inch butterfly valve are installed on the discharge piping as well as a 4-inch McCrometer flow meter.

The well is housed in a 16-foot by 16-foot plywood and sheet metal pumphouse. Within the pumphouse is a separate 8-foot by 8-foot chlorine room which houses a Capital Control Advance 200 series chlorinator for disinfection, and a Wallace Tiernan AcuTec 35 gas detection system. This well is currently inactive.

Source No. S10 (North Willoughby Well): This well is located east of the North Elm Street and Willoughby Road intersection, adjacent to the City's 3.0 MG storage reservoir, as shown on Map A. Drilled in 1978 to a depth of 610 feet, the well has a 12-inch casing from the surface to a depth of 155 feet, and an 8-inch casing from 155 feet to 610 feet. The well is equipped with a Peabody Floway 10 DKM 9-stage deepwell turbine with a 60 hp, three phase, 460-volt, 1,800 rpm motor. The pump was installed in 1978 and the well's initial capacity was 525 gpm. The pump was reconditioned in 1992, and the well's current capacity is 315 gpm. In 2016, the 6-inch discharge piping was replaced, including a 2-inch air release valve and a 6-inch Siemens electromagnetic flowmeter.

The well is housed in a 13-foot by 21-foot concrete block, plywood, and sheet metal pumphouse. Within the pumphouse is a separate 8-foot by 6-foot chlorine room which houses a Capital Control Advance 200 series gas chlorinator for disinfection, and a Wallace Tiernan AcuTec 35 gas detection system. The well is equipped with a Hercules auxiliary gas engine drive unit for emergency operation.

Source No. S11 (Highland Well): This well is located at 620 Highland Road, along the south side of Highland Road approximately 700 feet east of Elm Avenue, as shown on Map A. Drilled in 1999 (to replace an earlier "Highland" Well) to a depth of 250 feet, the well has a 16-inch casing from the surface to a depth of 165 feet, a 12-inch casing from the surface to a depth of 184 feet, and a 10-inch casing from 184 feet to 250 feet. The well is equipped with an ITT Goulds 7-stage, 4-inch diameter pump, Model 5CLC, powered by a 15 hp, 3-phase, 460-volt, 3,450 rpm Franklin submersible motor, Model 2366139020. The well's initial capacity was 107 gpm, and its current capacity is 42 gpm. A 1-inch air release valve, 4-inch check valve, and a 4-inch butterfly valve are installed on the discharge piping as well as a 4-inch Water Specialties flow meter.

The well is housed in a 16-foot by 16-foot plywood and sheet metal pumphouse. Within the pumphouse is a separate 8-foot by 8-foot chlorine room which houses a Wallace Tiernan S10K chlorinator for disinfection, a Scaletron digital scale for measuring chlorine usage, and a Capital Control Advance gas detector, model No. 1610.

Source No. S12 (Pecan A Well): This well is located on the south side of Pecan Road about 180 feet southeast of Butternut Road, as shown on Map A. Pecan A Well was originally drilled in 1976 and reconditioned and deepened in 1999. Drilled to a depth of 269 feet, the well has a 12-inch casing from the surface to a depth of 102 feet. The well is equipped with an ITT Goulds 10-stage, 4-inch diameter pump, Model 5CLC, powered by a 20 hp, 3-phase, 460-volt, 3450 rpm Franklin submersible motor, Model 2366149020. This well is currently inactive.

The well is housed in a 16-foot by 16-foot plywood and sheet metal pumphouse that it shares with Source No. S18. Within the pumphouse is a separate 8-foot by 8-foot chlorine room which houses a Wallace Tiernan S10K gas chlorinator, a Scaletron scale, and a Wallace Tiernan AcuTec 35 gas detection system. The well is equipped with a backup generator for emergency operation.

Source No. S13 (South Willoughby Well): This well is located at 601 N. Willoughby Road, along the east side of North Willoughby Road approximately 350 feet south of Well S10, as shown on Map A. Originally drilled in 1982 to a depth of 954 feet, the well was drilled deeper in 2007 to a depth of 1,200 feet. The well has a 16-inch casing from the surface to a depth of 683 feet and a 12-inch casing from 676 feet to a depth of 1,200 feet. The well is equipped with an ITT Goulds 6-stage, submersible pump, Model 14RJMC, with a design capacity of 1,770 gpm at 465 feet TDH, powered by a 250 hp, 3-phase, 460-volt, 1,730 rpm motor. The motor was replaced with a 14-inch, 250 hp SME motor in 2021. The well's initial capacity was 1,980 gpm, but the current capacity is 1,000 gpm. A 2-inch air release valve, 12-inch check valve, and a 12-inch butterfly valve are installed on the discharge piping as well as a 12-inch E+H electromagnetic flow meter.

The well is housed in a 38-foot 4-inch by 21-foot 7-inch concrete block and sheet metal pumphouse. Within the pumphouse is a separate 19-foot 4-inch by 10-foot chlorine room which houses a Wallace Tiernan chlorinator, a Scaletron digital scale, and a Wallace Tiernan AcuTec 35 gas detection system. The well is equipped with an Onan 1800 rpm auxiliary diesel generator for emergency operation.

Source No. S14 (Butternut Well): This well is located at 605 Butternut Road, at the east end of Butternut Road and Briar Court, as shown on Map A. Drilled in 1991 to a depth of 1,294 feet, the well has a 16-inch casing from the surface to a depth of 739 feet. The well is equipped with a Peerless 14 MC, 4-stage deep well turbine with a 200 hp, 3-phase, 460-volt, 1,800 rpm U.S. Motor. The pump was installed in 1991 and has a current capacity of 1,400 gpm.

Due to hydrogen sulfide gas being present in the well water, aeration treatment is performed. Water from the well is conveyed to the aeration room through a 12-inch ductile iron pipe equipped with a butterfly valve. Aeration is performed by cascading the water through a series of trays with ¼-inch diameter holes. Air is circulated across the trays and is exhausted through a roof fan. Following aeration, water flows into a wet well where it is chlorinated and then boosted into the City's distribution system. Two booster pumps are utilized for this task. The lead booster pump is a Peerless 14 MC, 3-stage deep well turbine pump with a 125 hp, 3-phase, 460-volt, 1,800 rpm U.S. Motor, with a design capacity of 1,500 gpm at 180 feet TDH. Since installation in 1991, this lead booster pump has produced 1,650 gpm. The lead booster pump discharge piping includes a 6-inch deep well pump control valve, an air release valve, a 12-inch check valve, and a 12-inch butterfly valve. The lag booster pump is operated by float switches in the wet well and is used to maintain a water level range. The lag pump is a Peerless 10 MA, 5-stage deep well turbine pump equipped with a 30 hp, 3-phase, 400-volt, 1,785 rpm U.S. Motor with a current capacity of 1,275 gpm. The lag booster pump 6-inch discharge piping includes an air release valve, a 6-inch check valve, and a 6-inch gate valve. Discharge piping from the two pumps combines to a single 12-inch discharge pipe which includes a 12-inch McCrometer flow meter.

The well is housed in a 52½-foot by 43¾-foot concrete block and plywood building which includes a 10-foot by 20½-foot chlorine room, a 10-foot by 20½-foot electrical control panel room, an aeration room, a storage room, and an aeration fan room. Within the chlorine room is a Wallace Tiernan V-100 rotameter tube operated by dual Wallace Tiernan S10K gas chlorinators equipped with an automatic switchover, dual Scaletron scales, and a Chlor Alarm gas detection system.

Source No. S16 (Olmstead B Well): This well is located at 380 Olmstead Road, at the intersection of Stover Road and Olmstead Road along the Sunnyside Canal, as shown on Map A. Drilled in 2004 to a depth of 623 feet, the well has a 16-inch casing from the surface to a depth of 230 feet, and a 12-inch casing from 219 feet to 623 feet. The well is equipped with an ITT Goulds 5-stage submersible 20 hp, 460-volt pump (Model No. 7RAHC) with a design capacity of 80 gpm at 510 feet TDH. The well's current capacity is about 40 gpm but drops to about 20 gpm if ran for an extended period, due to excessive drawdown. A ½-inch air release valve, 3-inch gate valve, and 2-inch flow control valve are installed on the discharge piping as well as a 3-inch Ex 80 Series Insertion Electromagnetic flow meter. Water pumped from this well is blended with Source Well No. S07 to reduce nitrate levels below the maximum contaminant level. Current drops in production capacity from this well have made blending with S07 not beneficial.

The well is housed in a 15-foot by 21-foot plywood and sheet metal pumphouse. Within the pumphouse is a separate 10-foot by 7-foot chlorine room which houses a Wallace Tiernan S10K chlorinator and a Wallace Tiernan AcuTec 35 gas detection system. This well shares the building with S07 and both are currently inactive due to high nitrate levels and blending issues (see section 3.2).

Source No. S17 (Ashael Curtis Well): This well is located on the east side of Ashael Curtis Road, approximately 100 feet south of Ware Road, as shown on Map A. Drilled in 2004 to a depth of 720 feet, the well has a 16-inch casing from the surface to a depth of 340 feet, and a 12-inch casing from 323 feet to 720 feet. The well pump motor was replaced in 2017 with a Grundfos 15-stage submersible 25 hp, 460-volt pump (Model No. 85S200-15) with a design capacity of 101 gpm at 510 feet TDH. The well's initial capacity was 180 gpm, but currently operates at 92 gpm. A 1-inch air release valve, a 4-inch check valve, and a 4-inch butterfly valve are installed on the discharge piping as well as a 4-inch McCrometer flow meter.

The well is housed in a 10-foot by 23-foot plywood and sheet metal pumphouse. Within the pumphouse is a separate 6-foot by 9-foot chlorine room which houses a Wallace Tiernan S10K gas chlorinator, a Scaletron digital scale for measuring chlorine usage, and a Wallace Tiernan AcuTec 35 gas detection system. In 2016, the well was upgraded with new telemetry equipment, pump, motor, and chemical treatment equipment.

Source No. S18 (Pecan B Well): This well is located on the south side of Pecan Road about 180 feet southeast of Butternut Road, as shown on Map A. Drilled in 2006 to a depth of 495 feet, the well has a 12-inch casing from the surface to a depth of 304 feet, a 10-inch casing from 270 feet to a depth of 495 feet. The well is equipped with an ITT Goulds 4-stage submersible turbine pump, Model 7WAHC, powered by a 40 hp, 3-phase, 460-volt, 3,525 rpm Franklin submersible motor. The well's initial capacity was 180 gpm, but the current capacity is 70 gpm. A 2-inch air release valve, 4-inch check valve, and a 4-inch butterfly valve are installed on the discharge piping as well as a 4-inch Water Specialties flow meter. The well is equipped with an Onan 1,800 rpm auxiliary diesel generator for emergency well operation.

The well is housed in a 16-foot by 16-foot plywood and sheet metal pumphouse that it shares with Source No. S12. Within the pumphouse is a separate 8-foot by 8-foot chlorine room which houses a Wallace Tiernan S10K gas chlorinator, a Scaletron scale, and a Wallace Tiernan AcuTec 35 gas detection system.

A summary of Grandview's source wells, including well depth, current static water levels, and capacity is provided in Table 3-1. Copies of the well logs, susceptibility assessment surveys, and protective well covenants are included in CHAPTER 10.

TABLE 3-1 GRANDVIEW SOURCE WELL INFORMATION SUMMARY

	West Main	Balcom & Moe	Velma	Euclid	Olmstead A	Apple-way	North Willoughby	Highland	Pecan A	South Willoughby	Butternut	Olmstead B	Ashael Curtis	Pecan B
Source Number	S01	S02	S03	S06	S07	S08	S10	S11	S12	S13	S14	S16	S17	S18
Date Drilled	1977	1944	2005	1962	1963	1999	1978	1999	1999	2007	1991	2004	2004	2006
DOE Well Tag ID	AEP517	AEP522			AAS263	AAS279	AAS245	AAS240	AAS282		AEP519	AAS278	AAS242	AAS161
Ground Elevation (ft. above msl)	806	804	831	795	812	814	855	818	779	841	791	818	805	779
Depth (ft. BGS)	247	1,154	760	248	112	342	610	250	269	1,200	1,294	623	720	496
Casing Diameter / Depth (ft. BGS)	10”/212 8”/247	12”/243 10”/1,153	10”/350 8”/760	16”/316 12”/376 10”/430	12”/36 10”/110	12”/134 8”/342	12”/155 8”/610	16”/165 12”/184 10”/250	12”/102 10”/269	16”/683 12”/954	16”/739 12”/129	16”230 12”/623	16”/340 12”/720	12”/304 10”/495
Original Static Water Level (ft. BGS)	42	200	181	48	Artesian	85	17	140	31	187	159	Artesian	92	69
2021 Static Level (ft. BGS)	157	261	150	183	6	90	55	74	N/A	61	127	9	147	191
Initial Flow & Drawdown			559 gpm @ 136 ft.	240 gpm @ 175 ft.	325 gpm @ 70 ft.	93 gpm @ 11 ft.	573 gpm @ 189 ft.	550 gpm @ 50 ft.	155 gpm @ 90 ft.	2,000 gpm @ 349 ft.	1,550 gpm @ 83 ft.	80 gpm @ 269 ft.	180 gpm @ 353 ft.	340 gpm @ 281 ft.
Original/Design Capacity (gpm)	290	690	130	30	245	93	525	107	N/A	1,980	1,500	80	180	180
2021 Capacity (gpm)	135	268	102	30 (offline)	180 (offline)	0 (inactive)	315	42	0 (inactive)	1,000	1,275	20 (offline)	92	70

3.1.2 Water Treatment

Grandview provides no treatment of its water supply sources other than chlorine disinfection, except for Balcom & Moe (S02) and Butternut (S14). Due to the presence of methane and hydrogen sulfide gas, water from these two sources is pumped through aeration treatment facilities located at each of these two wells prior to pumping into the City's distribution system.

Source well S14 (Butternut) is one of the City's primary source wells. Capacity has decreased from about 1,500 gpm to 1,275 gpm and the well has had signs of biofouling within the well and aerators because of bacterial growth within the well. In 2020, water samples were taken, and a complete well profile analysis was performed. Recommendations from the well analysis include chemical and mechanical cleaning of the well to address the bacterial issue

Until 2007, water from South Willoughby (S13) was also aerated due to the presence of hydrogen sulfide gas. In 2007, the South Willoughby well was drilled deeper and the pumphouse rebuilt, eliminating the aeration facilities. However, discharge piping was configured in a manner to allow for future aeration if necessary. Methane gas has been discovered in the well since being drilled deeper. Currently, methane gas is released to the atmosphere as discharge piping is plumbed directly to the standpipe reservoir.

3.1.3 Storage Facilities

The City's water storage facilities consist of two painted steel reservoirs with a total storage capacity of 3.561 million gallons (MG). The usable storage volume is 2.473 MG due to service pressure requirements and pump shutoff controls being set below reservoir overflow levels. Water is pumped from all wells directly into the water system pipe network (except for Source S10 and Source S13), supplying the two reservoirs. The overflow elevation of both reservoirs is 941.6 feet above sea level. Capacity of the two reservoirs above the 30-psi static pressure level is 1.618 MG and 2.473 MG above the 20-psi static pressure level.

The City's 3.017 MG steel standpipe reservoir is located east of the North Elm Street and Willoughby Road intersection. The reservoir is 77 feet in diameter and 88 feet in height, and is equipped with access manholes at the base, an access hatch at the top, a screen vent cap at the top, an overflow pipe which discharges to the ground surface, and a 16-inch inlet/outlet pipe.

The reservoir interior was sandblasted and repainted with TNEMEC Epoxy System 20-1 in May 1989. Modifications to the exterior ladder landing at the top of the standpipe were included during the interior painting contract, as was the addition of hand railing to the roof vent. The exterior was painted in 1995, and a City logo placed on the south side. The reservoir was last inspected by a diver in 2019. The exterior coating in weathered and the interior coating is showing signs of severe corrosion. The tank interior and exterior need to be recoated in the next 5 years.

The City's 0.544 MG elevated storage reservoir was constructed in 1950 and is located at the intersection of Velma Avenue and King Street. The elevated reservoir is 51 feet in diameter and 109 feet to the top with the inlet/outlet pipe extending from the center column. The steel storage tank is 37 feet in height with the bottom elevation 906 feet above sea level. The reservoir is equipped with an access hatch and screened vent cap at the top.

The 0.544 MG elevated storage reservoir was rehabilitated in 2007. The rehabilitation work included epoxy coating of the reservoir interior and exterior, replacement of the reservoir roof framing, replacement of the exterior overflow (piped to within ten feet of the ground where it discharges onto a splash plate), and installation of SAF-T-Climb safety equipment to the reservoir's exterior and interior ladders.

Table 3-2 provides a summary of the City's reservoir characteristics.

TABLE 3-2 GRANDVIEW RESERVOIR INFORMATION		
	3.0 MG Reservoir	0.5 MG Reservoir
Type	Standpipe	Elevated Tank
Material	Steel	Steel
Date Constructed	1977	1950
Tank Height	88 feet	37 feet
Diameter	77 feet	51 feet
Base Elevation above mean sea level (msl)	855.0 feet	834.0 feet
Floor Elevation (above msl)	855.0 feet	906.0 feet
Overflow Elevation (above msl)	941.6 feet	941.6 feet
Total Storage Capacity	3,017,000 gallons	544,000 gallons
Storage Capacity Above 30 psi	1,125,059 gallons	493,554 gallons
Storage Capacity Above 20 psi	1,929,668 gallons	543,979 gallons

See Figure 3-3 Reservoir Storage Levels, for a schematic representation of reservoir storage level elevations for the year 2022 and those anticipated for 2042.

3.1.4 Telemetry Control System

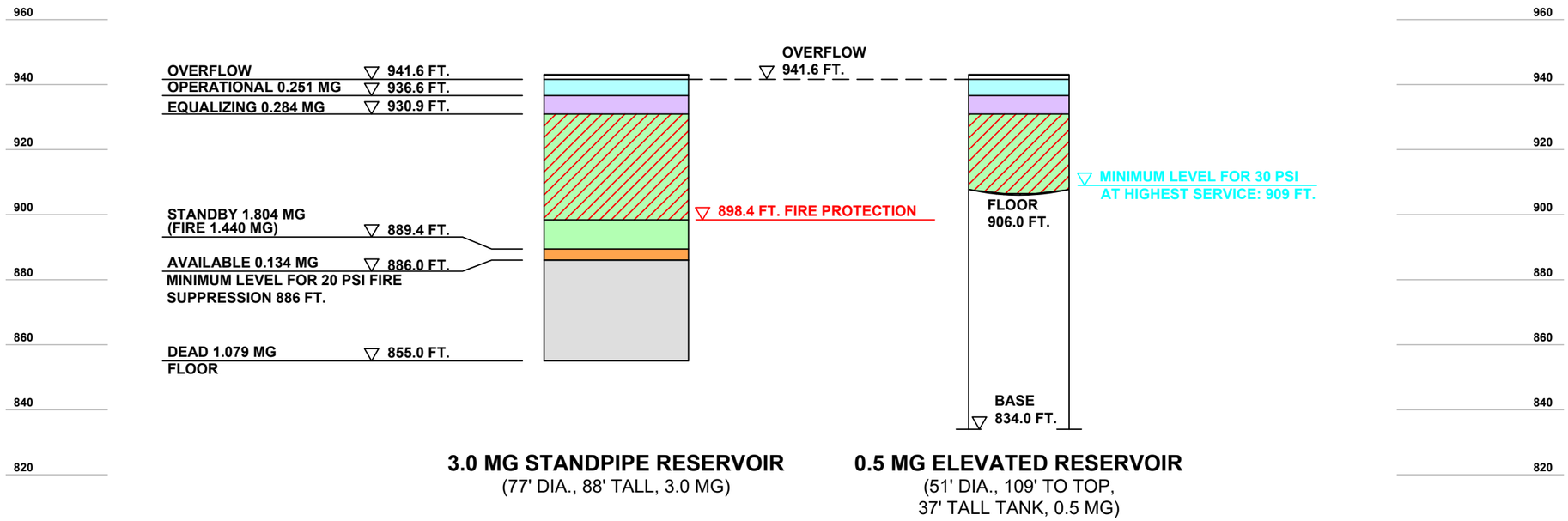
The City of Grandview's water system includes a SCADA (Supervisory Control and Data Acquisition) System for controlling and monitoring portions of the water production and distribution system. The SCADA system utilizes Allen Bradley Micrologix 1200 PLCs at both reservoir sites and at several well sites. The Master PLC, located at City Shop, is an Allen Bradley SLC 5/05 PLC. Sites having telemetry include:

0.5 MG Elevated Tank Reservoir
3.0 MG Standpipe Reservoir
Source S03 Velma
Source S07 Olmstead A
Source S10 North Willoughby
Source S13 South Willoughby
Source S14 Butternut
Source S16 Olmstead B
Source S17 Ashael Curtis
Source S18 Pecan B

The PLC at each of these remote sites communicates as a DFI half-duplex stage using Freewave FGR 115 900MHz unlicensed spread spectrum radios to the Master PLC at the City Shop. The master PLC connects via an Ethernet LAN to a Dell workstation computer (the HMI computer) running Wonderware Intouch version 2014 R2 HMI software. The Wonderware application provides a graphical interface for the SCADA system that allows operators to monitor the system operation and change operational parameters such as start/stop setpoints. WIN-911 version 7.16 is also installed on the Dell workstation computer and is intended to be used as a software alarm dialer. Operators can use a laptop computer to remotely access the HMI computer over a secure SSH connection to monitor the SCADA system during non-business hours.

The HMI computer utilizes Wonderware's DAS ABTCP Driver as the IO server for the HMI computer to communicate with the Master PLC. Data points requested by the Wonderware Intouch HMI application are retrieved by the DAS ABTCP Driver from the Master PLC and provided to the Intouch application. Setpoints entered by system operators at the HMI are communicated by the DAS ABTCP server to the Master PLC.

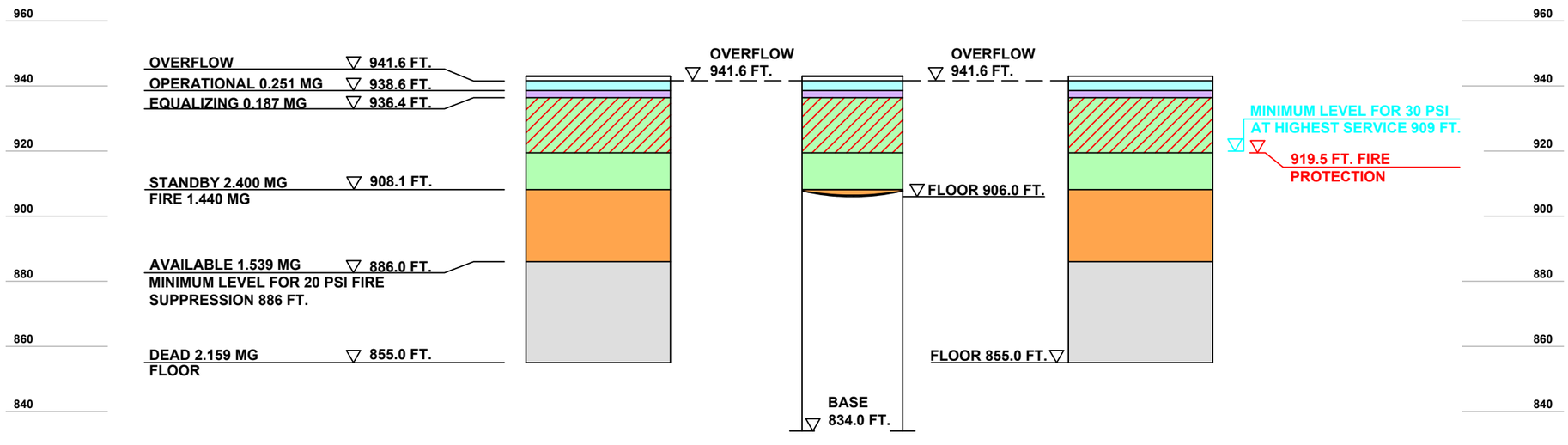
YEAR 2022 STORAGE LEVELS



3.0 MG STANDPIPE RESERVOIR
(77' DIA., 88' TALL, 3.0 MG)

0.5 MG ELEVATED RESERVOIR
(51' DIA., 109' TO TOP,
37' TALL TANK, 0.5 MG)

YEAR 2042 STORAGE LEVELS



3.0 MG STANDPIPE RESERVOIR
(77' DIA., 88' TALL,
1.929 MG ABOVE 20 PSI LEVEL)

0.5 MG ELEVATED RESERVOIR
(51' DIA., 109' TO TOP,
37' TALL TANK, 0.5 MG ABOVE
20 PSI LEVEL)

FUTURE 3.0 MG STANDPIPE RESERVOIR
(77' DIA., 88' TALL,
1.929 MG ABOVE 20 PSI LEVEL)

CITY OF GRANDVIEW

Water System Plan Update

RESERVOIR STORAGE LEVELS

LEGEND

- OPERATIONAL STORAGE
- EQUALIZING STORAGE
- STANDBY STORAGE
- FIRE SUPPRESSION STORAGE (NESTED WITHIN STANDBY STORAGE)
- AVAILABLE STORAGE
- DEAD STORAGE

HLA Engineering and Land Surveying, Inc.
2803 River Road
Yakima, WA 98902
509.966.7000
Fax 509.965.3800
www.hlacivil.com

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FIGURE 3-3

The Master PLC makes control decisions such as starting and stopping pumps based on reservoir levels and the operator adjustable setpoints.

The City of Grandview's existing SCADA system is capable of being expanded to include additional well and/or reservoir sites. The current telemetry control settings for low- and high-level alarms and for operating the various well pumps, based on water levels in both reservoirs, is shown in Table 3-3.

TABLE 3-3 EXISTING TELEMETRY CONTROL SETTINGS BASED ON RESERVOIR LEVELS

Source Well	Pump On	Pump Off	Control Reservoir
S03 Velma	74 feet	80 feet	3.0 MG
S07 Olmstead A	75 feet	80 feet	3.0 MG
S13 South Willoughby	75 feet	81 feet	3.0 MG
S14 Butternut	92.5 feet	106 feet	0.5 MG
S16 Olmstead B	75 feet	80 feet	3.0 MG
S17 Ashael Curtis	75 feet	81 feet	3.0 MG
S18 Pecan B	76 feet	81 feet	3.0 MG
Reservoir	Low Level Alarm	High Level Alarm	-
0.544 MG Elevated Tank	87.3 feet	105.6 feet	-
3.017 MG Standpipe	50.0 feet	87.9 feet	-

3.1.5 Transmission and Distribution Systems

The City's existing transmission and distribution system along with water main sizes, valve, and fire hydrant locations are shown on Figure 3-1 and Map A included in CHAPTER 10. Most line sizes within the system are six inches in diameter or larger. Most the City's water mains are constructed of either ductile iron, cast iron pipes, or PVC, and most are looped. An inventory of the total length of Grandview's water distribution system piping, including the length and percentage of each diameter of pipe is presented in Table 3-4.

TABLE 3-4 WATER DISTRIBUTION SYSTEM PIPE SIZE SUMMARY		
Pipe Diameter (inches)	Length (feet)	Percent of Total
< 2	2,125	0.81%
2	7,521	2.88%
3	557	0.21%
4	8,426	3.23%
6	85,710	32.81%
8	60,536	23.17%
10	26,864	10.28%
12	44,186	16.92%
14	4,227	1.62%
16	21,071	8.07%
TOTAL	261,223	100.0%

3.1.6 Asset Condition Assessment Summary

The age and condition of the City's major water system assets is summarized in Table 3-5. This information is valuable in evaluating and timing of future maintenance improvements necessary to maintain a high level of system reliability.

3.1.6.1 Facility Reliability

Pumps will continue to be maintained as discussed in CHAPTER 6. Recommended O&M improvements related to well pump rehabilitation and replacement will be as described in CHAPTER 8.

TABLE 3-5 ASSET CONDITION ASSESSMENT SUMMARY						
Water System Component/Name, Capacity/Size, and Type	Date Originally Const.	Expected Useful Life (Years)	Date of Last Service/ Replacement	Critical Number (1 to 5)***	Condition Rating (1 to 10)*	Expected Remaining Useful Life (Years)
Source Well S01	1977	30		2	9	0
Pumphouse and chlorine room	2001	50		3	6	30
Franklin 50 hp, 3-phase, 460-volt submersible pump	2007	15		2	7	1
Telemetry System	2005	10		2	8	0
Onan 1,800 rpm backup diesel generator	2007	15		2	8	1
2” Muller Flow Meter	2007	15		1	6	1
Source Well S02	1944	30	2006	2	7	15
Pumphouse	1944	50	2006	3	7	35
Aeration Building	2006	50		1	7	35
Wet well pump: 30 hp, three phase, 460-volt, 1,800 rpm US Motor wet well pump	2006	15		2	8	0
ITT Goulds 5-stage Submersible Vertical Turbine Booster Pump with Franklin Electric 100 hp, 460V, 3-phase, 3,525 rpm motor	2006	15		2	7	0
8” Ex 80 Series Insertion Electromagnetic Flow Meter	2006	15		1	8	0
Source Well S03	1948	30	2005	2	7	14
Pumphouse and chlorine room	2005	50		3	7	34
ITT Goulds line shaft 13-stage pump, Model 7CHC, powered by a 30 hp, 3-phase, 460-volt, 1750 rpm U.S. Motor, Model BF39	2005	15		2	6	0
4” Ex 80 Series Insertion Electromagnetic flow meter	2005	15		1	8	0
Source Well S06 (Inactive)	1962	30		2	10	0
Pumphouse	1962	50		3	10	0
Submersible 30 hp, three phase, 440-volt, 3,450 rpm pump	1962	15		2	10	0
2" Hersey flow meter	1962	15		1	10	0
Source Well S07	1963	30		2	6	0
Pumphouse and chlorine room	1963	50	2004	3	6	0
ITT Goulds 2-Stage submersible 20 hp, 460-volt pump	2004	15		2	8	0
4” Water Specialties Flow Meter	2004	15		1	7	0
Source Well S08 (Inactive)	1999	30		3	10	8
Pumphouse and chlorine room	1999	50		3	10	28
Goulds model 5CLC 8-Stage, 4-inch diameter pump powered by a Franklin 15 hp, three phase, 460-volt, 3,450 rpm submersible motor (pump removed)	1999	15		3	10	0
4” Water Specialties Flow Meter	1999	15		1	10	0
Source Well S10	1978	30		2	7	0
Pumphouse and chlorine room	1992	50		3	8	21
Peabody Floway 10 DKM 9-stage deepwell turbine with a 60 hp, three phase, 460-volt, 1,800 rpm motor	1978	15	1992	2	9	0
Hercules gas engine-drive generator	1992	15		1	8	0
Telemetry System	2005	10		1	8	0
6” Siemens Electromagnetic Flow Meter	2005	15		1	6	0
Source Well S11	1999	30		2	8	8
Pumphouse and chlorine room	1999	50		3	7	28
ITT Goulds 7-stage, 4-inch diameter pump, Model 5CLC, powered by a 15 hp, 3-phase, 460-volt, 3,450 rpm Franklin submersible motor	1999	15		2	8	0
4” Water Specialties Flow Meter	1999	15		2	7	0
Source Well S12 (Inactive)	1976	30	1999	3	10	8
Pumphouse and chlorine room	1976	50	1999	3	10	28
ITT Goulds 10-stage, 4-inch diameter pump, Model 5CLC, powered by a 20 hp, 3-phase, 460-volt, 3450 rpm Franklin submersible motor	1976	15	1999	2	10	0
Backup Generator	1976	15		1	10	0
Source Well S13	1982	30	2007	2	9	16
Pumphouse and chlorine room	2007	50		2	5	36
ITT Goulds 6-stage, submersible pump, Model 14RJMC, powered by a 250 hp, 3-phase, 460-volt, 1,730 rpm SME motor	2021	15	2021	1	2	15
10” E+H Electromagnetic Flow Meter	2021	15	2021	1	2	14
Onan 1,800 rpm diesel backup generator	2007	15		1	7	1
Source Well S14	1991	30		2	6	0
Pumphouse and chlorine room	1991	50		3	7	20
Peerless 14 MC, 4-stage deepwell turbine with a 200 hp, 3-phase, 460-volt, 1,800 rpm U.S. Motor	1991	15		2	8	0
Aeration room with cascading aerators	1991	60		1	8	30
Wet well lead booster pump: Peerless 14 MC, 3-stage deepwell turbine pump with a 125 hp, 3-phase, 460-volt, 1,800 rpm U.S. Motor	1991	15		2	8	0
Wet Well lag pump: Peerless 10 MA, 5-stage deepwell turbine pump equipped with a 30 hp, 3-phase, 400-volt, 1,785 rpm U.S. Motor	1991	15		2	8	0
12” McCrometer Turbine Flow Meter	1991	15		1	8	0
Source Well S16	2004	30		2	7	13
Pumphouse and chlorine room	2004	50		3	9	33
ITT Goulds 5-stage submersible 20 hp, 460-volt pump, Model No. 7RAHC	2004	15		2	8	0
4” Ex 80 Series Insertion Electromagnetic flow meter	2004	15		2	8	0

TABLE 3 5 ASSET CONDITION ASSESSMENT SUMMARY (continued)

Water System Component/Name, Capacity/Size, and Type	Date Originally Const.	Expected Useful Life (Years)	Date of Last Service/ Replacement	Critical Number (1 to 5)***	Condition Rating (1 to 10)*	Expected Remaining Useful Life (Years)
Source Well S17	2004	30		2	7	13
Pumphouse and chlorine room	2004	50	2004	3	6	33
Grundfos 15-stage submersible 25 hp, 460-volt pump (Model No. 85S200-15)	2017	15	2017	2	4	11
Telemetry Equipment	2004	6	2004	1	8	0
4” Water Specialties Flow Meter	2004	15		1	7	0
Source Well S18	2006	30		2	8	15
Pumphouse	2006	50		3	7	35
ITT Goulds 4-stage submersible turbine pump, Model 7WAHC, powered by a 40 hp, 3-phase, 460-volt, 3,525 rpm Franklin submersible motor	2006	15		2	9	0
4” Water Specialties Flow Meter	2006	15		2	9	0
Onan 1,800 rpm Diesel Generator	2006	15		1	9	0
City-wide service meters	2020	15		5	1	13
Pre-1980 Asbestos Concrete Pipe, 60% of system (approx. 156,734 ft pipe from 2” to 16” diameter)	1960 - 1980	40		5	8	0 – 2
Post-1980 C900 PVC Pipe, 40% of system (approx. 104,489 ft pipe from 2” to 16” diameter)	1980 - 2021	40		5	2	2 - 39
Watermain valves, 2” to 16”	1960 – 2021	40		4	2 - 8	0 - 39
3.0 MG Reservoir	1977	50	1995	1	8	24
0.5 MG Reservoir	1950	50	2007	1	8	36
Telemetry Control System	2016	10		1	6	5
Primary PLC: Allen Bradley SLC 5/05	2016	10		1	6	5
Common Site PLC: Allen Bradley Micrologix 1200	2016	10		1	7	5
Wonderware Intouch version 2014 R2 HMI software with Wonderware’s DAS ABTCP Driver	2016	5		1	6	0

* Condition ratings are based on recommendations in DOH Water System Planning Guidebook, with a rating of 1 equal to good/expected condition and a rating of 10 equal to unserviceable (may need replacement) condition.
** Typical equipment life expectancy from EPA publication EPA 816-R-03-016 Sept. 2003.
*** Critical number designation of 1 means system would essentially shut down if component failed, and no backup is available. Ex: well failure on a single well system without a backup. Critical number of 4 means failure of asset would cause inconvenience, but not cause harm to the system. Critical number of 5 means the asset's condition is not well known and should be later evaluated.

3.2 WATER QUALITY

A public water utility must supply safe and aesthetically pleasing water to its customers. However, source waters of most water utilities vary in the types and amounts of impurities which have been acquired during their passage through atmosphere, ground surfaces, or underground strata. To assure that all drinking waters maintain a standard level of quality, acceptable limits of contaminants have been established in WAC Chapter 246-290, *Group A Public Water Supplies*, March 30, 2012, specifically WAC 246-290-310 effective January 4, 2010.

These standards of acceptability establish "maximum contaminant levels" (MCLs) and "Maximum Residual Disinfectant Levels" (MRDLs) for bacteriological, inorganic chemical and physical, and other elements. The Regulations also set forth procedures to be followed if the MCL limits are exceeded.

The City of Grandview monitors its system's water quality in accordance with the requirements of WAC 246-290-300, and 246-290-310. Follow-up action, if required, is completed in accordance with the requirements of WAC 246-290-320 and the Groundwater Rule (GWR). Bacteriological monitoring is performed at ten (10) locations within the water system in accordance with the City's *Coliform Monitoring Plan*. Lead and copper distribution system monitoring is completed in accordance with the City's lead and copper monitoring program. Inorganic chemical (IOC), volatile organic chemical (VOC), synthetic organic chemical (SOC), and radionuclide testing are performed on the City's source wells. All source wells are tested individually, though some sources are blended prior to entering the distribution system. Blending occurs at Sources S07 Olmstead A and S16 Olmstead B, and at Sources S10 North Willoughby and S13 South Willoughby. These source wells are plumbed with isolation valves to allow individual and blended testing.

3.2.1 Water Source Sampling and Testing

Inorganic Chemical (IOC) Monitoring: Water quality monitoring for primary IOCs, secondary IOCs and physical parameters is required from each source generally once every compliance cycle. Compliance cycles are nine years, per 40 CFR 141.23. Grandview collects water samples for IOCs and physical parameters prior to introduction into the distribution system chlorination at each well.

Certain chemical characteristics must be monitored more frequently than the general monitoring requirements. For example, Nitrate and Nitrite must be monitored annually. Other chemical characteristics monitoring requirements may be waived by DOH.

Results of Grandview's latest source IOC and physical analysis, summarized in Table 3-6 and Table 3-7, show the City in compliance with State standards. Copies of the most recent test results for the source wells are provided in CHAPTER 10. Additional inorganic testing of wells occurred in previous years. Copies of these test results are furnished in CHAPTER 10, and are shown in Table 3-6 through Table 3-17. The results indicate that water quality in each of the wells has not significantly changed over time.

TABLE 3-6 INORGANIC (PRIMARY SUBSTANCES) CHEMICAL ANALYSIS SUMMARY

Chemical or Physical Property	MCL (mg/l)	S01 West Main 5/14/19	S02 Balcom & Moe 4/3/18	S03 Velma 4/23/19	S06 Euclid (Emergency Source)	S07 Olmstead A 9/12/16	S10 North Willoughby 9/12/16	S11 Highland 4/4/16	S13 South Willoughby (Emergency Source) 5/4/19	S14 Butternut 9/11/18	S16 Olmstead B 6/11/19	S18 Pecan B 7/23/13
Antimony (Sb)	0.0060	<0.0001	<0.0001	<0.0001	---	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic (As)	0.010	0.0035	0.0026	0.0028	---	0.0029	0.0017	0.0024	0.0001	0.0002	0.003	0.00288
Barium (Ba)	2.0	0.0477	0.0627	0.0544	---	0.0533	0.0593	0.0585	0.0022	0.0019	0.0504	0.01267
Beryllium (Be)	0.004	<0.0001	<0.0001	<0.0001	---	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cadmium (Cd)	0.005	<0.0001	<0.0001	<0.0001	---	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium (Cr)	0.1	0.0023	0.002	0.0028	---	0.0008	0.0005	0.0015	0.0013	0.0006	0.0011	0.00089
Copper (Cu)*	1.3	0.0005	0.0019	0.0012	---	0.0009	0.0016	0.0004	0.0002	0.0002	0.0004	0.00295
Cyanide (HCN)	0.2	<0.01	<0.01	<0.01	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoride (F)	4.0	0.32	0.44	0.3	---	0.29	0.18	0.39	2.31	2.66	0.34	0.47
Lead (Pb)*	0.015	0.0001	0.0002	0.0005	---	0.0002	0.0003	0.0004	0.0008	0.0001	0.0001	0.00015
Mercury (Hg)	0.0020	<0.0002	<0.0002	<0.0002	---	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nickel (Ni)	0.10	0.0017	0.0003	0.0001	---	0.0001	0.0001	0.0001	0.0002	0.0003	0.0002	0.0001
Nitrate (as N)	10.0	7.32	5.46	4.65	---	8.3	9	7.7	0.05	0.05	8.8	2.56
Nitrite (as N)	1.0	<0.05	<0.07	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Selenium (Se)	0.050	0.0015	0.002	0.0022	---	0.0013	0.0018	0.0017	0.0005	0.0005	0.0012	0.00207
Sodium (Na)*	20	19.6	25	16	---	24.1	15.4	15.3	78.9	88	25.5	15.9
Thallium (Tl)	0.0020	0.0006	0.0014	0.0003	---	0.0004	0.0004	0.0009	0.0011	0.0001	0.0003	0.00014

* No DOH established MCL. Represents EPA established “action levels” for lead and copper, and recommended level for sodium.

TABLE 3-7 INORGANIC (SECONDARY SUBSTANCES) CHEMICAL ANALYSIS SUMMARY												
Chemical or Physical Property	MCL (mg/l)	S01 West Main 5/14/19	S02 Balcom & Moe 4/3/18	S03 Velma 4/23/19	S06 Euclid (Emergency Source)	S07 Olmstead A 9/12/16	S10 North Willoughby 9/12/16	S11 Highland 4/4/16	S13 South Willoughby (Emergency Source) 5/4/19	S14 Butternut 9/11/18	S16 Olmstead B 6/11/19	S18 Pecan B 7/23/13
Chloride (Cl)	250.0	16.8	18.5	13.8	---	17.3	21.4	23.7	19.1	23.4	19	9.83
Fluoride (F)	2.0	0.32	0.44	0.3	---	0.29	0.18	0.39	2.31	2.66	0.34	0.47
Iron (Fe)	0.3	<0.0097	<0.0392	<0.0104	---	<0.0097	<0.0097	<0.0097	<0.0097	<0.0216	<0.0097	<0.0097
Manganese (Mn)	0.05	0.0003	0.005	0.0008	---	0.0014	0.0001	0.0001	0.0008	0.0009	0.0011	0.00023
Silver (Ag)	0.1	<0.0001	<0.0001	<0.0002	---	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Sulfate (SO_4)	250.0	45.3	44.6	45.1	---	58	68.8	72.9	0.54	0.94	53.2	29.7
Zinc (Zn)	5.0	0.0062	0.0037	0.0088	---	0.0123	0.0104	0.0081	0.0006	0.0015	0.0091	0.00138
Color	15 Color Units	4	<4	<4	---	<4	<4	<4	<4	<4	<4	<4
Specific Conductivity	700 umhos/cm	534	533	444	---	614	551	583	414	400	622	352
Total Dissolved Solids (TDS)	500	312	344	288	---	406	376	412	220	272	378	202

Table 3-8, Table 3-9, Table 3-10, Table 3-11, Table 3-12, Table 3-13, Table 3-14, Table 3-15, Table 3-16, and Table 3-17, present both the latest, and previously conducted IOC analysis test results for each primary source well.

TABLE 3-8 INORGANIC CHEMICAL ANALYSIS RESULTS FOR WEST MAIN (S01)

Chemical or Physical Characteristics	MCL (mg/l)	5/14/2019	8/10/2010	8/13/2007	8/11/2004	12/23/1997
Primary Substances						
Antimony (Sb)	0.006	<0.0001	<0.005	<0.0050	<0.0050	<0.0050
Arsenic (As)	0.01	0.0035	0.005	0.0044	0.0043	<0.0100
Barium (Ba)	2	0.0477	0.047	0.047	0.046	<0.1000
Beryllium (Be)	0.004	<0.0001	<0.0002	<0.0002	<0.0002	<0.0030
Cadmium (Cd)	0.005	<0.0001	<0.0003	<0.0003	<0.0003	0.002
Chromium (Cr)	0.1	<0.0023	<0.0047	<0.0047	<0.0047	<0.0100
Copper (Cu)*	1.3	0.0005	<0.002	<0.0020	<0.0020	<0.2000
Cyanide (HCN)	0.2	<0.01	<0.01	<0.0100	<0.0100	<0.0500
Fluoride (F)	4	0.32	0.48	0.42	0.45	0.5
Lead (Pb)*	0.015	<0.0001	<0.0005	<0.0005	<0.0005	0.014
Mercury (Hg)	0.0020	<0.0002	<0.0003	<0.0003	<0.0003	<0.0005
Nickel (Ni)	0.1	0.0017	<0.01	<0.0100	<0.0100	<0.0400
Nitrate (as N)	10	7.32	6.8	6.68	6.36	6.6
Nitrite (as N)	1	<0.05	<0.05	<0.0500	<0.0500	---
Selenium (Se)	0.05	<0.0015	<0.005	<0.0050	<0.0050	<0.0050
Sodium (Na)*	20	19.6	18.8	20	19.4	20
Thallium (Tl)	0.002	<0.0006	<0.001	<0.0010	<0.0010	<0.0020
Secondary Substances						
Chloride (Cl)	250	16.8	16.6	14.8	15.2	20.0
Fluoride (F)	2	0.32	0.48	0.42	0.45	0.5
Iron (Fe)	0.3	<0.0097	<0.0097	<0.0178	<0.0275	<0.1000
Manganese (Mn)	0.05	0.0003	0.002	0.0020	0.0020	0.0100
Silver (Ag)	0.1	<0.0001	<0.0047	<0.0047	<0.0047	<0.0100
Sulfate (SO_4)	250	45.3	43.4	41.1	41.8	41
Zinc (Zn)	5	0.0062	0.0146	<0.0200	<0.0200	<0.2000
Color	15 Color Units	<4	<4	<4	<4	<20
Specific Conductivity	700 umhos/cm	534	494	249	491	---
Total Dissolved Solids (TDS)	500	312	364	342	326	---

* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium.

TABLE 3-9 INORGANIC CHEMICAL ANALYSIS RESULTS FOR BALCOM & MOE (S02)						
Chemical or Physical Characteristics	MCL (mg/l)	4/3/2018	4/15/2009	7/17/2007	7/1/2003	10/17/2000
Primary Substances						
Antimony (Sb)	0.006	<0.0001	<0.005	<0.0050	<0.0050	<0.0050
Arsenic (As)	0.01	0.0026	0.0028	<0.0020	0.0022	<0.0100
Barium (Ba)	2	0.0627	0.06	0.026	0.044	<0.1000
Beryllium (Be)	0.004	<0.0001	<0.0002	<0.0002	<0.0002	<0.0030
Cadmium (Cd)	0.005	<0.0001	<0.0003	<0.0003	<0.0003	<0.0020
Chromium (Cr)	0.1	<0.002	<0.0047	<0.0047	<0.0047	<0.0100
Copper (Cu)*	1.3	0.0019	0.0132	0.0158	<0.0025	<0.2000
Cyanide (HCN)	0.2	<0.01	<0.01	<0.0100	<0.0100	<0.0500
Fluoride (F)	4	0.44	0.41	1.2	0.61	0.87
Lead (Pb)*	0.015	<0.0002	<0.0005	<0.0005	<0.0005	<0.0020
Mercury (Hg)	0.0020	<0.0002	<0.0003	<0.0003	<0.0003	<0.0005
Nickel (Ni)	0.1	0.0003	<0.01	<0.0100	<0.0100	<0.0400
Nitrate (as N)	10	5.46	5.06	0.32	2.66	<0.5000
Nitrite (as N)	1	<0.07	<0.05	0.07	<0.0700	<0.5000
Selenium (Se)	0.05	<0.002	<0.005	<0.0050	<0.0050	<0.0050
Sodium (Na)*	20	25	24.6	56.5	28.8	56
Thallium (Tl)	0.002	<0.0014	<0.001	<0.0010	<0.0010	<0.0020
Secondary Substances						
Chloride (Cl)	250	18.5	19.4	16.1	16.1	<20.0000
Fluoride (F)	2	0.44	0.41	1.2	0.61	0.87
Iron (Fe)	0.3	<0.0392	<0.12	<0.113	<0.0128	<0.1000
Manganese (Mn)	0.05	0.005	0.0094	0.0246	0.0022	0.041
Silver (Ag)	0.1	<0.0001	<0.0047	<0.0047	<0.0047	<0.0100
Sulfate (SO_4)	250	44.6	50.9	11.7	50	14
Zinc (Zn)	5	0.0037	<0.02	<0.0200	<0.0200	1.7
Color	15 Color Units	<4	<4	<4.0000	<4.0000	<5.0000
Specific Conductivity	700 umhos/cm	533	531	408	484	410
Total Dissolved Solids (TDS)	500	344	366	272	302	---
* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium.						

TABLE 3-10 INORGANIC CHEMICA ANALYSIS RESULTS FOR VELMA (S03)					
Chemical or Physical Characteristics	MCL (mg/l)	4/23/2019	4/20/2010	4/17/2007	7/1/2003
Primary Substances					
Antimony (Sb)	0.006	<0.0001	<0.005	<0.0050	<0.0050
Arsenic (As)	0.01	0.0028	<0.002	0.0028	0.0029
Barium (Ba)	2	0.0544	0.061	0.06	0.044
Beryllium (Be)	0.004	<0.0001	<0.0002	<0.0002	<0.0002
Cadmium (Cd)	0.005	<0.0001	<0.0003	<0.0003	<0.0003
Chromium (Cr)	0.1	<0.0028	<0.0047	<0.0047	<0.0047
Copper (Cu)*	1.3	0.0012	<0.002	0.0038	<0.0020
Cyanide (HCN)	0.2	<0.01	<0.01	<0.0100	<0.0100
Fluoride (F)	4	0.3	0.45	0.43	0.51
Lead (Pb)*	0.015	<0.0005	0.0006	0.0024	<0.0005
Mercury (Hg)	0.0020	<0.0002	<0.0003	<0.0003	<0.0003
Nickel (Ni)	0.1	0.0001	<0.01	<0.0100	<0.0100
Nitrate (as N)	10	4.65	4.73	4.51	3.95
Nitrite (as N)	1	<0.05	<0.05	<0.0500	<0.0700
Selenium (Se)	0.05	<0.0022	<0.005	<0.0050	<0.0050
Sodium (Na)*	20	16	17.7	16.1	16.6
Thallium (Tl)	0.002	<0.0003	<0.001	<0.0020	0.0014
Secondary Substances					
Chloride (Cl)	250	13.8	12.5	13.2	10.2
Fluoride (F)	2	0.3	0.45	0.43	0.51
Iron (Fe)	0.3	<0.0104	0.0135	0.0112	<0.0097
Manganese (Mn)	0.05	0.0008	<0.002	<0.0020	<0.0020
Silver (Ag)	0.1	<0.0002	<0.0047	<0.0047	<0.0047
Sulfate (SO_4)	250	45.1	45.4	42.6	46.2
Zinc (Zn)	5	0.0088	<0.02	<0.0200	<0.0200
Color	15 Color Units	<4	<4	<4.0000	<4.0000
Specific Conductivity	700 umhos/cm	444	427	415	387
Total Dissolved Solids (TDS)	500	288	298	308	252

* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium

TABLE 3-11 INORGANIC CHEMICAL ANALYSIS RESULTS FOR OLMSTEAD A (S07)			
Chemical or Physical Characteristics	MCL (mg/l)	9/12/2016	9/11/2007
Primary Substances			
Antimony (Sb)	0.006	<0.0001	<0.005
Arsenic (As)	0.01	0.0029	0.0048
Barium (Ba)	2	0.0533	0.053
Beryllium (Be)	0.004	<0.0001	<0.0002
Cadmium (Cd)	0.005	<0.0001	<0.0003
Chromium (Cr)	0.1	<0.0008	<0.0047
Copper (Cu)*	1.3	0.0009	<0.002
Cyanide (HCN)	0.2	<0.01	<0.01
Fluoride (F)	4	0.29	0.45
Lead (Pb)*	0.015	<0.0002	<0.0005
Mercury (Hg)	0.0020	<0.0002	<0.0003
Nickel (Ni)	0.1	<0.0001	<0.01
Nitrate (as N)	10	8.3	7.48
Nitrite (as N)	1	<0.05	<0.05
Selenium (Se)	0.05	<0.0013	<0.005
Sodium (Na)*	20	24.1	22.6
Thallium (Tl)	0.002	<0.0004	<0.001
Secondary Substances			
Chloride (Cl)	250	17.3	16.6
Fluoride (F)	2	0.29	0.45
Iron (Fe)	0.3	<0.0097	0.0358
Manganese (Mn)	0.05	0.0014	<0.002
Silver (Ag)	0.1	<0.0001	<0.0047
Sulfate (SO_4)	250	58	49.1
Zinc (Zn)	5	0.0123	<0.02
Color	15 Color Units	<4	<4
Specific Conductivity	700 umhos/cm	614	591
Total Dissolved Solids (TDS)	500	406	368
* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium			

TABLE 3-12 INORGANIC CHEMICAL ANALYSIS RESULTS FOR WILLOUGHBY (S10)				
Chemical or Physical Characteristics	MCL (mg/l)	9/12/2016	9/11/2007	12/23/1997
Primary Substances				
Antimony (Sb)	0.006	<0.0001	<0.005	<0.0050
Arsenic (As)	0.01	0.0017	0.0026	<0.0100
Barium (Ba)	2	0.0593	0.069	<0.1000
Beryllium (Be)	0.004	<0.0001	<0.0002	<0.0030
Cadmium (Cd)	0.005	<0.0001	<0.0003	<0.0020
Chromium (Cr)	0.1	<0.0005	<0.0047	<0.0100
Copper (Cu)*	1.3	0.0016	<0.002	<0.2000
Cyanide (HCN)	0.2	<0.01	<0.01	<0.0500
Fluoride (F)	4	0.18	0.35	0.4
Lead (Pb)*	0.015	<0.0003	<0.0005	<0.0020
Mercury (Hg)	0.0020	<0.0002	<0.0003	<0.0005
Nickel (Ni)	0.1	0.0001	<0.01	<0.0400
Nitrate (as N)	10	9	9.04	9.3
Nitrite (as N)	1	<0.05	<0.05	---
Selenium (Se)	0.05	<0.0018	<0.005	<0.0050
Sodium (Na)*	20	15.4	16.9	16
Thallium (Tl)	0.002	<0.0004	<0.001	<0.0020
Secondary Substances				
Chloride (Cl)	250	21.4	21.9	37
Fluoride (F)	2	0.18	0.35	0.4
Iron (Fe)	0.3	<0.0097	0.053	<0.1000
Manganese (Mn)	0.05	0.0001	0.0024	<0.0100
Silver (Ag)	0.1	<0.0001	<0.0047	<0.0100
Sulfate (SO_4)	250	68.8	65.4	69
Zinc (Zn)	5	0.0104	0.031	<0.2000
Color	15 Color Units	<4	<4	---
Specific Conductivity	700 umhos/cm	551	564	---
Total Dissolved Solids (TDS)	500	376	372	---

* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium

TABLE 3-13 INORGANIC CHEMICAL ANALYSIS RESULTS FOR HIGHLAND (S11)					
Chemical or Physical Characteristics	MCL (mg/l)	4/4/2016	4/17/2007	5/5/2003	5/19/1999
Primary Substances					
Antimony (Sb)	0.006	<0.0001	<0.005	<0.0050	<0.0050
Arsenic (As)	0.01	0.0024	0.0022	0.0074	<0.0100
Barium (Ba)	2	0.0585	0.066	0.062	<0.1000
Beryllium (Be)	0.004	<0.0001	<0.0002	<0.0030	<0.0030
Cadmium (Cd)	0.005	<0.0001	<0.0003	<0.0020	<0.0020
Chromium (Cr)	0.1	<0.0015	<0.0047	0.016	<0.0100
Copper (Cu)*	1.3	0.0004	<0.002	<0.2000	<0.2000
Cyanide (HCN)	0.2	<0.01	<0.01	<0.0500	<0.0500
Fluoride (F)	4	0.39	0.38	0.23	0.8
Lead (Pb)*	0.015	<0.0004	<0.0005	0.0018	<0.0020
Mercury (Hg)	0.0020	<0.0002	<0.0003	<0.0005	<0.0005
Nickel (Ni)	0.1	<0.0001	<0.01	<0.0400	<0.0400
Nitrate (as N)	10	7.7	6.58	7.25	6.4
Nitrite (as N)	1	<0.05	<0.05	<0.5000	---
Selenium (Se)	0.05	<0.0017	<0.005	<0.0050	<0.0050
Sodium (Na)*	20	15.3	16.2	16.7	20
Thallium (Tl)	0.002	<0.0009	<0.002	<0.0020	<0.0020
Secondary Substances					
Chloride (Cl)	250	23.7	24.1	26.3	<20.0000
Fluoride (F)	2	0.39	0.38	0.23	0.8
Iron (Fe)	0.3	0.0097	<0.0097	0.012	0.11
Manganese (Mn)	0.05	0.0001	<0.002	<0.0100	<0.0100
Silver (Ag)	0.1	0.0001	<0.0047	<0.0100	<0.0100
Sulfate (SO_4)	250	72.9	69.5	79.6	46
Zinc (Zn)	5	0.0081	<0.02	0.032	<0.2000
Color	15 Color Units	4	<4	<5.0000	<20.0000
Specific Conductivity	700 umhos/cm	583	564	585	---
Total Dissolved Solids (TDS)	500	412	400	416	---

* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium

TABLE 3-14 INORGANIC CHEMICAL ANALYSIS RESULTS FOR SOUTH WILLOUGHBY (S13)						
Chemical or Physical Characteristics	MCL (mg/l)	5/14/2019	9/8/2010	2/1/2007	10/17/2006	12/13/1994
Primary Substances						
Antimony (Sb)	0.006	<0.0001	<0.005	<0.0050	<0.0050	<0.0050
Arsenic (As)	0.01	0.0001	<0.002	0.0127	<0.0020	<0.0100
Barium (Ba)	2	0.0022	<0.002	0.006	0.007	0.012
Beryllium (Be)	0.004	<0.0001	<0.0002	<0.0002	<0.0002	<0.0030
Cadmium (Cd)	0.005	<0.0001	<0.0003	<0.0020	<0.0020	<0.0020
Chromium (Cr)	0.1	<0.0013	<0.0047	<0.0047	<0.0047	<0.0100
Copper (Cu)*	1.3	0.0002	<0.002	0.0047	0.0124	<0.2000
Cyanide (HCN)	0.2	<0.01	<0.01	<0.0100	<0.0100	<0.0500
Fluoride (F)	4	2.31	2.19	2.16	1.99	1.91
Lead (Pb)*	0.015	<0.0008	<0.0005	0.0012	0.0039	<0.0020
Mercury (Hg)	0.0020	<0.0002	<0.0003	<0.0003	<0.0003	<0.0005
Nickel (Ni)	0.1	0.0002	<0.01	<0.0100	<0.0100	<0.0400
Nitrate (as N)	10	0.05	<0.05	<0.0500	0.08	0.14
Nitrite (as N)	1	<0.05	<0.05	0.05	<0.0500	<0.5000
Selenium (Se)	0.05	<0.0005	<0.005	<0.0050	<0.0050	<0.0050
Sodium (Na)*	20	78.9	85.1	80.5	85	83.9
Thallium (Tl)	0.002	<0.0011	<0.001	<0.0020	<0.0020	<0.0020
Secondary Substances						
Chloride (Cl)	250	19.1	16.1	17.2	18.2	18.2
Fluoride (F)	2	2.31	2.19	2.16	1.99	1.91
Iron (Fe)	0.3	<0.0097	<0.0097	0.0438	0.0675	0.059
Manganese (Mn)	0.05	0.0008	<0.002	0.0026	0.0023	<0.0100
Silver (Ag)	0.1	<0.0001	<0.0047	<0.0047	<0.0047	<0.0100
Sulfate (SO_4)	250	0.54	<0.1	3.58	1.46	6.28
Zinc (Zn)	5	0.0006	<0.005	<0.0200	<0.0200	<0.2000
Color	15 Color Units	<4	<4	<4	<4	<5
Specific Conductivity	700 umhos/cm	414	376	409	412	342
Total Dissolved Solids (TDS)	500	220	244	268	274	---
* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium.						

TABLE 3-15 INORGANIC CHEMICAL ANALYSIS RESULTS FOR BUTTERNUT (S14)						
Chemical or Physical Characteristics	MCL (mg/l)	9/11/2018	11/11/2009	12/21/2000	12/23/1997	12/13/1994
Primary Substances						
Antimony (Sb)	0.006	<0.0001	<0.005	<0.0050	<0.0050	<0.0030
Arsenic (As)	0.01	0.0002	<0.002	<0.0100	<0.0100	<0.0050
Barium (Ba)	2	0.0019	0.003	<0.1000	<0.1000	0.014
Beryllium (Be)	0.004	<0.0001	<0.0002	<0.0030	<0.0003	<0.0040
Cadmium (Cd)	0.005	<0.0001	<0.0003	<0.0020	<0.0020	<0.0040
Chromium (Cr)	0.1	<0.0006	<0.0047	<0.0100	<0.0100	<0.0200
Copper (Cu)*	1.3	0.0002	0.00295	<0.2000	<0.2000	0.012
Cyanide (HCN)	0.2	<0.01	<0.0500	<0.0500	<0.0500	<0.0050
Fluoride (F)	4	2.66	<0.2000	<0.2000	2.6	2.87
Lead (Pb)*	0.015	<0.0001	<0.0020	<0.0020	<0.0020	0.005
Mercury (Hg)	0.0020	<0.0002	<0.0005	<0.0005	<0.0005	<0.0002
Nickel (Ni)	0.1	0.0003	<0.01	<0.0400	<0.0400	<0.0300
Nitrate (as N)	10	0.05	<0.07	<0.5000	<0.5000	0.12
Nitrite (as N)	1	<0.05	<0.07	<0.5000	<0.5000	<0.0500
Selenium (Se)	0.05	<0.0005	<0.005	<0.0050	<0.0050	<0.0050
Sodium (Na)*	20	88	91	82	81	94
Thallium (Tl)	0.002	<0.0001	<0.001	<0.0020	<0.0020	<0.0020
Secondary Substances						
Chloride (Cl)	250	23.4	23.1	<20.0000	<20.0000	20.9
Fluoride (F)	2	2.66	0.97	<0.2000	2.6	2.87
Iron (Fe)	0.3	<0.0216	0.0311	<0.1000	<0.1000	0.205
Manganese (Mn)	0.05	0.0009	<0.002	<0.0100	<0.0100	<0.0200
Silver (Ag)	0.1	<0.0001	<0.0047	<0.0100	<0.0100	<0.0100
Sulfate (SO_4)	250	0.94	1	<10.0000	<10.0000	3.41
Zinc (Zn)	5	0.0015	<0.02	<0.2000	<0.2000	0.027
Color	15 Color Units	<4	<4	<5.0000	<5.0000	<15.0000
Specific Conductivity	700 umhos/cm	400	393	390	540	352
Total Dissolved Solids (TDS)	500	272	304	---	---	---
* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium.						

TABLE 3-16 INORGANIC CHEMICAL ANALYSIS RESULTS FOR OLMSTEAD B (S16)					
Chemical or Physical Characteristics	MCL (mg/l)	6/11/2019	8/10/2010	8/9/2006	9/24/2003
Primary Substances					
Antimony (Sb)	0.006	<0.0001	<0.005	<0.0050	<0.0050
Arsenic (As)	0.01	0.003	0.0034	<0.0020	0.0126
Barium (Ba)	2	0.0504	0.049	0.032	0.035
Beryllium (Be)	0.004	<0.0001	<0.0002	<0.0002	<0.0002
Cadmium (Cd)	0.005	<0.0001	<0.0003	<0.0003	<0.0003
Chromium (Cr)	0.1	<0.0011	<0.0047	<0.0047	<0.0047
Copper (Cu)*	1.3	0.0004	<0.002	<0.0020	<0.0020
Cyanide (HCN)	0.2	<0.01	<0.01	<0.0100	<0.0100
Fluoride (F)	4	0.34	0.45	0.52	0.53
Lead (Pb)*	0.015	<0.0001	<0.0005	<0.0005	<0.0005
Mercury (Hg)	0.0020	<0.0002	<0.0003	<0.0003	<0.0003
Nickel (Ni)	0.1	0.0002	<0.01	<0.0100	<0.0100
Nitrate (as N)	10	8.8	6.28	1.53	2.89
Nitrite (as N)	1	<0.05	<0.05	<0.0500	<0.0500
Selenium (Se)	0.05	<0.0012	<0.005	<0.0050	<0.0050
Sodium (Na)*	20	25.5	24.9	41.6	38.2
Thallium (Tl)	0.002	<0.0003	<0.001	<0.0010	<0.0010
Secondary Substances					
Chloride (Cl)	250	19	15.3	8.57	11
Fluoride (F)	2	0.34	0.45	0.52	0.53
Iron (Fe)	0.3	<0.0097	<0.0097	<0.0097	0.109
Manganese (Mn)	0.05	0.0011	0.0024	0.0104	0.0163
Silver (Ag)	0.1	<0.0001	<0.0047	<0.0047	<0.0047
Sulfate (SO_4)	250	53.2	47.4	29.9	38.6
Zinc (Zn)	5	0.0091	0.0205	<0.0200	0.0281
Color	15 Color Units	<4	<4	<4.0000	<4.0000
Specific Conductivity	700 umhos/cm	622	551	353	412
Total Dissolved Solids (TDS)	500	378	374	240	258
* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium					

TABLE 3-17 INORGANIC CHEMICAL ANALYSIS RESULTS FOR PECAN B (S18)				
Chemical or Physical Characteristics	MCL (mg/l)	7/23/2013	6/4/2010	6/14/2006
Primary Substances				
Antimony (Sb)	0.006	<0.0001	0.005	<0.0050
Arsenic (As)	0.01	0.00288	0.0034	0.0053
Barium (Ba)	2	0.01267	0.013	0.018
Beryllium (Be)	0.004	<0.0001	0.0002	<0.0002
Cadmium (Cd)	0.005	<0.0001	0.0003	<0.0003
Chromium (Cr)	0.1	0.00089	0.0047	<0.0047
Copper (Cu)*	1.3	0.00295	0.002	<0.0020
Cyanide (HCN)	0.2	<0.01	0.01	<0.0100
Fluoride (F)	4	0.47	0.46	0.44
Lead (Pb)*	0.015	0.00015	0.0005	<0.0005
Mercury (Hg)	0.0020	<0.0002	0.0003	<0.0003
Nickel (Ni)	0.1	<0.0001	0.01	<0.0100
Nitrate (as N)	10	2.56	2.55	2.48
Nitrite (as N)	1	<0.05	0.05	<0.0500
Selenium (Se)	0.05	0.00207	0.005	<0.0050
Sodium (Na)*	20	15.9	15.5	17.5
Thallium (Tl)	0.002	0.00014	0.001	<0.0010
Secondary Substances				
Chloride (Cl)	250	9.83	9.34	9.63
Fluoride (F)	2	0.47	0.46	0.44
Iron (Fe)	0.3	<0.0097	0.0097	<0.0097
Manganese (Mn)	0.05	0.00023	0.002	<0.0020
Silver (Ag)	0.1	<0.0001	0.0047	<0.0047
Sulfate (SO_4)	250	29.7	30.1	35.2
Zinc (Zn)	5	0.00138	0.005	<0.0200
Color	15 Color Units	<4	4	<4.0000
Specific Conductivity	700 umhos/cm	352	351	349
Total Dissolved Solids (TDS)	500	202	250	238

* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium

Arsenic Monitoring: The maximum contaminant levels (MCL) for arsenic is 0.010 mg/l. Current testing results from Grandview's wells show arsenic concentrations to be below the standard of 0.010 mg/l. However, past samples have tested above the MCL including South Willoughby well (S13) which had an arsenic concentration of 0.0127 mg/l from a sample collected in February 2007, and Olmstead B well (S16) which had a concentration of 0.0126 mg/l from a sample collected in September 2003. Arsenic monitoring requirements are consistent with IOC monitoring at all wells except for Olmstead A, which requires quarterly arsenic sampling.

Nitrate/Nitrite Monitoring: The City of Grandview conducts annual monitoring for Nitrate and Nitrite on all well sources, and quarterly monitoring on three of its wells. The maximum contaminant levels (MCL) for Nitrate and Nitrite are 10.0 mg/l and 1.0 mg/l, respectively. Nitrates exceeding this concentration in drinking water can be a health hazard, especially to infants below six months of age.

Test results for the period 2016 through 2021, summarized in Table 3-18, show the City in compliance with State standards. A copy of Nitrate/Nitrite analysis test results are provided in CHAPTER 10.

As mentioned previously, all source wells are tested individually, though some sources are blended prior to entering the distribution system. Blending allows wells with higher nitrate concentrations to combine with wells having lower nitrate concentrations to meet MCL standards. Blending occurs at Sources S07 Olmstead A and S16 Olmstead B, and previously at Sources S10 North Willoughby and S13 South Willoughby. S13 South Willoughby is an emergency source, and has not been used since early 2012, so currently no blending occurs at this location. These source wells are plumbed with isolation valves to allow individual and blended testing. Table 3-19 shows the blended nitrate concentrations at these wells.

TABLE 3-18 NITRATE / NITRITE CHEMICAL ANALYSIS RESULTS						
	2021	2020	2019	2018	2017	2016
West Main (S01)						
Nitrate (NO_3-N)	7.25	7.44	7.32	7.43	7.60	7.70
Nitrite (NO_2-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	7.25	7.44	7.32	7.43	7.60	7.70
Balcom & Moe (S02)						
Nitrate (NO_3-N)	5.09	5.51	5.22	5.66	5.10	5.30
Nitrite (NO_2-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	5.09	5.51	5.22	5.66	5.15	5.30
Velma (S03)						
Nitrate (NO_3-N)	4.55	4.92	4.64	4.83	4.55	4.70
Nitrite (NO_2-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	4.55	4.92	4.64	4.83	4.55	4.70
Olmstead A (S07)						
Nitrate (NO_3-N)	---	10.70	9.74	8.30	9.10	8.70
Nitrite (NO_2-N)	---	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	---	10.70	9.74	8.30	9.10	8.70
North Willoughby (S10)						
Nitrate (NO_3-N)	1.93	8.90	9.10	8.60	7.80	8.70
Nitrite (NO_2-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	1.93	8.90	9.10	8.60	7.80	8.70
Highland (S11)						
Nitrate (NO_3-N)	8.40	7.85	7.90	5.24	7.80	7.60
Nitrite (NO_2-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	8.40	7.85	7.90	5.24	7.80	7.60
South Willoughby (S13)						
Nitrate (NO_3-N)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Nitrite (NO_2-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Butternut (S14)						
Nitrate (NO_3-N)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Nitrite (NO_2-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Olmstead B (S16)						
Nitrate (NO_3-N)	<0.50	10.30	0.45	8.34	0.37	0.42
Nitrite (NO_2-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	<0.50	10.30	0.45	8.34	0.37	0.42
Pecan B (S18)						
Nitrate (NO_3-N)	3.30	2.45	3.16	2.64	2.63	2.64
Nitrite (NO_2-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	3.30	2.45	3.16	2.64	2.63	2.64

TABLE 3-19 NITRATE / NITRITE CHEMICAL ANALYSIS BLENDED RESULTS						
	2021	2020	2019	2018	2017	2016
Olmstead A (S07) and Olmstead B (S16) Blend						
Nitrate (NO_3-N)	---	10.30	9.28	8.34	8.40	7. 50
Nitrite (NO_2-N)	---	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	---	10.30	9.28	8.34	8.40	7.50
North Willoughby (S10) and South Willoughby (S13) Blend						
Nitrate (NO_3-N)	2.32	8.10	2.75	2.47	1.19	8.20
Nitrite (NO_2-N)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrate/Nitrite	2.32	8.10	2.75	2.47	1.19	8.20

Volatile Organic Chemical Monitoring: Volatile Organic Chemical (VOC) monitoring is required once every year for the first three years of sampling, per 40 CFR 141.24. Samples are to be taken following water treatment. If no VOCs are detected during the first three years of testing, future monitoring shall be at least once every compliance period. DOH may grant waivers for monitoring requirements. Grandview conducted VOC testing on its source wells as shown in Table 3-20.

TABLE 3-20 SOURCE WELL VOC TESTING					
Source	Month/Year				
	Next Sample	Sample Date History			
West Main (S01)	Apr-26	Apr-21	Apr-09	Jul-07	Aug-04
Balcom & Moe (S02)	Apr-26	Apr-21	Apr-09	Jul-07	Aug-04
Velma (S03)	Apr-26	Apr-21	Apr-09	Apr-07	Apr-03
Olmstead A (S07)	Quarterly	Mar-21	Apr-09	May-06	-
North Willoughby (S10)	Sept-24	Sept-21	Oct-14	Jun-06	Nov-04
Highland (S11)	Apr-26	Apr-21	Apr-09	Dec-06	Aug-02
South Willoughby (S13)	Apr-26	Apr-21	May-09	Jun-06	Aug-04
Butternut (S14)	Apr-26	Apr-21	Apr-09	Aug-04	Apr-97
Olmstead B (S16)	Apr-26	Apr-21	Apr-09	Dec-06	Sep-06
Ashael Curtis (S17)	Quarterly	Mar-21	-	-	-
Pecan B (S18)	Apr-25	Apr-19	Apr-13	Oct-07	Sep-07

Test results show the City in compliance with State standards. The City tests for trihalomethanes (TTHM) along with VOC testing, and test results showed no presence of any of these substances in the water from the City's wells. Copies of the VOC and trihalomethanes test results are provided in CHAPTER 10.

Synthetic Organic Chemical (SOC) Monitoring: SOC monitoring is required once every year for the first three years of sampling, per 40 CFR 141.24. Samples are to be taken following water treatment. If no SOCs are detected during the first three years of testing, future monitoring shall be at least once every compliance period. DOH may grant waivers for monitoring requirements. Grandview conducted SOC testing on its source wells as shown in Table 3-21.

TABLE 3-21 SOURCE WELL SOC TESTING				
Source	Month/Year			
West Main (S01)	Jul-16	Jul-07	Jan-99	-
Balcom & Moe (S02)	Apr-17	Apr-13	Apr-08	Jun-01
Velma (S03)	Jun-16	Mar-08	Jun-07	Jun-01
Olmstead A (S07)	Sep-16	Sep-07	Dec-98	Oct-95
North Willoughby (S10)	Jul-16	Jul-07	Dec-98	-
Highland (S11)	Apr-21	May-15	Apr-12	Mar-08
South Willoughby (S13)	Sep-18	Sep-09	Dec-98	-
Butternut (S14)	Apr-18	Apr-09	Dec-98	-
Olmstead B (S16)	Sep-16	Sep-07	-	-
Pecan B (S18)	Apr-16	Mar-16	Mar-07	-

Test results show the City is in compliance with State standards and showed no presence of any of these substances in the water from the City's wells. A copy of the SOC analysis test results is provided in CHAPTER 10.

Radionuclide Monitoring: For the City of Grandview, radionuclide sampling from each source is generally required once every three years. However, DOH may reduce monitoring requirements to once every six or nine years based on criteria set forth in 40 CFR 141.26. Grandview has completed radionuclide testing on its source wells as shown in Table 3-22.

TABLE 3-22 SOURCE WELL RADIONUCLIDE TESTING				
Source	Month/Year			
West Main (S01)	May-20	Jun-16	Jun-10	Oct-07
Balcom & Moe (S02)	May-20	Sep-19	Apr-18	Apr-11
Velma (S03)	Jun-20	May-15	Jun-14	May-09
Olmstead A (S07)	May-17	Mar-17	Sep-15	Apr-12
North Willoughby (S10)	May-20	Jun-17	Apr-15	Jun-14
Highland (S11)	May-20	May-18	Sep-15	May-15
South Willoughby (S13)	Jun-16	Nov-09	Nov-05	May-05
Butternut (S14)	Apr-16	Apr-10	Dec-05	Jun-05
Olmstead B (S16)	Apr-17	Aug-15	Aug-12	May-10
Pecan B (S18)	Jun-16	Jun-10	Sep-07	Jun-06

Test results show the City in compliance with State standards. A copy of the radionuclide analysis test results is provided in CHAPTER 10.

3.2.2 Distribution System Sampling and Testing

Bacteriological: Drinking water samples are required to be collected monthly at various locations throughout the water distribution system for bacteriological analysis in accordance with the City's *Coliform Monitoring Plan*. The minimum number of samples required for collection by a water utility is based on the population served. DOH regulations require water systems serving a population of 8,501 to 12,900 to take a minimum of ten (10) samples per month when no samples with a coliform presence are collected previous month. The City of Grandview is required to sample a minimum of ten (10) locations within the distribution system. The *Coliform Monitoring Plan* and representative copies of bacteriological analysis results are provided in CHAPTER 10.

Disinfection Byproducts (DBPs): Grandview adds chlorine to its drinking water to kill or inactivate harmful organisms that may cause various diseases, and this process is known as disinfection. However, chlorine is a very active substance, and it reacts with naturally occurring substances to form compounds known as disinfection byproducts. The most common disinfection byproducts formed when chlorine is used are trihalomethanes (TTHMs) and haloacetic acids (HAA5).

In 2006, EPA enacted new rules for disinfection byproducts monitoring, known as the Stage 2 Rule. Under the Stage 2 Rule, water systems must monitor at locations with the highest averages of total trihalomethanes (TTHMs) and haloacetic acids (HAA5). To determine these locations, the Stage 2 Rule required many systems to complete an Initial Distribution System Evaluation (IDSE). However, the City of Grandview was exempt from the IDSE requirement as its 40/30 certification was approved by EPA, demonstrating low historical TTHM and HAA5 distribution system concentrations. Two dual sample sets of TTHM and HAA5 samples are required at each of two locations annually to meet Stage 2 Rule standards. The City has identified the sampling locations and schedules in the *Stage 2 DBP Monitoring Plan* provided in CHAPTER 10. The compliance determination for the Stage 2 Rule is based on a locational running annual average (LRAA), meaning compliance must be met at each monitoring location instead of the system-wide running annual average (RAA) used under the Stage 1 Rule.

Results from the latest (2020) monitoring indicated that none of the samples exceeded the federal action levels of 0.080 mg/l for TTHMs and 0.060 mg/l for HAA5 under the Stage 1 DBP Rule. Table 3-23 provides a summary of the 2020, 2019, and 2018 TTHMs and HAA5 monitoring results, which are also provided in CHAPTER 10.

TABLE 3-23 TTHM AND HAA5 PROGRAM SUMMARY OF RESULTS
(all values are in milligrams per liter)

Year	Sample Locations	TTHM	HAA5
2020	1260 Appleway Road	0.0063	0.0023
	940 East Wine Country Road	0.0231	0.0010
2019	1260 Appleway Road	0.0044	ND
	940 East Wine Country Road	0.0199	0.0012
2018	1260 Appleway Road	ND	0.0060
	940 East Wine Country Road	0.0122	0.0060
* ND means not detected			

Lead and Copper: Lead and copper sampling is required once every three years as approved by the DOH, per 40 CFR 141.86. In 1992, Grandview began a tap water lead and copper monitoring program to determine the lead and copper concentrations in drinking water to which its customers may be exposed. In 2014, thirty (30) samples were collected from various locations throughout the water system and tested for concentrations of lead and copper. Results from the latest (2020) monitoring indicated that none of the samples exceeded the federal action levels of 1.3 mg/l for copper and 0.015 mg/l for lead. Table 3-24 provides a summary of the 2020 copper and lead monitoring results, which are also provided in CHAPTER 10. Test results from the 1998, 2000, 2005, 2008, 2011, and 2014 are also provided in CHAPTER 10.

TABLE 3-24 LEAD AND COPPER MONITORING PROGRAM SUMMARY OF RESULTS
(all values are in milligrams per liter)

Sample Number	Sample Location	Year 2020	
		Copper (Federal Action Level 1.3 mg/l)	Lead (Federal Action Level 0.015 mg/l)
1	701 Washington #10	0.0260	0.00041
2	1005 Monty Python	0.0406	0.00069
3	218 Jackson	0.0226	0.00041
4	702 Larson	0.0201	0.00224
5	403 Westridge	0.00804	0.00014
6	209 West Bonnieview	0.00434	0.00036
7	1810 Young Street	0.00488	0.00052
8	701 Washington #16	0.0491	0.00077
9	308 Westridge	0.0373	0.00270
10	212 Jackson	0.0380	0.000410
11	214 Jackson	0.0333	0.00081
12	701 Washington #1	0.0197	0.00031
13	306 Westridge	0.0728	0.00079
14	1816 W 2nd	0.0372	0.00026
15	100 W 2nd	0.00850	0.00033
16	1806 W 2nd	0.0198	0.00011
17	207 Westridge	0.0783	0.00035
18	202 Westridge	0.00936	0.00055
19	207 Madison	0.0304	0.00083
20	219 Jackson	0.0118	0.00039
21	701 Washington #15	0.0112	0.000027
22	1800 W 2nd	0.0116	0.00049
23	912 Carriage	0.00157	0.00047
24	1105 Apache	0.0279	0.00091
25	516 Satterfield	0.0273	0.00050
26	601 Washington #1	0.0271	0.00061
27	305 E 2nd	0.0444	0.00199
28	700 Washington #2	0.00855	0.00041
29	602 Washington #9	0.00811	0.00074
30	1911 Queen Street	0.00432	0.00022

3.2.3 Future Source Water and Distribution System Sampling and Testing

A summary of future source and distribution system monitoring requirement frequencies, dates and sample status, as provided in the City's *Water Quality Monitoring Report for the Year 2015* (WQMR), is provided below in Table 3-25 and Table 3-26, respectively. A copy of the City's 2015 WQMR is provided in CHAPTER 10.

TABLE 3-25 FUTURE SOURCE WATER SAMPLING REQUIREMENTS				
Sample Type	Frequency	Last Sample	Next Sample	Status
West Main (S01)				
Nitrate/Nitrite	Once/Year	May 2021	May 2022	Within MCLs
Inorganic Chemicals (IOCs)	Once/9 years	May 2019	May 2028	Within MCLs
Volatile Organic Chemicals (VOCs)	Once/6 Years	April 2021	April 2027	Within MCLs
Herbicides	Once/9 Years	July 2016	July 2025	Within MCLs
Pesticides	Once/9 Years	July 2016	July 2025	Within MCLs
Gross Alpha	Once/6 Years	May 2020	June 2023	Within MCLs
Radium 228	Once/3 Years	May 2020	June 2023	Within MCLs
Balcom & Moe (S02)				
Nitrate/Nitrite	Once/Year	April 2021	June 2022	Within MCLs
Inorganic Chemicals (IOCs)	Once/9 years	April 2018	April 2027	Within MCLs
Volatile Organic Chemicals (VOCs)	Once/6 Years	April 2021	April 2027	Within MCLs
Herbicides	Once/9 Years	April 2017	April 2026	Within MCLs
Pesticides	Once/9 Years	April 2013	April 2022	Within MCLs
Gross Alpha	Once/6 Years	May 2020	May 2023	Within MCLs
Radium 226 + 228	Once/6 Years	May 2020	May 2023	Within MCLs
Velma (S03)				
Nitrate/Nitrite	Once/Year	May 2021	May 2022	Within MCLs
Inorganic Chemicals (IOCs)*	Once/9 years	April 2019	April 2028	Within MCLs
Volatile Organic Chemicals (VOCs)*	Once/6 Years	April 2021	April 2027	Within MCLs
Herbicides	Once/9 Years	June 2016	June 2025	Within MCLs
Pesticides	Once/9 Years	June 2016	June 2025	Within MCLs
Gross Alpha	Once/6 Years	June 2020	June 2026	Within MCLs
Radium 228	Once/6 Years	June 2020	May 2026	Within MCLs
Olmstead A (S07)				
Nitrate/Nitrite	Once/Year	January 2020	TBD	Within MCLs
Inorganic Chemicals (IOCs)	Once/9 years	September 2016	September 2025	Within MCLs
Arsenic	Once/Quarter	February 2015	TBD	Within MCLs
Volatile Organic Chemicals (VOCs)	Once/6 Years	April 2015	April 2021	Within MCLs
Herbicides	Once/9 Years	September 2016	September 2025	Within MCLs
Pesticides	Once/9 Years	September 2016	September 2025	Within MCLs
Gross Alpha	Once/3 Years	October 2019	TBD	Within MCLs
Radium 226 + 228	Once/6 Years	May 2015	TBD	Within MCLs
North Willoughby (S10)				
Nitrate/Nitrite	Once/Quarter	June 2022	October 2022	Within MCLs
Inorganic Chemicals (IOCs)	Once/9 years	September 2016	September 2025	Within MCLs
Volatile Organic Chemicals (VOCs)	Once/3 Years	September 2021	September 2024	Within MCLs
Herbicides	Once/9 Years	July 2016	July 2025	Within MCLs
Pesticides	Once/9 Years	July 2016	July 2025	Within MCLs
Gross Alpha	Once/6 Years	May 2020	May 2026	Within MCLs
Radium 228	Once/6 Years	May 2020	May 2026	Within MCLs
Highland (S11)				
Nitrate/Nitrite	Once/Quarter	July 2021	**October 2021**	Within MCLs
Inorganic Chemicals (IOCs)	Once/9 years	April 2016	April 2025	Within MCLs
Volatile Organic Chemicals (VOCs)	Once/6 Years	April 2016	April 2022	Within MCLs
Herbicides	Once/3 Years	April 2021	April 2030	Within MCLs
Pesticides	Once/9 Years	May 2015	May 2024	Within MCLs
Gross Alpha	Once/3 Years	May 2020	May 2023	Within MCLs
Radium 228	Once/3 Years	May 2020	May 2023	Within MCLs
Butternut (S14)				
Nitrate/Nitrite	Once/Year	June 2021	November 2022	Within MCLs
Inorganic Chemicals (IOCs)	Once/9 years	September 2018	September 2027	Within MCLs
Volatile Organic Chemicals (VOCs)	Once/6 Years	April 2021	April 2027	Within MCLs
Herbicides	Once/9 Years	April 2018	April 2027	Within MCLs
Pesticides	Once/9 Years	April 2018	April 2027	Within MCLs
Gross Alpha	Once/6 Years	April 2022	April 2028	Within MCLs
Radium 228	Once/6 Years	April 2016	June 2025	Within MCLs
Olmstead B Well (S16)				
Nitrate/Nitrite	Once/Year	June 2021	March 2022	Within MCLs
Inorganic Chemicals (IOCs)	Once/9 years	June 2019	June 2028	Within MCLs
Volatile Organic Chemicals (VOCs)	Once/Quarter	April 2021	March 2022	Within MCLs
Herbicides	Once/3 Years	September 2016	September 2025	Within MCLs
Pesticides	Once/9 Years	September 2016	September 2025	Within MCLs
Gross Alpha	Once/6 Years	August 2015	**August 2021**	Within MCLs
Radium 226 + 228	Once/6 Years	April 2017	April 2023	Within MCLs
Pecan B (S18)				
Nitrate/Nitrite	Once/Year	September 2021	September 2022	Within MCLs
Inorganic Chemicals (IOCs)	Once/9 years	July 2013	July 2022	Within MCLs
Volatile Organic Chemicals (VOCs)	Once/6 Years	April 2019	April 2025	Within MCLs
Herbicides	Once/9 Years	April 2016	April 2025	Within MCLs
Pesticides	Once/9 Years	April 2016	April 2025	Within MCLs
Gross Alpha	Once/6 Years	June 2016	June 2022	Within MCLs
Radium 226 + 228	Once/6 Years	June 2016	June 2022	Within MCLs

TABLE 3-26 FUTURE DISTRIBUTION SYSTEM SAMPLING REQUIREMENTS				
Sample Type	Frequency	Last Sample	Next Sample	Status
Coliform Bacteria	10/Month	July 2022	August 2022	Within MCLs
Disinfection Byproducts*	2 dual sample sets/Year	June 2021	June 2022	Within MCLs
Lead & Copper	1 set of 30 samples/3 Years	September 2020	September 2023	No Exceedance
Asbestos	1/9 Years	September 2018	September 2027	Within MCLs
* Two dual sample sets of TTHM and HAA5 samples are required at each of two locations annually, Stage 2 Rule.				

Future sampling requirements are discussed further in CHAPTER 6. The City's 2015 and future WQMRs should be consulted regarding the dates for future testing.

3.3 DESIGN STANDARDS

Standardized performance and design criteria are essential for the efficient evaluation, construction, and operation of a water utility. Establishing minimum criteria assures a base level of system reliability and enhances the utility's ability to assess system deficiencies and to plan for future improvements. The City of Grandview has established the following performance and design criteria for their water system:

TABLE 3-27 SYSTEM DESIGN STANDARDS		
Parameter	Design Standard	Regulatory Reference
Water Quality	The quality of water supplied to the system shall meet or exceed the requirements of the latest edition of DOH publication entitled *State Board of Health - Drinking Water Regulations*.	Chapter 246-290 WAC, Part 3
Average Daily Demand (ADD)	This demand shall be equivalent to the daily consumption per service in a user category averaged for the period 2015-2021, except as otherwise adjusted to account for recent changes in demand trends. The ADD values for Grandview are presented in Table 2-8.	WAC 246-290-221
Maximum Daily Demand (MDD)	This demand shall be equivalent to the maximum day of consumption per service in a user category, as calculated using the volume of water from the maximum day of production. The MDD values are presented in Table 2-11. MDD/ERU = 273.7 gallons/day	WAC 246-290-221
Peak Hourly Demand (PHD)	This demand shall be equivalent to the peak hour consumption per service in a user category, as calculated using a conservative estimate of 1.8 times the MDD as shown in Table 2-9. PHD/ERU = 0.34 gpm.	WAC 246-290-221
Storage Requirements	Storage requirements shall be based on providing minimum operational, equalizing, standby, and fire suppression storage for the entire water system as calculated using DOH *Water System Design Manual* equations. The specific storage requirements for the City of Grandview are presented later in this chapter.	WAC 246-290-235
Fire Suppression Storage (FSS) and Fire Flow	Storage requirements for fire flow shall be based on providing 6,000 gpm for a 4-hour duration (the minimum flow required by the Grandview Fire Department for the largest facility), which equals 1,440,000 gallons. Additional fire suppression storage and fire flow capacity requirements are discussed later in this chapter.	WAC 246-290-221(5)
Flow Rates and Velocities	Pipelines shall be sized for a maximum allowable water flow velocity of eight feet per second (fps) for system demands, which equals the maximum instantaneous demand (PHD). Pipeline velocities for fire flow conditions shall be permitted to exceed eight fps. The basis for pipe size design shall be per computer model analysis.	2019 DOH Water System Design Manual
System Pressures	The City of Grandview water system currently has one pressure zone. The minimum service pressure under maximum instantaneous domestic demand conditions shall be 30 pounds per square inch (psi). Under fire flow conditions, the minimum fire hydrant flow pressure shall be 20 psi. Additional information regarding system pressure requirements under specific hydraulic analysis scenarios is presented later in this chapter.	WAC 246-290-230(5) and WAC 246-290-230(6)
Minimum Pipe Sizes	The minimum pipe size allowed within the system shall be eight-inch diameter. Where fire flow requirements exceed 1,000 gpm, the minimum pipeline size shall be determined by hydraulic analysis.	City of Grandview Design and Construction Standards

Additional design standards and requirements for water main construction in the City of Grandview are included in the City's Design and Construction Standards provided in CHAPTER 10.

3.4 CAPACITY ANALYSIS

Review and analysis of the capacity of all system components, including water sources, treatment systems, storage facilities, and distribution components described in Section 3.1, is important to maintain the City's level of service and ensure the current and future system satisfies the requirements of WAC 246-290-100(4)(e).

3.4.1 Source Reliability

Existing source well production is summarized in Table 3-28, along with projections of future water system demand and ERUs. It is crucial to compare existing and future demand trends with the water supply capacities summarized in Section 3.1 and DOH recommended reliability criteria summarized in Section 3.10.5 of the 2020 Water System Design Manual. The following are the applicable water source reliability recommendations:

- Two or more supply sources are available.
- Permanent and seasonal sources are capable of replenishing depleted fire suppression storage within 72 hours while concurrently supplying the MDD for the water system.
- Permanent and seasonal source capacity is enough to supply MDD in a pumping period of 20 hours or less.
- With the largest source out of service, the remaining permanent and seasonal source(s) can provide a minimum of ADD for the water system.
- Source of supply pump stations have power connections to two independent primary public power sources, have in-place auxiliary power available (auto transfer capable), and/or maintain adequate gravity standby storage.
- A factor of safety is applied to well pumping test safe yield determinations.

A summary of the City's total well source capacity compared to DOH reliability recommendations is provided in Table 3-28. A factor of safety (10% contingency) is included in all demand projections that are used to calculate the reliability criteria demands provided in Table 3-28.

TABLE 3-28 WATER SUPPLY RELIABILITY SUMMARY			
DOH Water Supply Reliability Criteria	2022	2032	2042
MDD + FSS[a] in 72 hours (gpm)	3,553	4,122	4,400
Source Well Capacity Existing (gpm)[b] With proposed improvements (gpm)[c]	3,299	3,299 5,299	3,299 5,299
Meets Reliability Criteria?	Yes, w/Improv.	Yes, w/Improv.	Yes, w/Improv.
MDD in 20 hours (gpm)	3,864	4,547	4,880
Source Well Capacity Existing (gpm)[b] With proposed improvements (gpm)[c]	3,299	3,299 5,299	3,299 5,299
Meets Reliability Criteria?	Yes, w/Improv.	Yes, w/Improv.	Yes, w/Improv.
ADD (gpm)	1,393	1,726	1,853
Source Well Capacity With largest source (Well No. S14) out of service (gpm)	2,024	2,024	2,024
Meets Reliability Criteria?	Yes	Yes	Yes

[a] Refer to Section 3.6 for FSS requirements. FSS converted to 72 hours of pumping = 333 gpm (1,440,000 gallons/4,320 minutes).
[b] Current well capacity is 3,529 gpm including emergency well sources.
[c] Proposed improvements include adding 2,000 gpm of well capacity to the system through a combination of existing well rehabilitation and new well construction.

Power supply reliability is also an important factor in the source of supply reliability analysis. The City of Grandview has in-place auxiliary back-up power generators, with automatic transfer switch capability at source well S01, S12/S18, and S13. The city also has engine-driven pump capability at S10 but the well pump has to be manually switched from electric motor power to the gas engine power source. The total current capacity of wells with auxiliary power sources is 1,620 gpm.

The condition and age of existing water system facilities and equipment such as pumps, motors, and valves can also have an impact on water supply reliability. A summary of the age and status of major water supply components is summarized in Section 3.1. Grandview properly operates and maintains its water system facilities and equipment. The City will continue routine maintenance on system equipment as discussed in CHAPTER 6. Recommended O&M improvements related to well pump rehabilitation and replacement will be as described in CHAPTER 8.

3.4.1.1 Alternative Sources of Supply

As system demands continue to increase, the City may need to pursue alternative sources of supply to supplement groundwater source well supply and increase system reliability. Alternative sources of supply may include irrigation supply sources, water reuse, and water system interties.

Pursuing and developing seasonal water sources to offset high peak demands in the summer months may be a viable option for the City. Seasonal irrigation demand can have a significant impact on the City's water system supply capacity. Expansion of existing irrigation systems to serve more customers is an option to consider in the future.

Water reuse options could be considered by the City to provide additional water supply. The primary source for reclaimed or reused water within or near the City of Grandview includes the City's wastewater treatment plant. Grandview currently discharges treated wastewater to the Department of Fish and Wildlife's non-overflow pond system located south of the City's wastewater treatment facility. This activity which occurs on a limited basis each year during the months of February and March is permitted under the City's NPDES wastewater discharge permit.

Another possible use of reclaimed water from the City's wastewater treatment facility is to irrigate City parks and/or school athletic fields. This would require upgrading Grandview's wastewater treatment facility to Class A reclaimed water standards plus costs associated with construction of a separate reclaimed water transmission and distribution system (pumps and pipeline) to deliver reclaimed water to various parks and school fields throughout the City. Grandview's wastewater treatment facility is located is approximately two miles south of the City on the south side of the Yakima River.

Water system interties with neighboring water purveyors can be a possible option for an emergency or supplemental source of supply. In some circumstances pursuing a water system intertie can be more cost-effective than new source development. The nearest large municipal water purveyors to the City of Grandview are the City of Sunnyside, City of Prosser, and City of Mabton. No plans are in place to construct an intertie between Grandview and any of these purveyors at this time but may be a viable option in the future. An intertie with the City of Sunnyside may be the most feasible option as their water service elevations (reservoir overflow elevations) are nearly identical at 938 feet for Sunnyside and 941.6 feet for Grandview.

If an intertie is proposed, the City will need to develop an agreement with the other purveyor, obtain approval of the intertie from DOH and the Ecology, modify appropriate water rights to reflect the intertie, and incorporate the intertie into the Water System Plan. The intertie agreement would include the following:

- A discussion on the place of use as authorized in appropriate water rights documents.
- Identification of the specific time period(s) in which water will be provided.
- Quantification of the amount of water available for use.
- A discussion on seasonal or other restrictions on water availability; and
- A discussion of how water conservation programs, data collection and other operational matters will be conducted and coordinated.

3.4.2 Water Right Self-Assessment

The City of Grandview currently maintains certificated and permitted water rights from Ecology for the appropriation of ground water from each of its wells. A copy of the City's water right certificates, permits, and claims, and any associated reports of examination (ROE) and water right correspondence documents are provided in CHAPTER 10 of the Plan.

In 2011, the City completed a water right consolidation project, providing them the flexibility in utilizing their water rights throughout their wellfield. The City's water rights are divided into two aquifer groups based upon the depths of existing source wells – the deeper Wanapum Basalt Aquifer (WBA) and the shallower Saddle Mountain Basalt Aquifer (SMBA). A summary of the City's water right status following the consolidation project, and a copy of the same body of public groundwater and impairment analysis are provided in CHAPTER 10 of the Plan.

Within the WBA, the City is authorized to pump a total of 1,700 gpm and 1,994 afy from any combination of the three existing and two future source wells, plus any water pumped from WBA source wells under permit G4-27784P (up to 2,500 gpm and 1,742 afy). There is no limitation on instantaneous withdrawal from any individual WBA source.

Within the SMBA, the City is authorized to pump a total of 2,755 gallons per minute (gpm) and 904 acre-feet per year (afy) from any combination of the 12 existing and two future source wells, plus any water pumped under permit G4-27784P (up 1,000 gpm and 1,613 afy) from future source wells completed in the SMBA, and source S10 (North Willoughby). Each SMBA source well is also limited to its historical instantaneous production rate. Provided in Table 3-29 is a summary of the maximum authorized instantaneous withdrawal rates from each SMBA well.

TABLE 3-29 INSTANTANEOUS PRODUCTION WATER RIGHT SUMMARY

Aquifer	Well Source No.	Historic Instantaneous Production Limit
SMBA	S01 – West Main	400 gpm
	S03 – Velma	1,000 gpm
	S04 – Orchard Tracts	600 gpm
	S06 – Euclid	240 gpm
	S07 – Olmstead A	325 gpm
	S08 – Appleway	200 gpm
	S10 – North Willoughby	500 gpm
	S11 – Highland	300 gpm
	S12 – Pecan A	190 gpm
	S16 – Olmstead B	325 gpm
	S17 – Ashael Curtis	600 gpm
	S18 – Pecan B	190 gpm
	Future Well A	250 gpm
	Future Well B	250 gpm

Grandview's water rights status as compared to its existing and future water system demands are shown in Table 3-30. The excess and/or deficiencies in the City's water rights are also shown in these tables.

TABLE 3-30 WATER RIGHT SELF ASSESSMENT

Water Right Permit, Certificate, or Claim #	WFI Source # (Aquifer)	Existing Water Rights				Current Source Production (2022)				10-Year Forecasted Source Production (2032)				20-Year Forecasted Source Production (2042)			
		Primary Q_i (gpm)	Non-Additive Q_i (gpm)	Primary Q_a (acre-feet)	Non-Additive Q_a (acre-feet)	Total Q_i (gpm)	Current Excess (Deficiency)	Total Q_a (acre-feet)	Current Excess (Deficiency)	Total Q_i (gpm)	10-Year Forecasted Excess (Deficiency)	Total Q_a (acre-feet)	10-Year Forecasted Excess (Deficiency)	Total Q_i (gpm)	20-Year Forecasted Excess (Deficiency)	Total Q_a (acre-feet)	20-Year Forecasted Excess (Deficiency)
1. 791-A	S02, S13, S14, 2 Future Wells (WBA)	1,000		1,210													
2. G3-20381[c]		700		784													
3. 1338-A	S01, S03, S04, S06, S07, S08, S10, S11, S12, S16, S17, S18, 2 Future Wells (SMBA)	600		0													
4. 4455-A		240		384													
5. 4456-A		325		520													
6. G3-20382		200		0													
7. G3-20383		300		0													
8. G3-20384		400		0													
9. G4-24086		190		0													
10. G4-25570		500		0													
11. G4-27784	S02, S13, S14, 2 Future Wells (WBA/SMBA)	2,500		1,613 / 1,742													
SUBTOTAL (WBA)		4,200		3,736		2,543	1,657	282.8	3,453.2	4,200	0	442.5	3,293.5	4,200	0	521.4	3,214.6
SUBTOTAL (SMBA)		3,755		2,517		756	2,999	120.9	2,396.1	1,099	2,656	189.6	2,327.4	1,099	2,656	223.5	2,293.5
TOTAL		6,955		4,640		3,299	3,656	403.7	1,350.40	5,299	1,656	632.1	1,122	5,299	1,656	744.9	1,009.20

Pending Water Right Applications

Application #	Applicant and Source Name	Application Type	Date Submitted	Quantities Requested			
				Primary Qi (gpm)	Non-Additive Qi (gpm)	Additive Qa (acre-feet)	Non-Additive Qa (acre-feet)
1. G4-29972	City of Grandview	New		1,600	–	–	–

[a] Permit G4-27784 authorizes use at all WBA source wells plus SMBA wells S10, Future Well A, and Future Well B. The permit authorizes annual withdrawals of up to 1,742 afy, however, due to limits on instantaneous withdrawals from approved SMBA source wells the maximum that could be exercised from the SMBA aquifer under this permit is 1,000 gpm and 1,613 afy.

[b] The existing instantaneous consumption is based upon the existing combined maximum well pump capacities and the existing annual consumption is based upon the combined 2020 annual volume pumped from each source well.

3.4.3 Storage Analysis

Reservoir facilities are necessary in a water utility's system to provide required storage in three critical areas:

1. Standby Storage: Adequate water reserves need to be maintained to meet the system's average daily demand in the event the largest water supply source is out of service. Standby storage may be "nested" within the fire suppression storage volume. Standby storage must be provided at a minimum pressure of 20 psi through the distribution system.

2. Fire Suppression Storage: Adequate water reserves need to be maintained to meet the system's highest fire flow requirement with no assistance from existing water supply sources and at a minimum pressure of 20 psi throughout the distribution system. Fire suppression storage may be "nested" within the standby storage volume.

3. Equalizing Storage: Adequate water reserves need to be maintained to meet that portion of the system's maximum instantaneous demand (peak hour), which exceeds the existing water supply source capacity. Equalizing storage must be available to all service connections at a minimum pressure of 30 psi.

Storage facilities also provide a volume of water for supply to the system between source pumping operations. This "operational" volume is established by each utility and is generally based on limiting, as much as practical, the number of pump cycles per hour.

Standby Storage: The purpose of standby storage is to provide a measure of reliability should sources fail or unusual conditions impose higher demands than anticipated. DOH defines standby storage as the volume of stored water available for use during a loss of source capacity, power, or similar short-term emergency.

For communities with multiple sources of supply such as the City of Grandview, DOH 2020 *Water System Design Manual* recommends the volume of standby storage should be calculated based upon the following equation:

Equation:

$$SB = (N)(SB_i)(T_d) \qquad (\textit{2020 Water System Design Manual,}\ \text{Equation 7-2})$$

Where,

SB = Total standby storage component (gallons, minimum recommended)
N = Number of ERUs based on the ERU_{ADD} value (gpd)
SB_i = Locally adopted unit SB volume in $\frac{gal}{(day)(ERU)}$ (ERUs based on the ERU_{ADD} value)
T_d = No. of days selected to meet water system determined standard of reliability

DOH recommends standby storage be not less than 200 gallons times the number of ERUs, based on MDD (*2020 Water System Design Manual*, Page 103). However, for Grandview it is recommended that standby storage be calculated based the ADD number of ERUs because of the City's unique condition of industrial and residential peak demands occurring in different seasons. As seen in the data presented in Section 2.2.3 through 2.2.5, if the number of MDD ERUs is calculated during the industrial peak demand period (October), the demand per ERU will be artificially low at 274 gpd/ERU because residential demand is low, resulting in an excessively high number of ERUs and total required standby storage volume. Conversely, if the number of MDD ERUs is calculated during the residential peak (July), the demand per ERU will be reasonable at 538 gpd/ERU, but the calculated number of ERUs will be too low because industrial demand

is down, resulting in an unreasonably low standby storage volume. Standby storage in the City's previous WSP update was calculated based on 200 gallons per ERU because the City's well source capacity exceeded the volume required to serve two days of ADD with the largest pump out of service. The City's water system has multiple sources of supply, including sources with backup power capability, improving system reliability in an extended power outage condition. It should also be noted that industrial users will likely not be operating at peak capacity during an extended power outage. Therefore, when applying a recommended volume of 200 gallons per ADD ERU, the resulting minimum standby storage requirements are as shown in Table 3-31.

TABLE 3-31 EXISTING AND FUTURE STANDBY STORAGE REQUIREMENTS

	2022	2032	2042
N **SB_i** x **T_d**	9,020 ERUs 200 gpd/ERU x 1 Day	11,182 ERUs 200 gpd/ERU x 1 Day	12,001 ERUs 200 gpd/ERU x 1 Day
Total Standby Storage Required	1,804,000 Gallons	2,236,400 Gallons	2,400,200 Gallons

Fire Suppression Storage: DOH defines fire suppression storage as the volume of stored water available during fire suppression activities to satisfy minimum pressure requirements per WAC 246-290-230. A volume of storage for fire suppression has been established based on fire flow ratings of various structures within Grandview. The storage required is 1,440,000 gallons, which will allow a demand of 6,000 gpm for a 4-hour duration. The fire suppression demand was established by the Grandview Fire Department due to building type and size and assumes the City will utilize generators if sources should lose power. A letter from the Grandview Fire Department approving this demand is in CHAPTER 10. DOH minimum fire flow requirement for industrial areas is 1,000 gpm for 60 minutes. The volume of storage necessary to maintain a flow of 6,000 gpm for a 4-hour duration for fire protection is 1,440,000 gallons, which exceeds DOH industrial requirement of 1,000 gpm for 60 minutes, or 60,000 total gallons (*WAC 246-293-640*) and will, therefore, be used for fire suppression storage planning purposes.

Equalizing Storage: DOH defines equalizing storage as the volume of storage needed to supplement supply to consumers when the peak hourly demand exceeds the total source pumping capacity. DOH design method for calculating equalizing storage is 150 times the difference between the system's peak hour demand (PHD) in gpm and the total source production rate in gpm. Based on this method, the current and future equalizing storage requirements for Grandview are as shown in Table 3-32.

TABLE 3-32 EXISTING AND FUTURE EQUALIZING STORAGE REQUIREMENTS

	Year 2022	Year 2032	Year 2042
Peak Hour Demand (gpm)	5,189	6,097	6,544
Total Source Capacity (gpm)	(-) 3,299	(-) 5,299	(-) 5,299
Subtotal (gpm)	= 1,890	= 798	= 1,245
DOH Multiplier (minutes)	x 150	x 150	x 150
Total Equalizing Storage Required (MG)	= 0.284	= 0.120	= 0.187

Operational Storage: DOH defines operational storage as the volume of distribution storage associated with source or booster pump normal cycling times under normal operating conditions and is additive to the equalizing and standby storage components, and to fire flow storage if this storage component exists for any given tank. Currently, the City of Grandview operates its lead source within the upper 5 feet of the water level in the reservoirs. This corresponds to a volume of approximately 250,600 gallons, or 30 gallons per ERU_{ADD} (8,336 for year 2022) for normal operational storage. The operational storage volume required to avoid excessive pump cycling only needs to be enough to limit the number of pump starts to six per hour. Considering 2022 MDD, the source pumps would turn on only once every 115 minutes, and once every 198 minutes during ADD. The same operational storage levels will be sufficient to meet 20-year MDD projections, while keeping source pump start cycles within an appropriate range of approximately 40 minutes.

If the City were to use the upper 3 feet for operational storage, the storage volume would be 150,336 gallons, or 18 gallons per ERU_{ADD} (8,336 for year 2022) for normal operational storage. Considering 2022 MDD, the source pumps would turn on only once every 51 minutes, and once every 119 minutes during ADD.

Total Storage: Table 3-33 summarizes the year 2022 and future storage requirements for the water system. The City's existing storage capacity is sufficient to meet current and projected storage requirements for year 2022. However, the future total storage requirement for the years 2032 and 2042 exceeds the current storage capacity above the required minimum service pressure 20 psi. Table 3-33 shows that the storage capacity above the minimum required 20 psi is sufficient for the current year through year 2042.

TABLE 3-33 CURRENT AND FUTURE STORAGE REQUIREMENTS
(all storage values are in millions of gallons)

	Year 2022 Requirements	Year 2032 Requirements	Year 2042 Requirements
Standby Storage* (MG)	1.804	2.236	2.400
Fire Suppression Storage* (MG)	1.44	1.44	1.44
Equalizing Storage (MG)	0.284	0.120	0.187
Operational Storage (MG)	0.251	0.251	0.251
Total Storage Required (MG)	2.339	2.607	2.838
Total Storage Capacity Above 20 psi (MG)	2.474	2.474	2.474
Total Storage Capacity Above 30 psi (MG)	1.619	1.619	1.619
Storage Excess/Deficiency (MG)	0.135	-0.133	-0.364
* Standby Storage will be nested with Fire Suppression Storage.			

Further evaluation of storage is recommended in the future to determine when/if additional volume is required.

3.4.4 Fire Flow

The demand fire flows place upon a water system is typically the most significant element when analyzing the piping network. Every water system which is required to have a Water System Plan must address fire flow. At a minimum, a water utility must comply with fire flow standards shown in Table 3-34, established by DOH. A community may, however, develop its own standards if they exceed DOH minimum requirements.

TABLE 3-34 DOH MINIMUM FIRE FLOW REQUIREMENTS	
Land Use Type	Flow Requirement
Residential	500 gpm for 30 minutes
Commercial and Multi-Family	750 gpm for 60 minutes
Industrial	1,000 gpm for 60 minutes
Source: *WAC 246-293-640*	

The City of Grandview has developed desired fire flows for major structures within the City based on the standards of the Washington Survey and Rating Bureau and the Insurance Services Office (ISO) peak fire flow guidelines. In addition, the Grandview Fire Department analyzed fire flow requirements of select buildings based on the *2012 International Fire Code*. Results of the analysis have been used to generate desired fire flow capacities for areas within the City.

In Grandview, the greatest fire flow requirements are within industrial areas, with isolated large demands at locations such as the Kenyon Zero Storage Facility. Fire flow requirements were used to develop Figure 3-4, which shows the locations of required minimum fire flow and the actual calculated fire flow capacity at selected locations within those areas. The Grandview Fire Department has requested that all locations without a specified minimum fire flow range have a minimum fire flow capacity of 1,000 gpm.

A computer hydraulic analysis was used to determine the existing fire flow capacities at certain locations shown in Figure 3-4. The hydraulic analysis parameters are discussed later in Section 3.6. As can be seen in Figure 3-4, the greatest fire flow requirements are within the industrially and commercially zoned areas and at public schools. It can be seen in Figure 3-4 that most all locations throughout the distribution system are able to provide the required minimum fire flow capacities. Recommended system improvements to correct any fire flow deficiencies are discussed further in CHAPTER 8.

CITY OF GRANDVIEW

Water System Plan Update

YEAR 2022 MAX DAY DEMAND FIRE FLOW CAPACITIES MAP

N
W E
S

0 750 1500

LEGEND

CITY LIMITS

FUTURE SERVICE AREA

FIRE FLOW RANGE	EXISTING CAPACITY	REQUIRED FLOW
≤ 500 GPM	⊗	
500-1000 GPM	●	MINIMUM 1000 GPM
1000-2000 GPM	●	
2000-3000 GPM	●	
3000-4000 GPM	●	
4000-5000 GPM	●	
5000-6000 GPM	●	
6000-7000 GPM	●	
≥ 7000 GPM	●	

CITY OF GRANDVIEW

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FIGURE 3-4

3.4.5 Hydraulic Analysis

A hydraulic analysis of a water utility system is a method of calculating pressures and flows throughout the distribution network under various conditions of demand at a given instant. Since the advent of personal computers, hydraulic analyses are typically performed by utilizing computer programs which model the piping, reservoir, pumps and specialty valves of a given water system.

Numerous computer programs have been developed for performing network analyses. The program utilized for the modeling and analysis of the City of Grandview water system is called WaterCAD (Version 10.00.18.22), distributed by Bentley Systems, Inc. WaterCAD can perform instantaneous and extended period simulations of complete distribution networks including reservoirs, source pumps, booster pumps, pressure reducing valves, pressure sustaining valves, check valves, flow control valves, pressure switches, and up to 1,000 pipes and 1,000 nodes (pipe junctions).

The program utilizes Genetic Algorithm calculations (Darwin modules) to solve the pressure networks. All water system components are entered into the computer, supply rates and user demand inputs, and reservoir water levels are established. Once this base information has been loaded, various options such as increasing system demand, lowering reservoir levels, shutting off source pumps, adding system improvements, and simulating fire flow conditions can be analyzed for their impact on the system.

3.4.5.1 Assumptions

To analyze the water system at a given moment in time, it is necessary to assume certain existing conditions and to program the status of key system components. The following general assumptions have been made for the hydraulic analysis of the City of Grandview water system:

- Roughness coefficients (C values) for most eight-inch or larger pipes were assumed to be 120. Pipes six-inch or smaller were assumed to have a C value equal to 110. Known old or poor condition pipes were assumed at C=100.
- Nominal pipe diameters were input for inside pipe diameters.
- Node elevations are based on available contour and topographic survey elevations.

Table 3-35 identifies the specific parameters used in the hydraulic analysis performed for existing and future peak hour demand (PHD) and for existing and future fire flow capacities at 20 psi residual pressure during maximum day demand (MDD) conditions. The PHD hydraulic analysis assumes that all primary source wells are operating, and the equalizing storage volume has been depleted from all tanks. The fire flow analysis, during MDD, assumes that the starting elevation in all tanks is with equalizing and fire suppression storage depleted. The fire flow analysis also assumes that all source wells are operating.

Initial elevations for the hydraulic analysis are calculated from the current and future reservoir pump-off elevations to represent current and future maximum storage conditions. The operational storage range and volume can be operator-adjusted based upon current demand, but the elevations (volumes) used represent normal operating conditions. Lower or higher initial water elevations could affect the calculated results.

TABLE 3-35 HYDRAULIC ANALYSIS PARAMETERS

Water System Feature	Hydraulic Analysis Scenario			
	Year 2022 Fire Flow w/MDD [a] (2,556 gpm)	Year 2022 Peak Hour Demand [b] (5,702 gpm)	Year 2042 Fire Flow w/MDD [a] (3,786 gpm)	Year 2042 Peak Hour Demand [b] (7,152 gpm)
3.017 MG Reservoir Levels				
Maximum Elevation	941.6 Ft.	941.6 Ft.	941.6 Ft.	941.6 Ft.
Initial Elevation	898.4 Ft.	929.4 Ft.	916.6 Ft.	933.6 Ft.
Floor / Minimum Elevation	855.0 Ft.	855.0 Ft.	855.0 Ft.	855.0 Ft.
0.544 MG Reservoir Levels				
Maximum Elevation	941.6 Ft.	941.6 Ft.	941.6 Ft.	941.6 Ft.
Initial Elevation	916.6 Ft.	933.6 Ft.	916.6 Ft.	933.6 Ft.
Floor / Minimum Elevation	906.0 Ft.	906.0 Ft.	906.0 Ft.	906.0 Ft.
Source Well Status				
West Main (S01)	135 gpm	135 gpm	135 gpm	135 gpm
Balcom (S02)	268 gpm	268 gpm	268 gpm	268 gpm
Velma (S03)	102 gpm	102 gpm	102 gpm	102 gpm
Euclid (S06)	30 gpm (Off)	30 gpm (Off)	30 gpm (Off)	30 gpm (Off)
Olmstead A (S07)	180 gpm (Off)	180 gpm (Off)	180 gpm (Off)	180 gpm (Off)
Appleway (S08)	0 gpm	0 gpm	0 gpm	0 gpm
North Willoughby (S10)	315 gpm	315 gpm	315 gpm	315 gpm
Highland (S11)	42 gpm	42 gpm	42 gpm	42 gpm
Pecan A (S12)	0 gpm	0 gpm	0 gpm	0 gpm
South Willoughby (S13)	1,000 gpm	1,000 gpm	1,000 gpm	1,000 gpm
Butternut (S14)	1,275 gpm	1,275 gpm	1,275 gpm	1,275 gpm
Olmstead B (S16)	40 gpm (Off)	40 gpm (Off)	40 gpm (Off)	40 gpm (Off)
Ashael Curtis (S17)	92 gpm	92 gpm	92 gpm	92 gpm
Pecan B (S18)	70 gpm	70 gpm	70 gpm	70 gpm
Future Wells	N/A	N/A	2,000 gpm	2,000 gpm
Total Supply	3,299 gpm	3,299 gpm	5,299 gpm	5,299 gpm

[a] Equalizing and Fire Suppression Storage depleted.
[b] Equalizing Storage depleted.

3.4.5.2 Analysis Scenarios

The existing water system was first analyzed considering a present peak hour demand of 4,771 gpm, based on the total calculated peak hourly flow on October 21, 2014. All nodes providing domestic service within the system did so with a minimum residual pressure of 30 psi or greater with all source pumps in operation. Pipe velocities remained below the eight (8) feet per second (FPS) maximum velocity design parameter. A copy of the computer printouts of this scenario and all other hydraulic analyses results discussed in this section are provided in CHAPTER 10. Map B, in CHAPTER 10, shows the computer model with the pipe and node numbers for identification.

A future PHD analysis was run on the system using the PHD for the year 2042 of 6,520 gpm. This scenario was conducted with the year 2042 equalizing storage volume depleted. All service pressures were greater than 30 psi and pipe velocities were below eight (8) FPS with all source pumps in operation.

Fire flows were considered at all hydrant locations throughout the pipe network while assuming year 2022 system consumptive demand of 2,650 gpm, based on the total calculated MDD on October 21, 2014. The computer hydraulic model was used to calculate the maximum flow attainable at designated hydrant nodes while providing a positive pressure of 20 psi. Equalizing and fire suppression storage were depleted at the start of the fire flow analysis. The resulting fire flow capacities are shown in Figure 3-4, along with the fire district requested fire flow capacities as previously discussed. Several locations were calculated to be deficient in meeting the specified fire flow capacities, as shown in Figure 3-4. A future fire flow analysis was performed on the system with the 2042 maximum day demands to verify adequate fire flow capacity is available. Again, the same locations were calculated to be deficient in meeting the current fire flow requirements.

3.4.5.3 Model Calibration

The City of Grandview has performed fire flow tests at fire hydrants in several different areas of the City under normal operating conditions. These fire flow tests were compared to the computer model under an average day demand scenario with the initial reservoir levels listed in Table 3-35. Ideally, the pressure test results would be compared to a computer model under average day demand with reservoir levels set to the actual reservoir levels at the time of testing, but reservoir levels from the time of testing were not available. Pressures from fire hydrant nodes in the model were generally within five psi of the test pressure readings, verifying that actual system pressures are comparable to the calculated pressures of the computer model. Samples of fire flow test results are compared with fire flow model results shown in Table 3-36.

Available Fire flow was calculated using the measured pressures and flows from the field tests. Fire flow in gpm at 20 psi of residual pressure was calculated using the following equation (simplified Hazen Williams):

$$\text{Available Fire Flow @ 20 psi Residual} = \text{Total Fire Flow} \times \sqrt{\frac{\text{Static Pressure} - 20\ \text{psi}}{\text{Static Pressure} - \text{Residual Pressure}}}$$

It is recommended that updated pressure and flow tests be conducted in the future by the City Fire Department at representative locations throughout the distribution system including noting reservoir levels, to calibrate future system models and provide updated system information for future fire insurance assessments more accurately.

TABLE 3-36 FIRE FLOW MODEL CALIBRATION RESULTS

Flow Test No.	Test Year	Location		Field Test Results			Model Results		
			Node No.	Static Pressure (psi)	Residual Pressure (psi)	Fire Flow @ 20 psi (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Fire Flow @ 20 psi (gpm)
1	2009	501 Stover Rd.	J-9	86	78	4,228	78.2	76.6	3,888
2	2011	2200 Hill Dr.	J-493	62	54	2,431	56.9	52.2	2,214
3	2011	509 Meadowlark Rd.	J-438	58	54	3,666	53.6	51.7	3,547
4	2011	Missouri & W. Concord	J-408	44	34	1,142	40.3	35.1	1,062
5	2010	Nicka & Broadview Dr.	J-308	65	48	1,554	60.5	55.9	1,526

[a] At 20 psi residual pressure.
Note: See Map B for Junction Node Locations.

3.4.6 Capacity Analysis Summary

Provided in Table 3-37 is a summary of the year 2022, 2032, and 2042 projected water system demands for the City of Grandview, including ERUs for ADD and MDD. The values in Table 3-37 are calculated from the forecasted water system demands provide in Section 2.4. All values include a 10% contingency.

TABLE 3-37 CURRENT AND FUTURE WATER SYSTEM DEMAND SUMMARY

Year	$ERUs_{ADD}$	$ERUs_{MDD}$	Total Annual Demand (MG/Year)	ADD (MGD)	MDD (MGD)	PHD (gpm)
2022	9,020	17,030	731.931	2.005	4.637	5,189
2032	11,182	20,030	907.223	2.486	5.456	6,097
2042	12,001	21,498	983.309	2.668	5.856	6,544

The system's current and future physical capacity (ERUs), in terms of water rights, source capacity, and storage capacity is summarized in Table 3-38.

The water rights physical capacity in Table 3-38 is based on comparing the ADD per ERU to the current and/or future total annual (Q_a) water right quantity and the MDD per ERU to the current and/or future total instantaneous (Q_i) water right quantity. Similarly, source physical capacity is based on comparison of the MDD per ERU to the current well pump capacity.

The physical storage capacity in Table 3-38 is based on two of the primary storage components, equalizing storage (ES) and standby storage (SB). Physical capacity of the City's reservoirs is not based upon operational storage (OS) or fire suppression storage (FSS) because these normally do not change with the number of ERUs. DOH equations were used to determine ES and SB storage ERU physical capacity, except for the SB storage equation, which is based on the ERU_{ADD} value instead of ERU_{MDD} value, for reasons described in Section 3.4.3. Current and future ES and SB storage capacities are calculated from the following equations:

Equation:

$$ES = [PHD - Q_s](150\ min.) \qquad (\textit{2020 Water System Design Manual}, \text{Equation 7-1})$$

Where,

ES = Equalizing storage component (gallons)
PHD = Peak hourly demand (5,189 gpm per *2020 Water System Design Manual*, Eqn. 3-1)
Q_s = Total flow of all active sources, (3,299 gpm)

Equation:

$$SB = (N)(SB_i)(T_d) \qquad (\textit{2020 Water System Design Manual}, \text{Equation 7-2})$$

Where,

SB = Total standby storage component (gallons, minimum recommended)
N = Number of ERUs based on the ERU_{ADD} value
SB_i = Locally adopted unit volume in $\frac{gal}{(day)(ERU)}$ (ERUs based on ERU_{ADD} value, $SB_i = 200$)
T_d = No. of days selected to meet water system − determined std. of reliability ($T_d = 1$)

Since *N* is unknown, the above equations were rearranged and the equation for total storage $(TS = OS + ES + SB + FSS) \rightarrow (SB = TS - OS - ES - FSS)$ was used to yield the following equation which solves for the existing and/or future ERU capacity (N):

Equation:

$$N = \frac{TS - OS + 150Q_S - 150PHD - FSS}{200}$$

Where,

TS = Total Storage (gallons)
OS = Operational Storage (gallons)
FSS = Fire Suppression Storage (gallons)
N = Number of ERUs
Q_S = Total flow of all permanent sources (gpm)

Water systems can exclude the SB or FSS component, whichever is smaller, from a water system's total storage requirement if the local fire authority approves "nesting," and Grandview's Fire Department has elected to do so. Because Grandview has a very high FSS volume requirement (1,440,000 gallons), the SB volume was initially nested within the FSS volume. However, as service demands increase, the SB becomes the controlling storage volume required. When nesting the SB volume within FSS volume (*SB + FSS = FSS*), N can be solved by the following equation *(2020 Water System Design Manual, Equation 4-6)*:

$$N = \frac{1}{C}\left[\frac{1440}{ERU_{MDD}}\left(\frac{ES}{150} + Q_S - 18\right) - F\right]$$

Where,

N = Number of ERUs based on the ERU_{MDD} value
C = Coefficient associated with ranges of ERUs (1.6)
F = Factor associated with ranges of ERUs (225)
Qs = Total flow of all permanent sources (gpm)
ERU_{MDD} = Maximum Day Demand per ERU (gpd)

When nesting the FSS volume within SB volume (*SB + FSS = SB*), the ERU capacity equation is reduced to the following:

$$N = \frac{TS - OS + 150Q_S - 150PHD}{200}$$

Table 3-38 summarizes the water system capacity, in ERUs, based on current supply (water rights), source, and storage capacity. Projected system demands and calculated system capacities shown in other tables are based on demand per service and do not directly correlate to the calculated demand per ERU for all service categories under different demand conditions (e.g., ADD, MDD, PHD). Values shown in Table 3-38 are therefore, only estimates based upon calculated demands per ERU for ADD, MDD, and PHD from historical source and supply meter records. Further system analysis should be performed to determine the system's available capacity regarding proposed development type (i.e., type of service category) to account for variations in average and peak demands of individual service categories.

TABLE 3-38 ERU PHYSICAL CAPACITY SUMMARY (DOH WORKSHEET 4-1)

Water System Connections Correlated to ERUs					
Service Classification	**Total for the classification (gpd)**		**Total # Connections in the classification**	**$ERUs_{ADD}$**	**$ERUs_{MDD}$**
	ADD	**MDD**			
Residential					
Single-Family Residential	508,194	627,231	2,289	2,289	2,289
Single-Family Residential - Outside	21,153	25,616	89	98	89
Mobile Home Units	75,818	113,099	419	335	419
Apartment Units	99,997	134,611	481	433	481
Nonresidential					
Commercial	93,035	173,254	237	427	712
Industrial	955,367	3,017,916	39	4,305	11,023
Government	69,428	123,862	78	312	469
DSL (10%)[a]	182,299	421,559	N/A	821	1,548
Total 2022 ERUs (Residential + Nonresidential) =				9,020	17,030

Physical Capacity as ERUs					
Water System Component (Facility)	**Current Maximum System Capacity**	**Required Capacity**			**Calculated ERU Capacity for Each Component**
		2022	**2032**	**2042**	
Sources All sources = 3,299 gpm	4.751 MGD	4.216 MGD	4.960 MGD	5.324 MGD	17,338 ERU_{MDD}
w/largest source out of service = 2,024 gpm	2.915 MGD	2.380 MGD	3.124 MGD	3.488 MGD	13,130 ERU_{ADD}
Equalizing Storage (ES)[c]	0.418 MG	0.284 MG	0.120 MG	0.187 MG	N/A
Standby Storage (SB)[c]	1.938 MG	1.804 MG	2.236 MG	2.400 MG	9,690 ERU_{ADD} (200 gpd/ERU)
Water Rights Q_a = 4,640 ac-ft Qi = 6,955 gpm	1,511.8 MG 10.015 MGD	131 MG 1.040 MGD	206 MG 1.247 MGD	243 MG 1.467 MGD	18,657 ERU_{ADD} 36,552 ERU_{MDD}
Water System Physical Capacity (ERU_{ADD}) = 9,690 ERUs, limited by standby storage capacity[b]					

[a] Conservative DSL of 10% shown because 3-yr average for the City cannot be confirmed due to faulty source meter readings as described in Section 2.3.
[b] Grandview is limited by source capacity not meeting minimum reliability criteria as discussed in Section 3.4.1. Following rehabilitation of existing sources and development of new sources, the water system physical ERU capacity will be limited by Standby Storage (SB). Fire suppression storage is nested within SB storage.
[c] MDD per ERU for October 2014 = 274 gallons. **ADD per ERU = 222 gallons**. Total of 0.134 MG storage available above 20 psi until current system maximum capacity reached. Water system physical capacity (ERU_{ADD}) = 9,690 ERUs, assuming DOH recommended minimum of 200 gpd/ERU - limited by standby storage. Equalizing storage maximum capacity assumes available storage beyond minimum SB requirement allocated to equalizing storage.

Table 3-38 shows that of the existing system components, well capacity and water storage are the limiting factors in determining the physical capacity of the City of Grandview water system. Well capacity and water storage improvements are addressed in CHAPTER 8.

3.5 SUMMARY OF SYSTEM DEFICIENCIES

The following is a listing and brief description of deficiencies which have been identified in the present water system. The deficiencies have been grouped within three system categories (supply, storage, and distribution) and are generally placed in order of their importance. The deficiencies may be operational in nature (which have been identified by the City's Water Department personnel) or maintenance related, inadequate present or future capacities, and/or system hydraulics problems.

3.5.1 Supply

Water Quality – Grandview currently adds chlorine for treatment of its groundwater sources. The water quality monthly analysis results for the years 2015 through 2021 were reviewed to determine exceedances of the Maximum Contaminant Level (MCL) for the primary and secondary drinking water standards. In general, the City's water quality complies with State standards, except for nitrate levels in Sources S07 and S10. As mentioned previously, all source wells are tested individually, though some sources are blended prior to entering the distribution system. Blending allows wells with higher nitrate concentrations to combine with wells having lower nitrate concentrations to meet MCL standards. Blending occurs at Sources S07 Olmstead A and S16 Olmstead B, and at Sources S10 North Willoughby and S13 South Willoughby. These source wells are plumbed with isolation valves to allow individual and blended testing. Recently the capacity of S16 has diminished to the point that blending with S07 does not bring nitrate levels below the MCL. Rehabilitation of S16 to increase its capacity is recommended as the initial step to continue blending these sources to maintain acceptable nitrate levels. If rehabilitation of S16 is not successful, the City may want to consider construction of a transmission main to blend S07/S16 with S10 and S13.

The City also has a history of iron bacteria and similar organisms that cause severe biofouling and encrustation of pumping equipment, well screens, and casings, leading to taste and odor issues and declines in well performance and pumping capacity. Routine chemical cleaning, redevelopment, and rehabilitation of the City's wells and pumping equipment is essential to maintaining reliable source well capacity and acceptable water quality.

Water Rights – Currently, Grandview has annual rights (Q_a) of 4,640 acre-feet per year and instantaneous rights (Q_i) of 6,955 gpm. As discussed in Section 3.4 , current water rights are adequate to supply existing and projected year 2042 demands. Should population trends and demand projections change, the water rights may be exceeded by year 2042.

Industrial water consumption is still the highest among all user categories and projected future demands will need to be closely monitored by the City.

Source Well Capacity – Grandview's source wells have decreased in capacity since original construction and previous rehabilitation projects. If all source wells were to operate at original capacity, total production would equal 5,420 gpm. However, the current system source well capacity is 3,299 gpm. Well performance issues due to water quality and biofouling issues are the primary causes of the decline in well capacity. The year 2022 source capacity is adequate to meet current and anticipated average day and maximum day demands. Rehabilitation of existing wells and construction of new wells will both be necessary within plan approval period to increase the total system pumping capacity.

Source Well Reliability – DOH *Water System Design Manual* recommends on-site back-up power equipment be installed at the water system sources to improve system reliability. The City of Grandview currently has back-up power equipment at four of its existing source wells (S01, S10, S12/S18, and S13). The source wells with back-up power can deliver 1,620 gpm, which equates to approximately 2.33 MGD in the event of a long-term power outage. Back-up power at additional water system sources should be considered to increase the capacity of water supplied in an extended power outage. New well sources are anticipated to be equipped with back-up power equipment.

Protective Covenants – Though the City owns all its well sites, not all source wells have a "Declarations of Covenant" establishing the required 100-foot sanitary radius of protection around the well. Well sources still needing "Declarations of Covenants" established are: S02 (Balcom & Moe), S06 (Euclid), S10 (North Willoughby), S11 (Highland), S13 (South Willoughby), S14 (Butternut), and S18 (Pecan B). The City needs to execute and record "Declarations of Covenant" for each of the source wells.

3.5.2 Storage

Storage Capacity – The City's reservoir storage capacity sufficient for current demands, but inadequate to meet projected demand. Based on projected growth, additional water storage capacity will be needed to meet year 2032 system demands and associated storage requirements.

Reservoir Cleaning and Maintenance – Both City reservoirs should be inspected and cleaned, based on a five-year maintenance cycle. The standpipe reservoir was last cleaned and inspected in 2019. The tank interior was last painted in 1989 and the exterior was last painted in 1995. During inspection, signs of severe corrosion and rusting were observed on the tank interior and the exterior coating is showing signs of weathering. The standpipe reservoir coating is beyond its expected useful life of 20 to 30 years and should be recoated within the next few years to prevent structural damage and extend the life of the tank. The elevated reservoir was last rehabilitated in 2007, including interior and exterior painting, new hatch, catwalk, and overflow modifications.

3.5.3 Distribution

Fire Flow Capacity – Figure 3-4 identifies existing system fire flow capacities along with the minimum fire flow requirements for regions within the City. As shown on the figure, some locations are deficient based on the computer hydraulic model. Refer to Figure 8-1 for suggested improvements to address deficiencies.

Water Main Upsizing and Replacement – Most of the fire flow deficiencies identified in Figure 3-4 can be addressed by upsizing water mains. Suggested Improvements for water main upsizing are shown in Figure 8-1.

3.5.4 Telemetry

Grandview's telemetry control system software and human machine interface (HMI) computer was last updated in 2015. The telemetry control system programmable logic controllers (PLCs) and radios were installed in 2005 and have not been updated since their original installation. The expected useful life of telemetry control system computers and software is five to seven years, and the expected useful life of PLCs and radios is 10 to 15 years. It is recommended that the City's telemetry system be updated in the next few years to maintain system reliability. Improvements will be as discussed in CHAPTER 8.

3.6 SELECTION AND JUSTIFICATION OF PROPOSED IMPROVEMENT PROJECTS

The following discussion identifies recommended system improvements proposed to eliminate or reduce deficiencies described in the previous section. References to prioritized improvements specified in Section 8.2 and Section 8.3 are provided. Further description of the water system improvements is provided in CHAPTER 8 of the Plan.

3.6.1 Supply

Source Well Capacity/Quality – Most of the source wells are operating at a lower capacity than when originally constructed. The wells drawing from the Wanapum aquifer have experienced a greater reduction in capacity than those drawing from the Saddle Mountain aquifer. Rehabilitating or reconstructing the wells will improve the capacity and quality of water entering the water system. The City's water rights allow for future wells, which will add to the capacity as well. **[O&M Improvement Nos. 2, 3, 4, 6, 7, 8, 10, 11, 13 through 17, and Capital Improvement Nos. 1, 4, 5, 6, 20, 21]**

3.6.2 Storage

Reservoir Cleaning and Maintenance – Routine cleaning and inspection of the City's water storage reservoirs are necessary to maintain water quality and monitor structural integrity. The City's 3.0 MG reservoir is in need of recoating to address signs of corrosion on the interior coating and weathering on the exterior coating. The existing reservoir coating is beyond its expected useful life of 20 to 30 years and is in need of recoating to preserve water quality and structural integrity. The 0.5 MG reservoir is due for cleaning and inspection. **[O&M Improvement Nos. 1, 5, 9, and 18]**

Storage Capacity – To meet the 20-year projected demand, additional storage capacity is necessary. A new reservoir including transmission main is necessary to meet projected demands and associated storage volumes. **[Capital Improvement No. 2]**

3.6.3 Distribution

Water Main Upsizing and Replacement – As shown in Figure 3-4, there are multiple locations where the required fire flow is not met. Upsizing water mains in these locations will improve fire flow and water pressure. Although there are several additional locations in the City in need of water main replacements due to leakage and corrosion, the improvement locations were limited to critical improvements for fire flow requirements. **[Capital Improvement Nos. 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 18]**

Fire Flow Capacity – As shown in Figure 3-4, there are multiple locations where the required fire flow is not met. Looping water mains at dead ends in these locations will improve fire flow and water quality. **[Capital Improvement Nos. 16, 17, and 19]**

CHAPTER 4 -

WATER USE EFFICIENCY (WUE) PROGRAM

HLA
Engineering and Land Surveying, Inc.

4.1 WATER USE EFFICIENCY PROGRAM (WUE)

4.1.1 Planning Requirements

In 2003, the Washington State Legislature passed the Municipal Water Supply-Efficiency Requirements Act (commonly called the Municipal Water Law) as part of a multi-year effort to reform the state's water laws. The act requires all municipal water suppliers to use water more efficiently in exchange for water right certainty and flexibility to meet future water demands. The Legislature directed DOH to adopt a rule that establishes water use efficiency requirements for all municipal suppliers. The Water Use Efficiency (WUE) Rule, which became effective on January 22, 2007, includes the following key items:

- WUE Program – This element of the rule requires the collection of water production and consumption data, forecast of future water demands, evaluation of system leakage, evaluation of water rate structures, and the implementation of WUE measures. This Program is a required element of all Water System Plans prepared after January 22, 2008.

- Distribution System Leakage (DSL) Standard – Municipal water suppliers with 1,000 or more connections are required to satisfy a DSL standard equal to 10% or less of total production by July 1, 2010.

- WUE Goal Setting and Performance Reporting – Municipal water suppliers are required to set WUE goals through a public process and report annually on their performance to customers and to DOH. For water systems with 1,000 or more connections, the deadline for establishing systems goals was July 1, 2009. WUE goals must be established through a public process for a six-year period and should be re-evaluated each cycle.

The rule requirements and compliance deadlines are shown in Table 4-1.

TABLE 4-1 WATER USE EFFICIENCY RULE REQUIREMENTS

Requirement	Deadlines	
	1,000 or more Connections	Under 1,000 Connections
Begin Production & Consumption Data Collection	January 1, 2007	January 1, 2008
Establish WUE Goals	July 1, 2009	July 1, 2010
Include WUE Program in Planning Documents	January 22, 2008	January 22, 2008
Submit First Annual Performance Report	July 1, 2008	July 1, 2009
Submit Service Meter Installation Schedule	July 1, 2008	July 1, 2009
Meet DSL Standard	July 1, 2010	July 1, 2011
Complete Installation of all Service Meters	January 22, 2017	January 22, 2017

A WUE Program is one requirement of the WUE Rule. All Water System Plans submitted to DOH after January 22, 2008, are required to include a WUE Program. WAC 246-290-810(4) requires municipal water suppliers to include the following items in their WUE program:

- Description of the current water conservation program including an estimation of water saved through program implementation over the last six years.
- Description of the chosen WUE goals.
- Evaluation and implementation of WUE measures.
- Projected water savings.
- Customer education.
- WUE program effectiveness; and
- DSL evaluation.

4.1.2 Current Water Conservation Program

Grandview's current Water Conservation Program, or Water Use Efficiency (WUE) Program, was prepared in November 2015. As part of this *Water System Plan*, the City's current WUE Program was expanded and restructured in accordance with WAC 246-290-810(4) and consists of the following elements:

- Water Use Efficiency Goals
- Evaluation and Implementation of Water Use Efficiency Measures
- WUE Measure Implementation
- Customer Education
- Water Use Efficiency Program Effectiveness
- Distribution System Leakage (DSL) Evaluation

Provided in Table 4-2 is a summary of the population, number of water services, water consumption, and per capita water consumption from 2014 to 2020. Further information on historical water use is provided in Table 4-2. Since 2014, total system annual water consumption has increased by approximately 2.5%. Annual residential demand and demand per service per day shows a decreasing trend from 2014 to 2017, and an increasing trend from 2017 to 2020.

TABLE 4-2 WATER CONSUMPTION INFORMATION 2014-2020

Year	Population[a]	Total Water Services[b]	Annual Water Production (MG)	Annual Water Consumption (MG)	Annual Residential Consumption (MG)	Residential Water Services	Residential Avg. Day Consumption per service (gal/service/day)
2014	11,170	2,904	633.19	630.50	255.35	2,609	221
2015	11,200	2,744	645.00	603.29	253.77	2,515	216
2016	11,160	2,761	617.36	595.41	247.68	2,533	206
2017	11,170	2,750	611.53	616.15	239.29	2,533	200
2018	11,180	2,759	578.48	663.61	250.56	2,542	210
2019	11,200	2,837	613.87	673.94	252.20	2,581	211
2020	11,230	2,889	641.31	634.19	259.89	2,607	220

Note: Residential water services represents Single-Family Residential user category only.
[a] From Washington State OFM population estimates.
[b] City began recording total accounts vs accounts with consumption in 2015.

The City's 2008 *Water Use Efficiency Program* included a goal to reduce total water consumption from 2015 to 2021 by 10 million gallons. The City's goal was first met in 2016 and since, the City has sustained the 25-million-gallon reduction from the 2008. Since producing 672.29 MG in 2008, annual production has decreased to 641.31 MG in 2020, an overall decrease of 4.8%. It should be noted that from 2017 to 2020, source meter issued developed in South Willoughby (Well S13) resulting in greater consumption than production.

Since 2015, the City has replaced several water service lines, valves, and distribution mains that were suspected to be leaking. These efforts have assisted in reducing the difference between water production and consumption volumes.

4.1.3 Water Use Efficiency Goals

WUE goals are an integral component of the WUE program, setting the groundwork for more efficient use of water. The City of Grandview has observed reductions in single-family residential consumption per service through past conservation measures, resulting in less production. Therefore, the City of Grandview has proposed the following WUE goals for their water system:

1. The City of Grandview's water system will work towards reducing total consumption by 2% during the 10-year reporting period of 2022 - 2032.

The WUE goals will be presented at a public study session to be adopted by City Council. Documentation of the public forum is included in CHAPTER 10. Adoption of the above WUE goal is expected to improve system performance and consequently reduce water production volumes.

4.1.4 Evaluation and Implementation of Water Use Efficiency Measures

Water use efficiency (WUE) measures are necessary actions taken to attain a water system's established efficiency goals. Measures are intended to support the WUE program and should address both supply and demand efficiencies. For this reason, the WUE measures that have been evaluated and/or implemented are separated into two primary categories, demand side and supply side measures. All the selected WUE measures pertaining to Grandview's WUE goals were presented to the public during the goal setting process.

Demand Side Measures

Municipal water systems are required to evaluate or implement a specified number of demand side water use efficiency (WUE) measures based upon the size of the water system. Table 4-3 shows the minimum number of measures required to be evaluated or implemented by the City of Grandview.

TABLE 4-3 WATER USE EFFICIENCY MEASURES

Number of Service Connections	Number of Water Use Efficiency Measures to be Evaluated
Less than 500	1
500 - 999	4
1,000 – 2,499	5
2,500 – 9,999	6 (Grandview's current requirement)
10,000 – 49,999	9
Greater than 50,000	12

A discussion of the demand side measures that the City of Grandview has evaluated to achieve its specified efficiency goal are provided below, along with the estimated costs to implement the measures and the projected water savings. Evaluation of the following measures for cost-effectiveness is primarily based upon the overall implementation costs as compared to the amount of potential water savings.

Water Conservation School Career Days Outreach Program – Once a year, the City of Grandview's Water System Operator will attend the local school's Career Day and teach children about the many ways to protect and conserve the City's water resource. This activity involves preparation of educational programs for school children targeted to increase awareness of local water resources and encourage water conservation practices, and includes school presentations, preparation of curriculum material, and tours of water system facilities. Costs associated with this measure would primarily be in preparation of curriculum material, and time involved in working with the school district for the presentation of the program.

WUE Measure Cost Estimate: $1,500 for preparation of curriculum materials.

Estimated Water Savings: 150,000 gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled annually.

Irrigation Run Time Reduction – Grandview owns and operates a pressurized irrigation system that supplies pressurized irrigation water to approximately 500 residences. The remaining 1,727 single-family residential customers within the City utilize potable water for irrigating lawns, gardens, and other landscaping. The City of Grandview will prepare water wise guidelines and water conservation pamphlets and distribute to customers in promoting reduction of irrigation run times, ultimately reducing potable water consumption.

WUE Measure Cost Estimate: $800 for preparation of materials

Estimated Water Savings: 1.4 million gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for implementation in 2023.

Customer Leak Detection – Grandview Public Works staff will work closely with utility billing staff in identifying high water usage customers. When high usage is revealed, Public Works staff will contact the customer in a timely manner. Staff will provide leak detection services to customers and offer solutions for leak repairs. Following inspections, customers will receive DOH pamphlets promoting water conservation and tips toward consumption reduction.

WUE Measure Cost Estimate: $800 for printing materials

Estimated Water Savings: 800,000 gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for implementation in 2023.

DOH Publication Distribution – Grandview Public Works staff will print and deliver DOH publications to customers. This will be accomplished through door-to-door communication. The City has found face to face interaction as the most effective means of communicating with customers.

WUE Measure Cost Estimate: $800 for printing materials

Estimated Water Savings: 800,000 gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for implementation in 2024.

Water Conservation Devices – Grandview Public Works staff will inform customers about available water saving devices and effects of utilizing such devices. Example water conservation devices include:

- Water saving shower heads
- Toilet Tank Bank
- Rain sensors
- Irrigation timers

WUE Measure Cost Estimate: No cost.

Estimated Water Savings: 1.4 million gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for bi-annual implementation starting in 2022.

Consumer Consumption History – The monthly utility statements that the City sends out to its customers indicate monthly water consumption. Customers may request a more detailed breakdown of water consumption history, allowing customers to track and compare their usage. Citizens can be informed of their own water use trends. The City normally contacts a customer that has had a couple of months of higher-than-normal bills. The awareness can allow them to evaluate their individual water conservation needs and alert them of potential leaks. This measure is implemented across all user categories.

WUE Measure Cost Estimate: $200 per category, annually.

a. Single-Family Residential
b. Outside Residential
c. Multi-Family Residential
d. Mobile Home Residential

Estimated Water Savings: Unknown but anticipated to continue reducing consumption through customer awareness.

WUE Measure Action Status: City to schedule implementation.

City Webpage Additions – The City's current webpage includes a page devoted to the Public Works department, which includes a link to the City's *Water Quality Report* annual publication. The Report describes the quality of Grandview's drinking water, sources, and programs in place to protect water quality. The City plans to add a specific webpage devoted to the City's Water Use Efficiency Program. Information will include conservation tips.

WUE Measure Cost Estimate: $1,500 for updating webpage.

Estimated Water Savings: 150,000 gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for implementation in 2024.

Advertising – During the 2022-2032 reporting period, the City of Grandview will publish water conservation advertisements in the local newspaper (the Grandview Herald). These advertisements will include tips and strategies for conserving water during high usage seasons, from April – November. The advertisements will be published at the beginning of each high usage season, typically April.

WUE Measure Cost Estimate: $800 annually.

Estimated Water Savings: 150,000 gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for annual implementation beginning in 2023.

It should be noted that water savings attributable to public information activities are difficult to quantify because they are not directly linked to physically saving water. Although these measures cannot be specifically quantified, they are an integral part of the WUE Program, raising awareness of the importance of water conservation and increasing community participation in other conservation activities.

A summary of the estimated costs to implement the selected measures, their estimated water savings, and overall cost-effectiveness are provided in Table 4-4.

TABLE 4-4 SUMMARY OF DEMAND SIDE WUE MEASURES

Measure Description	Implementation Cost	Year of Implementation	Estimated Water Savings, 10-year period, MG
Water Conservation School Career Days Outreach Program	$1,500	Annually	0.15
Irrigation Run Time Reduction	$800	2023	1.4
Customer Leak Detection	$800	2023	0.80
DOH Publication Distribution	$800	2024	0.80
Water Conservation Devices	None	Bi-Annually	1.4
Customer Consumption History – Single-Family Res.	$200	Annually	9.0
Customer Consumption History – Outside Residential	$200	Annually	0.30
Customer Consumption History – Multi-Family Residential	$200	Annually	0.30
Customer Consumption History – Mobile Home Res.	$200	Annually	1.0
City Webpage Additions	$1,500	2024	0.15
Advertising	$800	Annually	0.15

The above measures are planned to be implemented as shown in Table 4-6. The City will reevaluate the effectiveness of the measures during each program update to determine its potential for future implementation. Costs to implement these measures are included in the City's water operations budget.

Supply Side Measures

Supply side measures are essential to control distribution system leakage (DSL), improve supply efficiency, and overall system performance. The following are discussions of supply side WUE measures that have already or will be implemented within the next ten years to satisfy the City's WUE Program objective. The estimated cost of these measures and anticipated water savings are also provided.

Reservoir Cleaning and Inspection – The City periodically cleans and inspects its reservoirs for leaks and any other deficiencies. Corrosion causes unnecessary leakage directly contributing to distribution system losses (DSL). The City's reservoirs should be cleaned and inspected every five (5) years to identify any corrosion and potential DSL. The approximate cost of inspecting and cleaning each reservoir is generally $12,000, assuming no significant repairs are necessary.

WUE Measure Cost Estimate: Approximately $20,000 per reservoir.

Estimated Water Savings: Unknown.

WUE Measure Action Status: Annual budgeting and inspection schedule.

Source Meter Calibration – The City must calibrate and maintain source meters and large service meters (4-inch and larger) based on generally accepted industry standards and manufacturer information. Compliance will be maintained by the City by performing maintenance on the source and service meters every two (2) years as recommended by DOH. Actual water savings from meter calibration is unknown, but if the accuracy of all source meters is improved by 0.5%, the resulting water savings could be as much as 3,205,000 gallons, considering that approximately 641 million gallons were pumped into the system in 2020. It should be noted that the opposite of water savings could result, therefore, it is unknown if distribution system leakage (DSL) will be reduced or how much water could be saved through meter calibration.

WUE Measure Cost Estimate: $2,000 annually for calibration of one source meter and half of the larger service meters.

Estimated Water Savings: Unknown, could potentially reduce DSL by 0.5%.

WUE Measure Action Status: City to schedule implementation.

Table 4-5 is a summary of supply side measures implemented by the City.

TABLE 4-5 SUMMARY OF SUPPLY SIDE WUE MEASURES

Measure Description	Implementation Cost	Year of Implementation	Projected Water Savings, MG
Reservoir Cleaning and Inspection	$20,000 per reservoir	City Option	Unknown
Source Meter Calibration	$2,000 annually	City Option	3.21

4.1.5 WUE Measure Implementation

A summary of the WUE program measures that are planned for implementation is provided in Table 4-6, including measure description, implementation cost, and year of implementation. All the implemented measures support the system's WUE goals to reduce distribution system leakage and single-family residential consumption.

TABLE 4-6 SUMMARY AND PROJECTED SAVINGS OF WATER USE EFFICIENCY MEASURES

Measure Description	Implementation Cost	Year of Implementation	Projected Water Savings, MG
Water Conservation School Career Days Outreach Program	$1,500	Annually	0.15
Irrigation Run Time Reduction	$800	2023	1.4
Customer Leak Detection	$800	2023	0.80
DOH Publication Distribution	$800	2024	0.80
Water Conservation Devices	None	Bi-Annually	1.4
Customer Consumption History – Single-Family Res.	$200	Annually	9.0
Customer Consumption History – Outside Residential	$200	Annually	0.30
Customer Consumption History – Multi-Family Residential	$200	Annually	0.30
Customer Consumption History – Mobile Home Res.	$200	Annually	1.0
City Webpage Additions	$1,500	2024	0.15
Advertising	$800	Annually	0.15
Reservoir Cleaning and Inspection	$20,000 per reservoir	City Option	Unknown
Source Meter Calibration	$2,000 annually	City Option	3.21

The City plans to budget funds each year for the next ten-year period to fund the WUE measures listed above in Table 4-6. These budget amounts are reflected in the proposed City of Grandview financial plan in CHAPTER 9. as part of the general operational budget and/or O&M improvement costs.

4.1.6 Customer Education

Customer education is intended to inform citizens about the need for, and the methods to achieve water conservation. Customer education involves publicizing and promoting the need for water conservation to all classes of customers. Grandview currently publicizes water conservation information in its annual *Water Quality Report* to inform customers of the City's conservation efforts. In the future, the City plans to provide additional conservation information to customers on their website, to further educate the public on the purpose of using water more efficiently.

Customer education programs that Grandview has considered for further evaluation include the following:

- Program Promotion – Program promotion can include public service announcements, news articles, information provided in the City's annual *Water Quality Report*, bill inserts, providing water use history as part of utility bills, and distribution of inexpensive, easily installed water-saving devices such as shower flow restrictors, toilet tank water displacement bags, and leak detection dye tablets. As previously discussed, Grandview intends to initiate program promotion in 2022 using its annual *Water Quality Report* and water bill notifications.

- Speaker's Bureaus – Speaker's bureaus involve identifying water conservation speaking opportunities appropriate to various civic, service, community, and other groups. Such speaking opportunities focus on increasing public awareness of water resource and conservation issues and may involve the use of audio and visual aids.

- Theme Shows and Fairs – This activity involves preparation of a portable display of water conservation devices and selected written materials for display at local area theme festivals and activities.

- School Outreach – School outreach involves preparation of educational programs for school children targeted to increase awareness of local water resources and encourage water conservation practices. These may include school presentations, preparation of curriculum material, and tours of water system facilities. As previously discussed, representatives of Grandview's Public Works Department will attend a Career Day at the local schools and teach children about the many ways to protect and conserve the City's water source.

Grandview has identified some of these customer education programs as evaluated WUE measures. Besides those identified, Grandview does not plan to further evaluate or implement any of the additional customer education programs listed above.

4.1.7 Water Use Efficiency Program Effectiveness

The Water Use Efficiency Rule requires the completion of annual performance reporting to system customers and to DOH. The City will use preparation of the Annual WUE Performance Report as an opportunity to review the effectiveness of the WUE measures and determine if established goals require revision. The annual effectiveness evaluation and the Annual WUE Performance Report will include the following elements:

- Calculation of distribution system leakage in terms of volume and percent of total water production.

- Identification of WUE goals.

- Evaluation of established WUE goals, including estimating water savings achieved through implemented measures and progress towards satisfying goals.

Grandview will submit its Annual WUE Performance Report to DOH by July 1st of each year. Information contained in the Annual WUE Performance Report will also be included in the City's *Water Quality Report*, which will be published on the City's website. WUE Program effectiveness will also be evaluated every ten years when the Water System Plan is updated again. At this time both goals and measures will be reevaluated to determine the most cost-effective method to achieve the updated goals.

4.1.8 Water Use Efficiency Savings

To quantify the reduction in water supply requirements expected due to implementing WUE measures identified in Section 4.1.5, estimates of water use savings have been calculated. Provided in Table 4-7 is a summary of the water demand projections for years 2032 and 2042, with and without WUE measures implemented.

TABLE 4-7 DEMAND FORECAST WITH AND WITHOUT PROJECTED WUE SAVINGS

Year	Total Annual Demand (MG/Year)		ADD (MGD)		MDD (MGD)	
	Without WUE	With WUE	Without WUE	With WUE	Without WUE	With WUE
2032	824.75	808.26	2.486	2.436	5.456	5.346
2042	893.92	876.04	2.667	2.613	5.856	5.738

CHAPTER 5 -

SOURCE WATER PROTECTION

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5.1 WELLHEAD PROTECTION PROGRAM

In 2000, Grandview completed and implemented a wellhead protection plan. The purpose of the plan was to:

- Identify potential sources of contamination near the City's ground water supplies.
- Implement management strategies to prevent contamination of those supplies; and
- Develop a contingency plan for contamination mitigation if ground water does become contaminated.

The City of Grandview's *Wellhead Protection Plan*, prepared in accordance with DOH requirements, consists of the following chapters:

1. Introduction
2. Hydrology
3. Identification of the Wellhead Protection Areas
4. Potential Contaminant Source Inventory
5. Management Strategy
6. Contingency Planning
7. Figures
8. Appendix
9. Well Logs
10. Resource Contact List

The City of Grandview's *Wellhead Protection Plan* is considered a companion document to the City's *Water System Plan* and should be consulted for specific details and information regarding Grandview's wellhead protection program. Table 5-1 below lists each source well, its documentation, and information on physical site security.

TABLE 5-1 SOURCE WELL SANITARY CONTROL AREA SUMMARY					
Well Source No.	Well Status	Protective Covenant?	100-foot SCA?	City Owned Property?	Physical Site Security:
S01 – West Main	Active	Yes	Yes	Yes	Located within locked wellhouse
S02 – Balcom	Active			Yes	Located within locked wellhouse
S03 – Velma	Active	Yes	Yes	Yes	Located within locked wellhouse
S06 – Euclid	Emergency	N/A	N/A	Yes	Located within locked wellhouse
S07 – Olmstead A	Emergency	Yes	Yes	Yes	Located within locked wellhouse, with site security fencing
S08 – Appleway	Inactive	Yes	Yes	Yes	Located within locked wellhouse, with site security fencing
S10 – N. Willoughby	Active			Yes	Located within locked wellhouse
S11 – Highland	Active			Yes	Located within locked wellhouse
S12 – Pecan A	Inactive	Yes	Yes	Yes	Located within locked wellhouse, with site security fencing
S13 – S. Willoughby	Active			Yes	Located within locked wellhouse, with site security fencing
S14 – Butternut	Active			Yes	Located within locked wellhouse, with site security fencing
S16 – Olmstead B	Emergency	Yes	Yes	Yes	Located within locked wellhouse, with site security fencing
S17 – Ashael Curtis	Active	Yes	Yes	Yes	Located within locked wellhouse, with site security fencing
S18 – Pecan B	Active			Yes	Located within locked wellhouse, with site security fencing

5.2 EXEMPT WELLS

The City of Grandview allows drilling and use of exempt wells within its service area only if the property to be served is located outside of the existing area served by the City's water system. Exempt wells are defined in state law (RCW 90.44.050) as:

> "*. . . any withdrawal of public ground waters for stock-watering purposes, or for the watering of a lawn or of a noncommercial garden not exceeding one-half acre in area, or for a single or group domestic uses in the amount not exceeding five thousand gallons a day, or for an industrial purpose in the amount not exceeding five thousand gallons a day, is and shall be exempt from the provisions of this section . . .*"

The City requires those areas served by exempt wells to connect to the City's water system when it extends to the property. At that time, any exempt wells on the property shall either be decommissioned in accordance with the applicable Washington Administrative Code (WAC) requirements or taken over by the City to become part of the City's water system.

5.3 UPDATES AND MODIFICATIONS TO THE WELLHEAD PROTECTION PLAN

As part of this *Water System Plan* update, the Potential Contaminant Source List and the Notification Source List have been updated and are presented as Table 5-2 and Table 5-3, respectively. The potential contaminant source locations are shown on Figure 5-1. The 6-month, 1-year, 5-year, and 10-year travel time zones for each source well (as specified on the Ground Water Contamination Susceptibility Assessment Survey forms) are summarized in Table 5-3 and shown on Figure 5-1. The City's records indicate it has been over 10 years since the last letters were sent out, and since the last reported contamination event. The City plans to update its source contamination list every two years per WAC 246- 290-135 and encourage purveyors to report incidents to the City. letters to the businesses listed on Figure 5-1 every two years. Copies of the Ground Water Contamination Susceptibility Assessment Survey forms for each source well are provided in CHAPTER 10.

TABLE 5-2 POTENTIAL CONTAMINANT SOURCE LIST				
Map No.	Property Owner	Address	Description	Rank
1	Grandview Bus Garage	115 W Main	Auto Repair	H
2	Bleyhl Farm Service Grandview	213 Wine Country Rd	Petroleum, Fertilizer, Gas	H
3	Bleyhl Farm Service Inc Grandview	119 E Main	Petroleum, Fertilizer, Gas	H
4	Conrad & Adams Fruit LLC	601 W. Wine Country Rd.	Food Processing	
5	Conrad Gilbert Grandview 2	614 W. Wine Country Rd.	Cold Storage Ammonia	
6	Cromwell Radiator & Automotive Repair	127 W. Wine Country Rd.	Auto Repair	
7	Grandview Auto	100 W. Wine Country Rd.	Auto Repair	H
8	Donald E Golladay	Rte 1 Box 1920	Underground Storage Tank	
9	Grandview Cemetery	N. Elm Rd.	Cemetery	M
10	Grandview Medical Center	208 Euclid Rd.	Medical	M
11	Grandview Market	100 Wine Country Rd.	Gas Station	H
12	Grandview Public Works Department	303 W Main St	City Operations	L
13	Grandview School Bus Garage	1107 W. 2Nd St.	Bus Maintenance	M
14	Grandview School District Maintenance Building	707 W Main St	Maintenance Shop	M
15	Grandview School District	1601 W 5Th	Parking Lot	L
16	Kenyon Zero Storage Inc Kenyon Building	230 Avenue A	Cold Storage Ammonia	M
17	Kenyon Zero Storage Inc Of Grandview	505 S Division	Cold Storage Ammonia	M
18	Lamplighter Village Inc	300 Wilson Hwy	Mobile Home court	M
19	Leinad Resources Inc. (Sunfair Marketing)	400 Grandridge	Cold Storage Ammonia	M
20	Lower Valley Machine Shop	104 W. Fifth St.	Auto Repair	M
21	Simplot	Ave A	Ag Service	H
22	Smith Funeral Home	512 E. Fourth St.	Funeral Home	H
23	Smitty Service Center	608 W. Wine Country Rd.	Gas Station	M
24	Snokist Grandview Ust 4746	614 Hwy 12	Underground Storage Tank	M
25	Sprint Communications Co Grandview	500 W 5Th St	Operations Building	L
26	Stegeman Electric Parking Lot	125 W 2Nd St	Underground Storage Tank (LUST)	M
27	Svid Canal	120 S. 11Th St.	Ag Service	H
28	Valley Auto Parts Inc	229 Division	Auto Repair	H
29	Welch Food Inc.	401 Grandridge Rd.	Food Processing	M
30	Welch Food Inc. Plant #1	504 Birch Ave.	Food Processing	M
31	Welch Food Inc. Plant #2	401 Avenue B	Food Processing	M
32	Williams Gas Pipeline West	606 S. Oregon Ave. Pasco	Gas Produces	H
Rank: H = High M = Moderate L = Low				

TABLE 5-3 NOTIFICATION SOURCE LIST			
No.	Name	Address	Phone
1	Emergency (Hazardous Spill) Response		(800) 424-8802
2	Washington Department of Ecology, Central Regional Office	15 W. Yakima Ave. Suite 200 Yakima, WA 98902	(509) 575-2490
3	The Office of Drinking Water, Eastern Drinking Water Operations	16201 East Indiana Avenue, Suite 1500 Spokane Valley, WA 99216	(509) 329-2100
4	Grandview Police Department	201 W. 2nd St. Grandview, WA 98930	(509) 882-9223
5	Grandview Fire Department	110 Avenue A Grandview, WA 98930	(509) 882-9224
6	Yakima Co. Sheriff's Department	1822 S. 1st St. Yakima, WA 98907	(509) 865-6695
7	Washington State Patrol	2715 Rudkin Road Union Gap, WA 98903	(509) 575-2320
8	Yakima County Fire District	110 Avenue A Grandview, WA 98930	911
9	Yakima Health District	1210 Ahtanum Ridge Dr. Union Gap, WA 98903	(509) 575-4040
10	Washington St. Dept. of Transportation	1816 N. 4th Pasco, WA 99301	(509) 545-2202

TABLE 5-4 CALCULATED FIXED RADIUS TRAVEL TIMES					
Source No.	Source Name	6-Month	1-Year	5-Year	10-Year
S01	West Main	360 ft.	510 ft.	1,140 ft	1,610 ft.
S02	Balcom & Moe	250 ft.	360 ft.	800 ft.	1,140 ft.
S03	Velma	620 ft.	880 ft.	1,970 ft.	2,780 ft.
S07	Olmstead A	440 ft.	620 ft.	1,390 ft.	1,970 ft.
S10	North Willoughby	360 ft.	510 ft.	1,140 ft.	1,610 ft.
S11	Highland	250 ft.	360 ft.	800 ft.	1,140 ft.
S13	South Willoughby	360 ft.	510 ft.	1,140 ft.	1,610 ft.
S14	Butternut	250 ft.	360 ft.	800 ft.	1,140 ft.
S16	Olmstead B	700 ft.	980 ft.	2,200 ft.	3,110 ft.
S18	Pecan B	360 ft.	510 ft.	1,140 ft.	1,610 ft.

CITY OF GRANDVIEW

Water System Plan Update

POTENTIAL SOURCE OF CONTAMINATION TRAVEL TIME ZONES

N
W E
S

0 1500 3000

SOURCE S16
SOURCE S07
SOURCE S10
SOURCE S13
SOURCE S01
SOURCE S03
SOURCE S14
SOURCE S11
SOURCE S02
SOURCE S18

LEGEND

- RETAIL SERVICE AREA (CITY LIMITS)
- FUTURE SERVICE AREA (URBAN GROWTH AREA)
- SOURCE WELL
- 6- MONTH TIME OF TRAVEL
- 1-YEAR TIME OF TRAVEL
- 5-YEAR TIME OF TRAVEL
- 10-YEAR TIME OF TRAVEL

POTENTIAL CONTAMINANT LIST

Map No.	Property Owner	Map No.	Property Owner
1	Grandview Bus Garage	17	Kenyon Zero Storage Inc Of Grandview
2	Bleyhl Farm Service Grandview	18	Lamplighter Village Inc
3	Bleyhl Farm Service Inc Grandview	19	Leinad Resources Inc. (Sunfair Marketing)
4	Conrad & Adams Fruit LLC	20	Lower Valley Machine Shop
5	Conrad Gilbert Grandview 2	21	Simplot
6	Cromwell Radiator & Automotive Repair	22	Smith Funeral Home
7	Grandview Auto	23	Smitty Service Center
8	Donald E Golladay	24	Snokist Grandview Ust 4746
9	Grandview Cemetary	25	Sprint Communications Co Grandview
10	Grandview Medical Center	26	Stegeman Electric Parking Lot
11	Grandview Market	27	Svid Canal
12	Grandview Public Works Department	28	Valley Auto Parts Inc
13	Grandview School Bus Garage	29	Welch Food Inc.
14	Grandview School Dist Maintenance Bldg	30	Welch Food Inc. Plant #1
15	Grandview School Dist	31	Welch Food Inc. Plant #2
16	Kenyon Zero Storage Inc Kenyon Bldg	32	Williams Gas Pipeline West

CITY OF GRANDVIEW

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FIGURE 5-1

CHAPTER 6 -

OPERATION AND MAINTENANCE PROGRAM

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6.1 WATER SYSTEM MANAGEMENT AND PERSONNEL

The purpose of this section is to identify personnel responsible for the day-to-day operation of the water system and those positions responsible for development and/or approval of the operating budget and capital improvement program.

Water System Management Structure

Figure 6-1 Water System Organizational Chart, is a flow chart which depicts the management hierarchy of Grandview's water system. Brief descriptions of the general responsibilities of each position identified in Figure 6-1 are listed below:

Mayor and City Council: Responsible for establishing all water system policies, including service area boundaries, user rate structures, water system personnel salaries, Water Department budget, and capital improvements. Approves all expenditures.

City Administrator: Reviews all water system policy changes and expenditures, approves all personnel hiring, and advises Public Works Director on general Water Department operation.

Public Works Director: Responsible for the direct coordination of all day-to-day water system operation and maintenance tasks. Reports on the status and needs of the water system to the City Administrator, Mayor and City Council. Prepares annual water department budget. Reviews all water system policy changes and expenditures. Establishes staff job descriptions and requirements and recommends hiring of personnel. Serves as public and press contact regarding water system information.

Assistant Public Works Director: Under the general supervision of the Public Works Director, assists in the management, planning, and organization of the Public Works Department. Provides information on the status and needs of the water system to the Public Works Director. Work requires considerable professional judgment and initiative within the framework of established regulations, policies, and keeps the Water Department in compliance with DOH rules and regulations. In the absence of the Public Works Director, this position may assume the duties of the Public Works Director when assigned.

City Treasurer: Responsible for supervision of utility billings and budgeting preparation. Allocates funds for approved expenditures.

Utility Clerk: Responsible for entering water meter reading data into the computer, generating monthly water billings, and maintaining water consumption records.

Consulting Engineer: Assists City in long-range planning; aids Public Works Director in technical aspects of water system; and provides design engineering and construction services for capital improvements.

Water Plant Operator: Under the general supervision of the Assistant Public Works Director and, at times, may serve in a lead capacity. Responsible for water quality testing as required by the Safe Drinking Water Act and the Washington DOH. Independently and collaboratively monitors and researches federal and state regulations that will impact operations and/or compliance.

Code Enforcement Officer/Building Inspector/Cross Connection Manager: Under the general supervision of the Assistant Public Works Director, determine cross-connection hazards, collect, and analyze data, and complete annual summary report. Consult with, and explain cross connection control requirements to property owners, managers, contractors, government agencies and the public. Coordinate Cross Connection Control Program activities with other City departments. Prepare and maintain records and files including field test data, surveys, cross connection locations, and approved backflow assembly inventories. Compose correspondence, prepare forms, and write reports relating to the Cross Connection Control Program. Issue written warnings to customers as necessary. Oversee certified testers and perform other related duties as assigned.

Public Works Foremen: Under the direction of the Public Works Director, is responsible for supervising, scheduling, and training public works personnel, meeting the public, and assisting in water system planning. Must possess and maintain a valid Washington State Water Distribution Manager 2 Certificate.

Public Works Maintenance Technicians: Responsible for maintaining a complete knowledge of all aspects of the operation, maintenance, preventive maintenance, policies, procedures, and safety aspects of water system facilities. Must be capable of performing all duties required, operating, or learning to operate every tool, piece of machinery and equipment within the Water Department and must have a working knowledge of all types of materials, i.e., pipes, valves, and pumps. Must maintain or be capable of obtaining a valid Washington State Water Distribution Specialist Class 1 Certificate or better.

6.1.1 Operator Certification

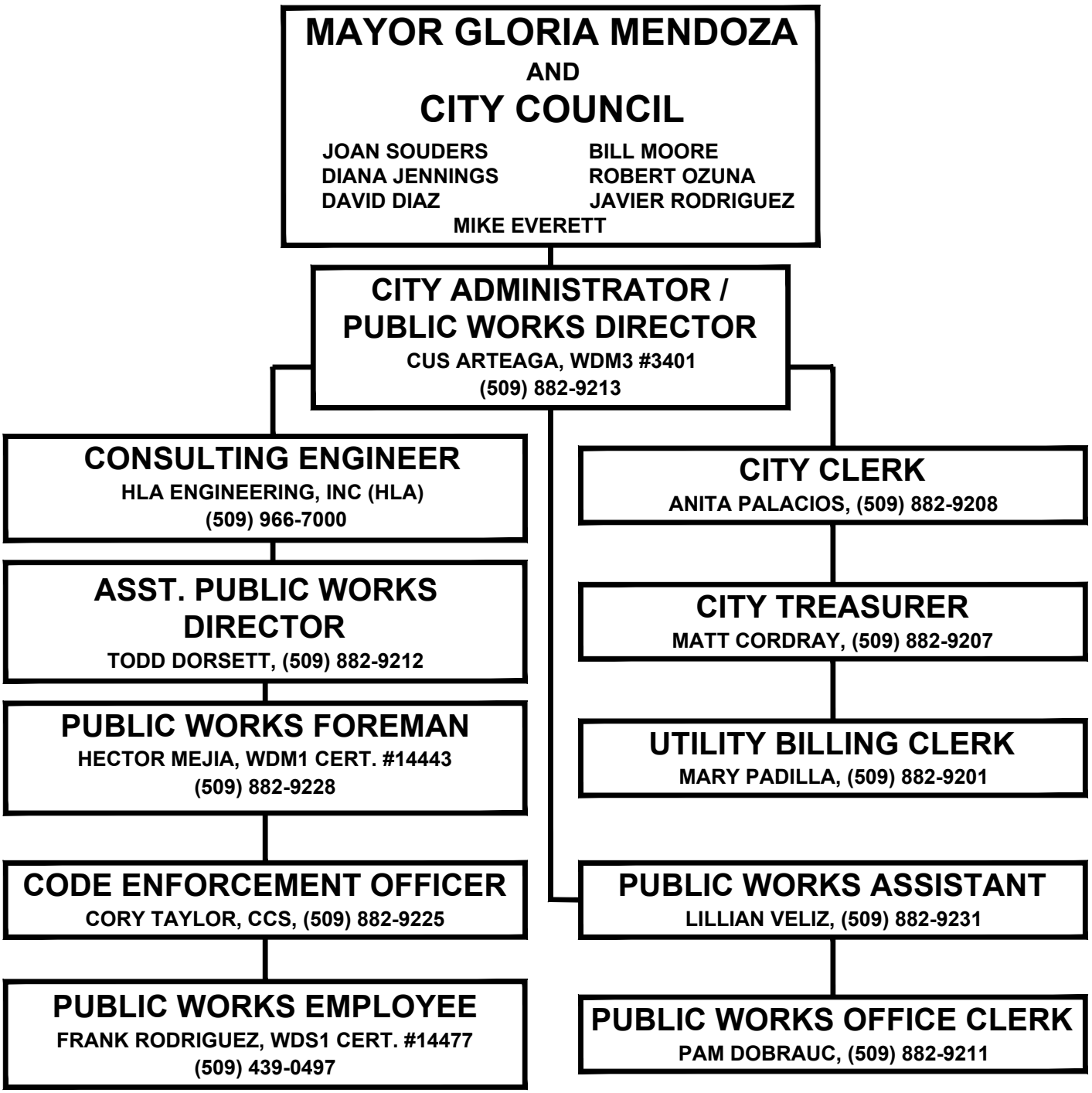
All Group A water systems within the State of Washington are classified according to the population they serve and are required by state regulation to have a certified operator in charge of system operation. Operators are required to be certified at or above the certification level of the distribution system. Grandview's water distribution system, which serves 1,501 to 15,000 persons, is considered a Class 2 system and is, therefore, required to have a Class 2 (or greater) Water Distribution Manager (WDM) responsible for system operation. Grandview is also required to have a Cross-connection Control Specialist (CCS) responsible for the system's cross-connection control program and is required to have a Backflow Assembly Tester (BAT) responsible for monitoring backflow prevention assemblies.

Included within Figure 6-1 are the water certifications of the various Public Works employees responsible for the operation and maintenance of Grandview's water system. Grandview currently has one public works employee with a Water Distribution Manager certification at the Class 3 level, and one public works employee with Water Distribution Manager certification at the Class 1 level. In addition, Grandview currently has one public works employee with Cross-Connection Control Specialist certifications. Figure 6-1 provides the current certifications of all of Grandview's water system employees who work in and have water system responsibilities.

CITY OF GRANDVIEW

Water System Plan Update

WATER SYSTEM ORGANIZATIONAL CHART



LEGEND

WDS1 = WATER DISTRIBUTION SPECIALIST CLASS 1
WDM1 = WATER DISTRIBUTION MANAGER CLASS 1
WDM2 = WATER DISTRIBUTION MANAGER CLASS 2
WDM3 = WATER DISTRIBUTION MANAGER CLASS 3
CCS = CROSS CONNECTION SPECIALIST

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FIGURE 6-1

6.2 SYSTEM OPERATION AND PREVENTATIVE MAINTENANCE

Section 3.3 System Description and Analysis, provides a detailed description of the various water system components and their interrelationship. This interrelationship is depicted in Figure 3-1 and Map A CHAPTER 10. It is important that Water Department personnel fully understand the system to evaluate its operation and maintenance requirements.

Routine System Operation and Preventative Maintenance

An outline of routine operational tasks for the various major system components is provided below:

A. Source Wells and Pumps

1. Daily Tasks

   a. Check all well facilities visually.
   b. Maintain oil levels for well pumps.
   c. Check packing glands.
   d. Check chlorination systems.
   e. Check telemetry system.
   f. Record flow meter totalizer readings.
   g. Use a handheld nitrate analyzer to check blended nitrate concentrations at both the Well S07/S16 site and in the 3.0 MG reservoir adjacent to Wells S10 and S13 to verify that the City's blending strategy is maintaining acceptable water quality.

2. Monthly Tasks

   a. Check and grease well pump packing and pump motor seal bearings.
   b. Check oil level in pump bearing reservoir and fill, if necessary.
   c. Check floor drains and clean, if necessary.
   d. Clean pumphouse floors.
   e. Monitor and record well draw down levels.
   f. Review monthly operating hours of Wells S10 and S13 to determine if telemetry changes are necessary to maintain the appropriate ratio of operating hours between these sources.

3. Seasonal Tasks

   a. Winterize or de-winterize pumphouse facilities.
   b. Check heating and A/C equipment and thermostats, adjust as necessary.
   c. Clean chlorination system equipment.

4. Yearly Tasks

   a. Summarize flow meter totalizer records.
   b. Change oil in motors using DTE Light.
   c. Maintain chlorine detectors.

5. Every Three Years Task

   a. Take sample of raw water from each well and submit to the Washington State DOH Lab for an Inorganic Chemical and Physical (IOC) Analysis, Volatile Organic Chemical (VOC)

Analysis, and Synthetic Organic Chemical (SOC) Analysis, unless sources have been granted a waiver under the susceptibility waiver program.

b. Take sample of raw water from each well and submit to a state certified laboratory for required lead and copper analysis, as directed by DOH.

6. Every Four Years Task

a. Conduct sampling for required radionuclides testing and submit to DOH Lab.

B. Reservoirs

1. Daily Tasks

a. Visually inspect reservoir exteriors.
b. Check pressure transmitter and level controls at Velma Well for 0.5 MG Reservoir.
c. Clear any vegetation near reservoir base.

2. Monthly Tasks

a. Check the hatches and the screens on the vent and overflow pipes on all reservoirs.

3. Yearly Tasks

a. Inspect reservoir interiors as possible without removing from service.

4. Every Five Years Task

a. Empty reservoirs individually and inspect interiors. Clean, refill, and chlorinate reservoir before removing the next one from service.

5. As Required Tasks

a. Inspect and video record reservoir interiors using diver, and vacuum remove accumulated debris.

C. Distribution System

1. Weekly Tasks

a. Conduct free and total chlorine count tests at random sites within the distribution system. Report test results to Public Works and submit to DOH at month end.

2. Monthly Tasks

a. Take required number of water samples from various representative sites within the distribution system and submit them to a certified laboratory for bacteriological analysis in accordance with the *Coliform Monitoring Plan*.
b. Flush selected fire hydrants in various areas within the water system.

3. Seasonal Tasks

a. Insulate service meters.

4. Yearly Tasks

   a. Operate all valves through their full range and listen for leaks
   b. Operate and flush all fire hydrants. Lubricate hydrant caps and threads. Touch-up paint as required.
   c. Inspect all cross-connection control devices.
   d. Take required number of water samples from various representative sites within the distribution system and submit them for disinfection byproducts analysis in accordance with the *Stage 2 DBP Monitoring Plan*.

5. As Required Tasks

   a. Flush low velocity water mains as required to remove sedimentation.
   b. Review plans for installation of cross-connection control devices on proposed new construction.
   c. Inspect installation of required devices on new construction.
   d. Repair and/or replace service meters.

D. Telemetry System

1. Daily Tasks

   a. Observe telemetry system operation and alarms.

2. Weekly Tasks

   a. Check automatic dialer status.

3. Monthly Tasks

   a. Check total well production and compare to recorded consumption.
   b. Check telemetry system alarms.

4. As Required Tasks

   a. Make any required changes to pump Start / Stop settings.

6.3 COMPREHENSIVE WATER QUALITY MONITORING

The City of Grandview monitors its system's water quality in accordance with the requirements of WAC 246-290-300, 246-290-310, and 246-290-320, which define the minimum monitoring requirements, maximum contaminant levels (MCLs) and maximum residual disinfectant levels (MRDLs), and follow-up action requirements for public water systems. The following summarizes the requirements as they pertain to the City of Grandview:

6.3.1 Monitoring Requirements, Location, and Frequency

Bacteriological Analysis: Bacteriological analysis is conducted in accordance with the procedures and locations specified in Grandview's *Coliform Monitoring Plan*, a copy of which is provided in CHAPTER 10. The minimum number of bacteriological samples required per month within the distribution system is based upon the population served and is shown in part in Table 6-1. All sampling locations are shown in Figure 6-2.

TABLE 6-1 MINIMUM MONTHLY COLIFORM SAMPLING REQUIREMENTS	
Permanent Population Served	Minimum Number of Samples per Month
4,901 - 5,800	6
5,801 - 6,700	7
6,701 - 7,600	8
7,601 - 8,500	9
8,501 - 12,900	10 (Grandview's current requirement)
12,901 - 17,200	15
17,201 - 21,500	20
21,501 - 25,000	25

Disinfection Byproducts (DBPs): Samples are to be collected from two locations within the distribution system identified in the City's *Stage 2 DBP Monitoring Plan*. For Stage 2 monitoring, two dual sample sets of TTHM and HAA5 samples are required at each of two locations annually. These locations must have the highest averages of total trihalomethanes (TTHMs) and haloacetic acids (HAA5).

Inorganic Chemical and Physical Analyses: Generally, a minimum of one sample from each source well is required per compliance period as a result of the IOC waivers. The samples shall be collected from a point representative of the source, after treatment, and prior to entry into the distribution system.

Nitrate/Nitrite Monitoring: Nitrate and Nitrite samples from each source are generally required once annually and quarterly at three of its wells. The samples generally shall be collected from a point representative of the source, after treatment, and prior to entry into the distribution system. Sources S07, S10, S13, and S16 shall be collected from a point representative of the source prior to treatment.

All source wells shall be tested individually, though some sources are blended prior to entering the distribution system. In addition to the individual tests at blended source locations, a sample shall be taken beyond the blending point, prior to entering the distribution system.

Radionuclides: Radionuclide samples from each source are generally required once every three years. However, DOH may reduce monitoring requirements to once every six or nine years. The samples shall be collected from a point representative of the source, after treatment, and prior to entry into the distribution system.

Volatile Organic Chemicals (VOCs): VOC samples shall be taken at each source once every 3 months for the first 12 months of operation, or as directed by DOH. If no VOCs are detected in the first 12 months from a ground water source, only one annual sample will be required for the first three years of sampling, per 40 CFR 141.24. If no VOCs are detected during the first three years of testing, future monitoring shall be at least once every compliance period. DOH may grant waivers for monitoring requirements. The samples shall be collected from a point representative of the source, after treatment, and prior to entry into the distribution system.

Synthetic Organic Chemicals (SOCs): SOC samples shall be taken at each source once every 3 months for the first 12 months of operation, or as directed by DOH. If no SOCs are detected in the first 12 months from a ground water source, only one annual sample will be required for the first three years of sampling, per 40 CFR 141.24. If no SOCs are detected during the first three years of testing, future monitoring shall be at least once every compliance period. DOH may grant waivers for monitoring requirements. The

samples shall be collected from a point representative of the source, after treatment, and prior to entry into the distribution system.

Lead and Copper: A minimum of 30 samples at targeted sample tap locations throughout the distribution system are required every three years for lead and copper monitoring. All sampling locations are shown in Figure 6-3. The water system must provide individual sampling results to the persons at each sample location no later than 30 days after receiving the results. Additionally, the water system must complete and submit the signed *Lead and Copper Consumer Notice Certification Form* (CHAPTER 10) and a sample copy of one consumer notice to DOH within 90 days after the end of the monitoring period.

CITY OF GRANDVIEW

Water System Plan Update

SAMPLE LOCATION MAP - COLIFORM BACTERIA

N
W E
S

0 1500 3000

LEGEND

- RETAIL SERVICE AREA (CITY LIMITS)
- FUTURE SERVICE AREA (URBAN GROWTH AREA)
- SOURCE WELL

SAMPLE LOCATION LIST

Sample No.	Sample Location	Sample No.	Sample Location
1	2013 Hill Drive	6	207 W. 2nd St.
	2107 Hill Drive		811 W. 2nd St.
	2005 Hill Drive		129 W. 2nd St.
2	710 Hillcrest	7	341 N. Elm St.
	900 Hillcrest		621 N. Elm St.
	700 Hillcrest		113 N. Elm St.
3	306 Westridge Drive	8	1011 Carriage Square
	402 Westridge Drive		1003 Carriage Square
	301 Westridge Drive		1003 Carriage Square
4	303 W. Wine Country	9	1005 Grandridge
	500 W. Main St.		1203-A Grandridge
	101 E. Wine Country		810 Grandridge
5	815 Wallace Way	10	200 E. 2nd St.
	200 Colleen's Way		406 E. 2nd St.
	695 Wallace Way		201 Division St.

CITY OF GRANDVIEW

HLA Engineering and Land Surveying, Inc.
2803 River Road
Yakima, WA 98902
509.966.7000
Fax 509.965.3800
www.hlacivil.com

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FIGURE 6-2

CITY OF GRANDVIEW

Water System Plan Update

SAMPLE LOCATION MAP - LEAD AND COPPER

LEGEND

- RETAIL SERVICE AREA (CITY LIMITS)
- FUTURE SERVICE AREA (URBAN GROWTH AREA)
- SOURCE WELL

SAMPLE LOCATION LIST

Sample No.	Sample Location	Sample No.	Sample Location
1	701 Washington #10	16	1806 W 2nd
2	1005 Monty Python	17	207 Westridge
3	218 Jackson	18	202 Westridge
4	702 Larson	19	207 Madison
5	403 Westridge	20	219 Jackson
6	209 West Bonnieview	21	701 Washington #15
7	1810 Young Street	22	1800 W 2nd
8	701 Washington #16	23	912 Carriage
9	308 Westridge	24	1105 Apache
10	212 Jackson	25	516 Satterfield
11	214 Jackson	26	601 Washington #1
12	701 Washington #1	27	305 E 2nd
13	306 Westridge	28	700 Washington #2
14	1816 W 2nd	29	602 Washington #9
15	100 W 2nd	30	1911 Queen Street

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FIGURE 6-3

Asbestos: One asbestos sample shall be taken from the water distribution system at one of the City's routine coliform sampling sites that is known to have asbestos concrete (AC) pipe.

Other Substances: Monitoring of other substances in the future will be as required by DOH.

6.3.2 Sanitary Surveys

The most recent sanitary survey was completed on 7/30/2022, and letter issued 4/26/2021. No part of the system was found to be out of compliance. Of the three survey comments, two referred to sealing conduit junction boxes at well locations, and one was a recommendation to complete an inspection of the reservoir roof and component. A copy of the most recent sanitary survey data report can be found in Chapter 10.

6.3.3 Testing Laboratories

Samples which have been collected must be transported and analyzed in accordance with DOH requirements. The analyses must be done by a state public health laboratory or a state certified private laboratory.

The City of Grandview routinely delivers bacteriological samples to Cascade Analytical, Inc. on the same day they are taken. Sample bottles are obtained from the laboratory.

Samples for other required tests, e.g., Inorganic Chemical and Physical Analysis, are delivered to Cascade Analytical, Inc., of Union Gap, WA on the same day they are taken. As with the bacteriological samples, sample bottles are obtained from the laboratory.

6.3.4 Violation Procedures

The City of Grandview is responsible for complying with the standards of water quality identified in WAC 246-290-310. If any substance exceeds its maximum contaminant level (MCL) and/or maximum residual disinfectant levels (MRDLs), the City shall take follow-up action as outlined under WAC 246-290-320.

Maximum Contaminant Levels (MCLs) and Maximum Residual Disinfectant Levels (MRDLs)

Bacteriological – If any coliform bacteria are present in any sample, follow-up action as described under WAC 246-290-320(2) shall be taken in accordance with the City's Coliform Monitoring Plan and the Groundwater Rule (GWR) requirements.

Disinfection Byproducts (DBPs) and Residuals – MCLs and MRDLs for disinfection byproducts and residuals are as shown in Table 6-2.

TABLE 6-2 DISINFECTION BYPRODUCTS AND RESIDUALS

DISINFECTION BYPRODUCT	MCL (mg/l)
Total Trihalomethanes (TTHMs)	0.080
Haloacetic acids (HAA5)	0.060
Bromate	0.010
Chlorite	1.0
DISINFECTION RESIDUAL	**MRDL (mg/l)**
Chlorine	4.0 (as $C1_2$)
Chloramines	4.0 (as $C1_2$)

Chlorine Dioxide	0.8 (as $C1O_2$)

Inorganic Chemical and Physical (IOC) – MCLs for inorganic chemical and physical properties are as shown in Table 6-3.

TABLE 6-3 INORGANIC CHEMICAL MCLS

Chemical or Physical Characteristics	MCL (mg/l)
Primary Substances	
Antimony (Sb)	0.006
Arsenic (As)	0.010
Asbestos	7 million fibers/liter
Barium (Ba)	2.0
Beryllium (Be)	0.004
Cadmium (Cd)	0.005
Chromium (Cr)	0.1
Copper (Cu)*	1.3
Cyanide (HCN)	0.2
Fluoride (F)	4.0
Lead (Pb)*	0.015
Mercury (Hg)	0.0020
Nickel (Ni)	0.10
Nitrate (as N)	10.0
Nitrite (as N)	1.0
Selenium (Se)	0.05
Sodium (Na)*	20
Thallium (Tl)	0.002
Secondary Substances	
Chloride (Cl)	250.0
Fluoride (F)	2.0
Iron (Fe)	0.3
Manganese (Mn)	0.05
Silver (Ag)	0.1
Sulfate (SO_4)	250.0
Zinc (Zn)	5.0
Color	15 Color Units
Specific Conductivity	700 umhos/cm
Total Dissolved Solids (TDS)	500
* No DOH established MCL. Represents EPA established “action levels” for lead and copper and recommended level for sodium.	

Radionuclides – MCLs for Radionuclides are as shown in Table 6-4.

TABLE 6-4 RADIONUCLIDE MCLS	
RADIONUCLIDE	MCL
Combined Radium-226 and Radium-228	5 pCi/l
Gross alpha particle activity (excluding uranium and radon)	15 pCi/l
Beta particle and photon radioactivity	4 mrem/year
Uranium	30 µg/l

Volatile Organic Chemicals (VOCs) – MCLs for VOCs are as shown in Table 6-5.

TABLE 6-5 VOLATILE ORGANIC CHEMICAL MCLS	
VOLATILE ORGANIC CHEMICAL	MCL (mg/l)
Benzene	0.005
Carbon Tetrachloride	0.005
para-Dichlorobenzene	0.075
Trichloroethylene	0.005
Vinyl Chloride	0.002
1,1,1-Trichloroethane	0.2
1,1-Dichloroethylene	0.007
1,2 Dichloroethane	0.005
cis-1,2-Dichloroethylene	0.07
Ethylbenzene	0.7
Monochlorobenzene	0.1
o-Dichlorobenzene	0.6
Styrene	0.1
Tetrachloroethylene	0.005
Toluene	1
Trans-1,2-Dichloroethylene	0.1
Xylenes	10
1,2-Dichloropropane	0.005
Dichloromethane	0.005
1,1,2-Trichloroethane	0.005
1,2,4-Trichlorobenzene	0.07

Synthetic Organic Chemicals (SOCs) – MCLs for SOCs are as shown in Table 6-6.

TABLE 6-6 SYNTHETIC ORGANIC CHEMICAL MCLS

SYNTHETIC ORGANIC CHEMICAL	MCL (mg/l)
Alachlor	0.002
Atrazine	0.003
Carbofuran	0.04
Chlordane	0.002
EDB	0
DBCP	0.0002
Heptachlor	0.0004
Heptachlor Epoxide	0.0002
Lindane	0.0002
Methoxychlor	0.04
Toxaphene	0.0003
PCBs	0.0005
Pentachlorophenol	0.001
2,4-D	0.07
2,4,5-TP	0.05
PAHs (Benzo(a)pyrene)	0.0002
Dalapon	0.2
Di(ethylhexyl)-Adipate	0.4
Di(ethylhexyl)-Phthalate	0.006
Dinoseb	0.007
Diquat	0.1
Endothall	0.1
Endrin	0.002
Glyphosate	0.7
Hexachlorobenzene	0.001
Hexachlorocyclo-Pentadiene	0.05
Oxymal	0.2
Picloram	0.5
Simazine	0.004
2,3,7,8-TCDD (Dioxin)	0

6.3.5 Follow-up Action

1. General:

   a. If water quality exceeds any MCL or MRDL listed in WAC 246-290-310, the purveyor shall notify DOH and take follow-up action as described in this section.
   b. When a primary MCL violation occurs, the purveyor shall:
      i. Notify DOH within 48 hours in accordance with WAC 246-290-480.
      ii. Notify the public according to the procedures outlined under WAC 246-290-71001.
      iii. Determine the cause of the contamination; and
      iv. Take corrective action as required by DOH.
   c. When a secondary MCL violation occurs, the purveyor shall notify DOH and take corrective action as directed by DOH.

2. Bacteriological:

   a. When coliform bacteria are present in any sample and the sample is not invalidated under e. of this subsection, the purveyor shall ensure the following actions are taken:

      i. The sample is analyzed for fecal coliform or E. coli. When a sample with a coliform presence is not analyzed for E. coli or fecal coliforms, the sample shall be considered as having a fecal coliform presence for MCL compliance purposes.
      ii. Repeat samples are collected in accordance with b. of this subsection.
      iii. Collect triggered source samples in accordance with c. of this subsection and have them tested for E. coli.
      iv. DOH is notified in accordance with WAC 246-290-480; and
      v. The cause of the coliform presence is determined and corrected.

   b. Repeat samples: The purveyor shall collect and submit for analysis a set of repeat samples for every sample in which the presence of coliforms is detected in accordance with the following:

      i. A set of three (3) repeat coliform samples is required for Group A systems collecting more than one routine coliform sample each month and shall be collected at the following locations:

         (1) At the site of the previous sample with a coliform presence.
         (2) Within five active services upstream of the site of the sample with a coliform presence.
         (3) Within five active services downstream of the site of the sample with a coliform presence.

      ii. For Group A systems, all samples in a set of repeat samples shall be collected on the same day and submitted for analysis within 24 hours after notification by the laboratory of a coliform presence. If the purveyor can demonstrate, to the satisfaction of DOH, that logistical problems beyond the purveyor's control make analysis of the samples in the repeat sample set impractical because the time between sample collection and analysis will exceed 30 hours, then the purveyor shall collect the required set of repeat samples as directed by DOH.
      iii. When repeat samples have coliform presence, the purveyor shall:

         (1) Contact DOH and collect a minimum of one additional set of repeat samples as directed by DOH: or
         (2) Collect one additional set of repeat samples for each sample where coliform presence was detected.

iv. If a sample with a coliform presence was collected from the first two or last two active services, the purveyor shall monitor as directed by DOH.
v. The purveyor may change a previously submitted routine sample to a sample in a set of repeat samples when the purveyor:

(1) Collects the sample within five adjacent service connections of the location from which the initial sample with a coliform presence was collected.
(2) Collects the sample after the initial sample with a coliform presence was submitted for analysis.
(3) Collects the sample on the same day as other samples in the set of repeat samples, except under b. ii. of this subsection; and
(4) Requests and receives approval from DOH of the change.

vi. DOH may waive the requirement to collect sets of repeat samples under this subsection during a month when a non-acute coliform MCL violation is determined for the system.

c. Triggered Source Sampling: In accordance with the Groundwater Rule (GWR) requirements, triggered source samples must be collected and tested for E. coli when coliform bacteria are present in any routine distribution sample. Triggered source sampling shall be conducted as follows:

i. Triggered source samples must be collected within 24 hours of notification of the total coliform positive result.
ii. Each source that was in operation at the time the routine sample was collected must be tested prior to treatment.
iii. If one of the triggered source samples is E. coli positive, corrective action shall be taken as directed by DOH, or five additional source samples must be taken within 24 hours.
iv. If any of the five additional source samples is E. coli positive, one or more of the following corrective actions may need to be taken, as directed by DOH:

(1) Provide an alternate source of water.
(2) Eliminate the source of contamination.
(3) Provide 4-log treatment.

v. Customers must be notified within 24 hours of receiving an E. coli positive triggered source sample.

d. Monitoring frequency following a coliform presence: Group A systems having one or more coliform presence samples that were not invalidated during the previous month shall collect and submit for analysis the minimum number of routine samples shown in Table 6-1.

i. DOH may waive the monitoring frequency requirement when one or more samples with a coliform presence were collected during the previous month, if the purveyor proves to the satisfaction of DOH:

(1) The cause of the sample with a coliform presence; and
(2) The problem is corrected before the end of the next month the system provides water to the public.

ii. If DOH waives this monitoring frequency requirement:

(1) The purveyor shall collect and submit at least the minimum number of samples required when no samples with a coliform presence were collected during the previous month; and
(2) DOH shall make available a written description explaining:

(a) The specific cause of the coliform presence; and
(b) Action taken by the purveyor to correct the cause of coliform presence.

e. Invalid samples.

i. DOH shall consider coliform samples with no coliform presence detected invalid when:

(1) A certified laboratory determines that the sample results show:

(a) Multiple tube technique cultures are turbid without appropriate gas production.
(b) Presence-absence technique cultures are turbid in the absence of an acid reaction.
(c) There are confluent growth patterns or growth of TNTC (too numerous to count) colonies without a surface sheen using a membrane filter analytic technique.
(d) There is excess debris in the sample; or
(e) That improper sample collection and analysis occurred.

ii. DOH may also invalidate a coliform sample when:

(1) DOH determines a nondistribution system problem occurred as indicated by:

(a) All samples in the set of repeat samples collected at the same location as the original coliform presence sample also have coliform presence; and
(b) All other samples in the set of repeat samples are free of coliform.

(2) DOH determines a coliform presence result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case when DOH invalidates a sample:

(a) The purveyor shall collect a set of repeat samples following the sample invalidation in accordance with 2.b. above, and
(b) DOH rationale for invalidating the sample shall be documented in writing and made available to the public. The documentation shall state the specific cause of the coliform presence and what action the purveyor has taken or will take.

iii. When a coliform sample is determined invalid, the purveyor shall collect and submit for analysis:

(1) An additional coliform sample from the same location as each invalid sample within 24 hours of notification of the invalid sample; or
(2) If determined that invalid sample resulted from circumstances not reflective of distribution system water quality, collect a set of samples as outlined in section b. i. of this subsection; and
(3) Additional coliform samples as directed by DOH.

iv. When DOH or laboratory invalidates a sample, the sample shall not count towards the purveyor's minimum coliform monitoring requirements.

3. Inorganic Chemical and Physical (IOC): When an initial analysis of any substance exceeds the MCL, the purveyor shall take the following action:

    a. For nitrate, immediately take one additional sample from the same sampling point. If the average of the two samples exceeds the MCL, a violation is confirmed, or
    b. For all other inorganic chemical and physical substances, within 30 days take three additional samples from the same sample point. If the average of all four samples exceeds the MCL, a violation is confirmed.

4. Inorganic Turbidity: When the turbidity exceeds the maximum allowable limit identified under WAC 246-290-310 for longer than one hour monitored continuously, the purveyor shall report to DOH within 48 hours. When the results of a manual turbidity analysis exceeds the maximum allowable limit, another sample shall be collected within one hour. When the repeat sample confirms the maximum allowable limit has been exceeded, the purveyor shall notify DOH.

5. Volatile Organic Chemicals (VOCs): The purveyor shall be responsible for the following follow-up actions:

    a. After the purveyor's receipt of the first VOC analysis results from the laboratory, the purveyor shall provide notice to persons served by the system as described under WAC 246-290-71001.
    b. When a List 1 VOC is verified at a concentration above the detection limit, the purveyor shall, at a minimum:

        i. Sample the source once every three months for at least three years; and
        ii. Make analysis results available to consumers within three months of receipt from the laboratory as described under WAC 246-290-71006.

    c. When a List 1 VOC is verified at a concentration greater than an MCL, and the level will not cause the running annual average to exceed the MCL, the purveyor shall repeat sample the source as soon as possible. If a concentration greater than an MCL is confirmed, the purveyor shall:

        i. Notify DOH within seven days of receipt of the repeat sample analysis results.
        ii. Provide consumer information in accordance with WAC 246-290-71006.
        iii. Submit documentation to DOH describing the water system's strategy for gathering and analyzing additional data, and identify plans for keeping the public informed; and
        iv. Sample the source a minimum of once every three months for at least three years.

    d. When the running annual average of a List 1 VOC is greater than an MCL, or one sample analysis result causes the annual average to exceed an MCL, the purveyor shall:

        i. Notify DOH within seven days of receipt of analysis results.
        ii. Notify the public as described under WAC 246-920-71006, including mandatory health effects language.
        iii. Submit an action plan to DOH for approval addressing follow-up activities, including corrective action. The purveyor shall submit the action plan within four months of receipt of DOH notice that the annual average exceeds the MCL. The purveyor's action plan shall, at a minimum, contain:

(1) Tabulation of VOC sample analysis results, including the location where VOCs were detected.
(2) Description of monitoring plans for system sources.
(3) Strategy for informing the public of monitoring results and investigations; and
(4) Description of short and long-term plans to minimize exposure and/or eliminate the source of contamination.

iv. Implement the action plan within one year of DOH's approval. DOH may require the purveyor's earlier compliance, if necessary, to eliminate an immediate health threat, or may require a revision of the action plan based upon additional sample results. DOH may extend the purveyor's period of compliance when DOH determines:

(1) Substantial construction is required; and
(2) The purveyor has taken all appropriate measures to protect the health of consumers served by the public water system.

If DOH grants the purveyor an extension, the purveyor shall issue a notice identifying the MCL exceeded and the amount by which the repeat sample analysis results exceeded the MCL. The purveyor shall include the notice in all bills mailed to affected customers until DOH determines that the purveyor complies with the MCL.

v. Sample the source a minimum of once every three months for at least three years.

e. When a List 2 or List 3 VOC is verified at a concentration above the detection limit, the purveyor shall:

i. Submit the sample analysis results to DOH within seven days of receipt from the laboratory; and
ii. Sample the source a minimum of once every three months for one year, and then annually thereafter during the three-month period when the highest previous measurement occurred.

f. If DOH determines that a List 2 or List 3 VOC is verified at a level greater than a state advisory level (SAL), DOH shall notify the purveyor in writing. The purveyor shall repeat sample the source as soon as possible after initial DOH notice that an SAL has been exceeded. The purveyor shall submit the analysis results to DOH within seven days of receipt from the laboratory. If any repeat sample confirms that an SAL has been exceeded, the purveyor shall:

i. Provide consumer information in accordance with WAC 246-290-71006.
ii. Sample the source a minimum of once every three months for at least three years; and
iii. Submit documentation to DOH listing VOC analysis results, describing the water system's strategy for gathering and analyzing additional data, and identifying plans for keeping the public informed. The purveyor shall submit this information to DOH within six months of the date of the first notice from DOH that an SAL has been exceeded.

g. DOH may reduce the purveyor's monitoring requirement for a source detecting a List 1 VOC if, after three years of quarterly monitoring, all analysis results are less than the MCL. The purveyor's reduced monitoring frequency shall be no less than one sample per year.
h. DOH may reduce the purveyor's monitoring requirement for a source detecting a List 2 or List 3 VOC if the source has been monitored annually for at least three years, and all analysis results are less than the SAL.

i. In establishing SAL's for List 2 and List 3 VOCs, DOH shall use the most recent edition of DOH document titled "Procedures and References for Determination of State Advisory Levels for Drinking Water Contaminants" which has been approved by the State Board of Health. Copies are available from DOH upon request.
j. When List 1, List 2 (exclusive of TTHMs), or List 3 VOCs are verified in well fields, the purveyor shall repeat sample individual wells within the well field.
k. When the sum of all trihalomethanes detected exceeds 0.100 mg/L, the purveyor shall sample within three months for total trihalomethanes as required under WAC 246-290-300(5).
l. DOH may collect samples from a water system or may require that specified quality assurance techniques be used to collect samples.

6. For any additional substance exceeded, follow-up action shall be determined by DOH when the MCL violation occurs.

Public Notification

1. Responsibility: The purveyor of a Group A water system shall notify the water system users and DOH for any of the following conditions:

   a. Exceedances of maximum contaminant levels (MCLs) or maximum residual disinfectant levels (MRDLs).
   b. Violation of treatment techniques.
   c. Monitoring and testing procedure violations.
   d. Failure to comply with the schedule of a variance or exemption.
   e. Operation under a variance or exemption.
   f. Occurrence of a waterborne disease outbreak or other waterborne emergency.
   g. Exceedance of the secondary maximum contaminant level for fluoride; and
   h. Availability of unregulated contaminant monitoring results.

   These conditions are grouped into three categories, and require public notification in English and in Spanish within different time periods as described below:

   a. Tier 1 Conditions require public notification within 24 hours. Such conditions include:

      i. Violation of the MCL for total coliform, when fecal coliform or E. coli are present in the water distribution system, or failure to test for fecal coliform or E. coli when any repeat sample tests positive for coliform.
      ii. An E. coli positive groundwater source sample.
      iii. Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite; or when a confirmation sample is not taken within 24 hours of the system's receipt of the first sample showing exceedance of the nitrate or nitrite MCL.
      iv. Violation of the turbidity MCL of 5 NTU, where the primary agency determines after consultation that a Tier 1 notice is required or where consultation does not occur in 24 hours after the system learns of violation.
      v. Violation of the treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit, where the primary agency determines after consultation that a Tier 1 notice is required or where consultation does not take place in 24 hours after the system learns of violation.
      vi. Occurrence of a waterborne disease outbreak, as defined in 40 CFR 141.2, or another waterborne emergency; and
      vii. Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the primary agency, either in its regulations or on a case-by-case basis.

b. Tier 2 conditions require public notification within 30 days. Such conditions include:

   i. All violations of the MCL, MRDL, and treatment technique requirements except where Tier 1 notice is required.
   ii. Violations of the monitoring requirements where the primary agency determines that a Tier 2 public notice is required, considering potential health impacts and persistence of the violation: and
   iii. Failure to comply with the terms and conditions of any variance or exemption in place.

c. Tier 3 conditions require public notification within one year. Such conditions include:

   i. Monitoring violations, except where Tier 1 notice is required, or the primary agency determines that the violation requires a Tier 2 notice.
   ii. Failure to comply with an established testing procedure, except where Tier 1 notice is required, or the primary agency determines that the violation requires a Tier 2 notice.
   iii. Operation under variance granted under §1415 or exemption granted under §1416 of the Safe Drinking Water Act.
   iv. Availability of unregulated contaminant monitoring results; and
   v. Exceedance of the secondary maximum contaminant level for fluoride.

2. Content: Notices in English and in Spanish shall provide:

   a. A clear, concise, and simple explanation of the violation.
   b. Discussion of any potential adverse health effects and any segment of the population which may be at higher risk.
   c. Mandatory health effects information in accordance with subsection (4) of this section.
   d. A list of steps the purveyor has taken or is planning to take to remedy the situation.
   e. A list of steps the consumer should take including advice on seeking an alternative water supply if necessary; and
   f. The purveyor's name and phone number.

   The purveyor may provide additional information to further explain the situation.

3. Distribution:

   a. Public notice of a Tier 1 condition shall occur within 24 hours after learning of the condition by placing notices on the front door of every system user. The public notice shall be written in both English and in Spanish.
   b. Public notice of a Tier 2 condition shall occur within 30 days after learning of the condition and shall be provided in both English and in Spanish.
   c. Public notice of a Tier 3 condition shall occur within 1 year after learning of the condition and shall be provided in both English and in Spanish.
   d. The purveyor of a COMMUNITY water system shall give a copy of the most recent public notice for all outstanding violations to all new billing units or new hookups before or at the time water service begins.
   e. The purveyor shall provide DOH with a copy of the public notification at the time the purveyor notifies the public.

4. Mandatory Language:

   a. The purveyor shall provide specific health effects language in English and Spanish in the notice when a violation involves:

      i. A primary VOC MCL.
      ii. A secondary fluoride MCL.
      iii. An acute coliform MCL.
      iv. A non-acute coliform MCL.
      v. Granting or continuation of exemption or variance; or
      vi. Failure to comply with a variance or exemption schedule.

   b. Required specific language is contained in DOH guideline titled “Health Effects Language for Drinking Water Public Notification.”

5. VOC Notification Procedure:

   a. Availability of results: After receipt of the first analysis results, the purveyor of a COMMUNITY or NTNC water system shall notify persons served by the system of the availability of results and shall supply the name and telephone number of a contact person.

      i. The purveyor shall initiate notification within three months of the purveyor's receipt of the first VOC analysis results. This notification is only required one time.
      ii. Notification shall occur by:

         (1) Inclusion in the first set of water bills issued after receipt of the results.
         (2) Newspaper notice which shall run at least one day each month for three consecutive months.
         (3) Direct mail.
         (4) Posting if NTNC system; or
         (5) Any other method approved by DOH.

      iii. Within three months of receipt of analysis results, purveyors selling water to other public water systems shall provide copies of the analysis results to the purchasing system.
      iv. Within 30 days of receipt of analysis results, purveyors purchasing water shall make results available to their customers. The purveyor's notification shall occur by the method outlined under (a)(i) of this subsection.

   b. Consumer information:

      i. The purveyor shall provide consumer information within 21 days of receipt of confirmation sample results when:

         (1) A List 1 VOC is confirmed at a concentration greater than an MCL, and the level will not cause the running annual average to exceed the MCL; or
         (2) DOH determines a List 2 or List 3 VOC is confirmed at a level greater than an SAL.

ii. Consumer information shall include:

(1) Name and level of VOC detected.
(2) Location where the VOC was detected.
(3) Any health effects the VOC could cause at its present concentration.
(4) Plans for follow-up activities; and
(5) Phone number to call for further information.

iii. Consumer information shall be distributed by any of the following methods:

(1) Notice placed in the major newspaper in the affected area.
(2) Direct mail to customers.
(3) Posting if NTNC system; or
(4) Any other method approved by DOH.

6. Fluoride Notification Procedure: When a secondary MCL violation occurs, the purveyor of a community water system shall send notice to:

a. DOH annually.
b. Water system users annually; and
c. New billing units added while the violation exists.

7. When circumstances dictate the purveyor give a broader or more immediate notice to protect public health, DOH may require the purveyor's notification by whatever means necessary.

8. When the State Board of Health grants a public water system a waiver, the purveyor shall notify customers and new billing units or new hookups before water service begins. The purveyor shall provide a notice annually and send a copy to DOH.

9. DOH may give notice to the water system users as required by this section on behalf of the water purveyor. However, the purveyor remains responsible for ensuring DOH requirements are met.

6.4 EMERGENCY PREPAREDNESS AND RESPONSE

On June 12, 2002, the Public Health Security and Bioterrorism Preparedness and Response Act (PL 107-188, referred to as the Bioterrorism Act) was signed into law. The law specifies actions a community water system must take to improve the security of its drinking water infrastructure. In addition, the operations and maintenance section of the WAC Chapter 246-290-415 (2)(d) requires public water systems to have an emergency response plan as part of a water system plan. It also requires that public water systems employ reasonable security measures to protect the raw water intake facilities, water treatment processes, storage facilities, pump houses, and distribution systems from possible damage or intruders.

Grandview's *Emergency Response Program* is a plan addressing the City's response to and operation of the water system during unplanned emergency events. The *Emergency Response Program* consists of the following elements:

- System Information
- Chain of Command
- Emergency Events
- Severity of Emergencies
- Emergency Notification
- Water Quality Sampling
- Response Actions for Specific Events
- Alternative Water Sources
- Returning to Normal Operations

6.4.1 System Information

The following is current information pertinent to the Grandview Water System:

System Name:	City of Grandview Water System
System Identification Number:	28970J
System Address:	207 West Second Street Grandview, WA 98930
System Phone Number:	(509) 882-9200
City Mayor:	Gloria Mendoza
Public Works Director/Water System Manager:	Cus Arteaga
System Consulting Engineer:	HLA Engineering, Inc. 2803 River Road Yakima, WA 98902 (509) 966-7000 Justin L. Bellamy, PE
System Service Population:	11,010
System Service Connections:	2,986
Emergency Plan Responsible Party:	Cus Arteaga, (509) 882-9211

6.4.2 Chain of Command

When an emergency occurs, there can be confusion, lack of coordination, and poor communication. Timely and effective response can minimize the effects of an emergency. Often, the initial response sets the tone for how the entire emergency is handled.

Having a chain of command that defines clear lines of authority and responsibilities for system personnel during an emergency speeds up response time and helps eliminate confusion. Water system personnel need to know who to report the emergency to, who manages the emergency, who makes decisions, and what their own responsibilities are.

The first step in any emergency is to notify the person at the top of the chain of command - the person responsible for managing the emergency and making key decisions. This lead person will assess the situation and initiate a series of response actions based on the type and severity of emergency. In addition to an individual having the lead responsibility, other key duties that should be assigned to system personnel include the following:

- Handling incoming phone calls and administrative support.
- Providing information to the public and the media.
- Contacting and providing information to system customers.
- Assessing the water system's facilities, condition, and ability to operate.
- Organizing and completing system repairs.

Table 6-7 shows the Grandview Water System's emergency chain of command and responsibilities of individuals during water system emergencies:

TABLE 6-7 EMERGENCY CHAIN-OF-COMMAND AND RESPONSIBILITIES		
Name / Title	Responsibilities	Contact Numbers
Gloria Mendoza Mayor	Is the lead person for providing information to the public and the media.	Phone: (509) 882-9200
Cus Arteaga WDM 3 City Administrator	Coordinates responses and actions of the PWD, and assists the Mayor as requested.	Phone: (509) 882-9200 Cell: (509) 830-9213
Cus Arteaga WDM3 Public Works Director (PWD)	Overall management and decision making for the water system. Managing emergencies and providing information to regulatory agencies. Operation of the water system, performing inspections, maintenance, and sampling, and relaying critical information, and assessing facilities.	Phone: (509) 882-9200 Cell: (509) 830-9213
Lillian Veliz Public Works Assistant	Administrative functions including receiving phone calls and keeping a log of events.	Phone: (509) 882-9211
Pam Dobrauc Public Works Office Clerk	Administrative functions including receiving phone calls and keeping a log of events.	Phone: (509) 882-9211
Todd Dorsett Assistant Public Works Director	Operation of the water system, performing inspections, maintenance, and sampling, and relaying critical information, and assessing facilities.	Phone: (509) 882-9211 Cell: (509) 830-1060
Hector Mejia WDM1 Public Works Foreman (PWF)	Operation of the water system, performing inspections, maintenance, and sampling, and relaying critical information, and assessing facilities.	Phone: (509) 882-9228 Cell: (509) 305-1472
Cory Taylor Code Enforcement Officer CCS	Perform duties, functions, and activities as directed by the PWD or PWF. Coordinate cross connection control program.	Phone: (509) 882-9211 Cell: (509) 830-0311
Frank Rodriguez P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Phone: (509) 882-4735 Cell: (509) 305-7948
Victor Ledesma P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 439-0612
Albert Rodriguez P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 840-5358
Orlando Santos P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 305-6188
Blas Cantu P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 840-0503
Rich Asher P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 830-5383
Jason Villanueva P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 203-5236
Scott Smotherman P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 831-4153
Cory Taylor P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 832-3264
Carlos Granados P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 305-4821
Pedro Reyes P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 391-0254
Virgilio Herrera P.W. Maintenance Technician	Perform duties, functions, and activities as directed by the PWD or PWF.	Cell: (509) 831-7748

6.4.3 Emergency Events

Emergencies happen for a variety of reasons including:

- Natural disasters including high winds, excessive snowfall and ice storms, floods, drought, well contamination, landslides and earthquakes, and volcanic eruptions.
- Accidents.
- Deliberate acts of vandalism or terrorism.
- System neglect, poor operation, or deferred maintenance.

6.4.4 Severity of Emergencies

Emergencies usually have a wide range of severity. Defining categories of severity can significantly aid in determining appropriate response actions. Knowing the severity of the emergency and being able to communicate it to others will help system personnel keep their response balanced and effective.

Deciding on severity should be collaborative among system personnel but is ultimately made by the person in charge of the emergency. The person in charge may also choose to coordinate with external parties, especially if partnerships have been formed in advance of the event. The information for making the decision will accumulate over time and may result in the level of severity being changed.

An assessment of severity, once determined, must be communicated immediately to all those dealing with the emergency. Make sure staff have cell phones, pagers, and/or radios when they are in the field. Remember to have an alternate method of communicating if cell phones and pagers won't work.

The following is a four-level emergency severity classification system for the Grandview Water System.

A. Level 1 - Routine Emergencies

Routine emergencies are normally resolved within 24 hours, and with minimal outside assistance. The Grandview Water System considers the following to be Level 1 emergencies:

- Short power outages.
- Minor mechanical problems in pumphouses and booster stations.
- Distribution line breaks.
- Other minor situations where it is not likely that public health will be jeopardized.

B. Level 2 - Minor Emergencies

Minor emergencies are those where the water system experiences minor disruption in supply, or has indications of possible contamination. In these types of emergencies, public health may be jeopardized, the system may need to coordinate with DOH, and the City may consider issuing a health advisory to customers. It is important for water system personnel to be on alert and to initiate a quick response. Minor emergencies can usually be resolved within 72 hours. The Grandview Water System considers the following to be Level 2 emergencies:

- Disruption of supply such as a transmission line break, pump failure with a potential for backflow, and loss of pressure.
- Storage is not adequate to handle disruption in supply.
- An initial positive coliform or E. coli sample test result.
- An initial primary chemical sample test result above DOH standard.
- A disruption in chlorine feed to the water supply.
- A minor act of vandalism.

C. Level 3 - Significant Emergencies

The system experiences a significant mechanical or contamination problem where disruption in supply is inevitable, and issuance of a health advisory is necessary to protect public health. Significant emergencies should be reported to DOH as soon as possible to determine the best available means to protect the health of the system users. Resolution of the emergency may require the aid and assistance of outside entities and may take longer than 72 hours to resolve. The Grandview Water System considers the following to be Level 3 emergencies:

- A verified sample test result above a DOH standard requiring immediate consideration of a health advisory notice to customers.
- A loss or failure of a major water system component resulting in a water shortage or requiring system shutdown.
- An act of vandalism or terrorist threat such as intrusion or damage to a major water system component.

D. Level 4 - Catastrophic Disasters/Major Emergencies

The water system experiences major damage or contamination from a natural disaster, an accident, or an act of terrorism. Such incidents usually require immediate notification of local law enforcement and local emergency management services. Immediate issuance of health advisories and declaration of water supply emergencies are critical to protect public health. These events often take several days or weeks to resolve before the system returns to normal operation. The Grandview Water System considers the following to be Level 4 emergencies:

- An earthquake or landslide that shuts down the system or impacts sources, lines, etc.
- An act of terrorism possibly contaminating the water system with biological or chemical agents.
- A significant chemical spill near one of the system's sources.
- A storm that significantly damages system facilities.

6.4.5 Emergency Notification

During most emergencies, it will be necessary to quickly notify a variety of parties. Preparation for such notification has the following three essential components:

- Assigning responsibility to oversee and carry out the notifications.
- Assembling comprehensive call-up lists with names and contact numbers.
- Writing out procedures for quickly disseminating information to appropriate parties.

Valuable response time can be lost without readily available notification information or the means to deliver it. Having well-formed partnerships will help during these times.

In addition to phone, email, and media (radio, television, newspaper) for notification, the water system may consider forming partnerships with local community groups to assist in delivering information to customers when needed.

Call-up lists should be comprehensive, including local law enforcement, Yakima County Emergency Management, Yakima County Health District, DOH Drinking Water, WDOE, county and neighboring city officials, service and repair providers, and water testing laboratories. A list of priority customers, such as nursing homes, medical clinics, and schools should also be maintained for immediate notification. Provided in Table 6-8, Table 6-9, Table 6-10, and Table 6-11 are notification lists to be used during emergency situations.

TABLE 6-8 LOCAL NOTIFICATION LIST

Entity	Contact Numbers
Grandview Public Works (Water) Department	daytime phone: (509) 882-9211
Grandview City Hall	daytime phone: (509) 882-9200
Grandview Police Department	daytime phone: (509) 882-2000 24-hour phone: (509) 882-9223
Yakima County Sheriff's Office	daytime phone: (509) 574-2500 24-hour phone: (509) 574-2500
Yakima County Office of Emergency Management	daytime phone: (509) 574-1900 24-hour phone: (509) 574-2500
Yakima Health District	daytime phone: (509) 575-4040 24-hour phone: (509) 575-4040
Yakima County Public Works Department	daytime phone: (509) 574-2300 24-hour phone: (509) 574-2300
City of Prosser Water Department	daytime phone: (509) 786-2332 24-hour phone: (509) 786-2112
City of Sunnyside Water Department	daytime phone: (509) 837-3782 24-hour phone: (509) 836-6200
Water Testing Laboratory: Cascade Analytical, Inc.	daytime phone: (509) 452-7707
Newspaper: Yakima Herald Republic Grandview Herald	daytime phone: (509) 248-1251 daytime phone: (509) 882-3712
Radio Stations: KIT - 1280 AM	daytime phone: (509) 972-5481
Television Stations: KAPP KNDO KIMA	daytime phone: (509) 453-0351 daytime phone: (509) 225-2300 daytime phone: (509) 575-0029

TABLE 6-9 STATE NOTIFICATION LIST	
Entity	Contact Numbers
Department of Health (DOH), Eastern Region	daytime phone: (509) 329-2100 24-hour phone: 1-877-481-4901
Washington Department of Ecology (DOE)	daytime phone: (509) 575-2490 24-hour phone: (509) 575-2490
DOH Drinking Water After-Hours Emergency Hotline	1-877-481-4901

TABLE 6-10 SERVICE / REPAIR NOTIFICATION LIST	
Entity	Contact Numbers
Electrical: H2 Electric	daytime phone: (509) 837-1453
Pumps: Lower Valley Machine Shop Picatti Brothers	daytime phone: (509) 882-3881 daytime phone: (509) 248-2540
Telemetry System: Conley Engineering, Inc.	daytime phone: (509) 965-9872
Water System Materials: Consolidated Supply Co.	daytime phone: (509) 622-7128

TABLE 6-11 SENSITIVE USERS NOTIFICATION LIST	
Entity	Contact Numbers
Schools: Grandview School District	daytime phone: (509) 882-8500
Medical / Dental Facilities: Lift Options Birch St. Medical Center Grandview Medical Center Farm Workers Medical Center Mountain View Woman's Center Valley Family Dentistry Westside Family Dental	daytime phone: (509) 882-1899 daytime phone: (509) 882-3500 daytime phone: (509) 203-1080 daytime phone: (509) 882-3444 daytime phone: (509) 882-4700 daytime phone: (509) 882-3423 daytime phone: (509) 882-3151
Nursing Homes: Grandview Health Care Orchard House	daytime phone: (509) 882-1200 daytime phone: (509) 882-4400
Red Cross:	daytime phone: (509) 457-1690

Notification procedures describe who is responsible for conducting notifications, who assists in the notifications, how to make notifications to specific parties, and what methods are used to complete the notifications. Notification procedures include how to issue a health advisory in the event the water supply is unsafe for drinking or use.

Other procedures include:

- Notifying water system personnel who are on-call and/or off-duty.
- Notifying customers, priority customers, and industrial users.
- Alerting local law enforcement, local emergency management, local health officials, drinking water officials, and water testing laboratories when appropriate.
- Contacting service and repair contractors.
- Contacting neighboring water systems for assistance, if necessary.
- Arranging for alternative water supplies.

Table 6-12, Table 6-13, Table 6-14, Table 6-15, and Table 6-16 provide notification procedures for the Grandview Water System.

TABLE 6-12 CUSTOMER NOTIFICATION PROCEDURES	
Responsibility:	The Public Works Director (PWD) should consult with the Mayor and the City Administrator as part of the decision-making process, whether to notify customers regarding a potential water shortage, water contamination, or other situation that results in water use restrictions. Once the decision is made to notify customers, procedures for notification should be initiated.
Procedures:	The Mayor, the City Administrator, and the PWD develop the message to be delivered to the customers and to the media. PWD consults with DOH regarding the problem and response alternatives. The PWD continues to investigate problem and make repairs/take action as necessary. Notice to customers will be distributed by: Water System staff placing water notices on customers' doors and on signs posted on travel routes throughout the City. City Administrator contacts media requesting issuance of notice and information on the problem. Administrative support person will provide a pre-scripted message to phone callers and log in each phone call. The PWD continuously updates the Mayor and the City Administrator on the current condition of the problem. Once the problem is resolved: Water System staff re-notify customers through signs on doors. City Administrator notifies media regarding problem resolution.

TABLE 6-13 LAW ENFORCEMENT, EMERGENCY MANAGEMENT, COUNTY HEALTH, DOH, AND WDOE NOTIFICATION PROCEDURES	
Responsibility:	The Public Works Director (PWD) is responsible for notifying law enforcement, emergency management, county health, DOH, and WDOE.
Procedures:	PWD consults with the Mayor and the City Administrator regarding if and when to notify law enforcement, emergency management, county health, DOH, and WDOE. PWD consults with DOH regarding the problem and response alternatives. PWD informs law enforcement, emergency management, county health, and WDOE, and requests assistance as appropriate.

TABLE 6-14 SERVICE AND REPAIR CONTRACTOR NOTIFICATION PROCEDURES	
Responsibility:	The Public Works Director (PWD) is responsible for contacting service and repair contractors.
Procedures:	The PWD determines what repairs and/or services are needed to return the water system to normal operation. PWD contacts service and repair contractors and monitors the progress of the work.

TABLE 6-15 NEIGHBORING WATER SYSTEM NOTIFICATION PROCEDURES	
Responsibility:	The Public Works Director (PWD) is responsible for contacting neighboring water systems.
Procedures:	PWD consults with the Mayor and with the City Administrator regarding if and when a neighboring water system will be contacted, and what assistance will be requested. PWD contacts neighboring water system and requests appropriate assistance.

TABLE 6-16 HEALTH ADVISORY ISSUANCE NOTIFICATION PROCEDURES	
Responsibility:	The Public Works Director (PWD) is responsible for issuing a health advisory.
Procedures:	PWD consults with DOH regarding problem and response procedures.

6.4.6 Water Quality Sampling

Many types of emergencies can jeopardize the quality of water and potentially sicken those using the water. Because the most important goal for any water system is to protect human health, the system must know how to act quickly and make decisions on whether to issue a health advisory.

Contamination of drinking water, whether intentional or unintentional, comes in many forms, and are classified in the following four general categories:

- Bacteriological organisms.
- Inorganic substances such as metals or cyanide.
- Organic substances such as pesticides or volatile compounds.
- Radionuclides.

The Grandview Water System monitors its system's water quality in accordance with DOH requirements. Grandview's regular water testing program was described earlier in this Chapter.

If there is reason to believe that the water has been contaminated, the Public Works Director should consult with DOH and consider issuing a health advisory as soon as possible - often before conducting water quality sampling.

If Grandview determines that water quality sampling and testing should be conducted, the City should immediately contact the laboratory that will be performing the analysis to obtain appropriate sampling bottles, and sampling and chain-of-custody procedures. Grandview typically uses Cascade Analytical for its water quality analysis.

Cascade Analytical, Inc.
1008 West Ahtanum Road
Union Gap, WA 98903
Phone: 452-7707

Bacteriological testing should be conducted in accordance with the City's current *Coliform Monitoring Plan*. A copy of that document is included in CHAPTER 10.

6.4.7 Response Actions for Specific Events

For any emergency, there are a series of general steps that a water system should take:

1. Confirm and analyze the type and severity of the emergency.
2. Take immediate action to save lives.
3. Take action to reduce injuries and system damage.
4. Prioritize and accomplish system repairs.
5. Return the system to normal operation.

Table 6-17, Table 6-18, Table 6-19, Table 6-20, Table 6-21, Table 6-22, Table 6-23, Table 6-24, and Table 6-25 identify the assessment, response actions, notifications, and follow-up actions required for various emergency situations.

TABLE 6-17 RESPONSE ACTIONS FOR POWER OUTAGES

Assessment	The Grandview Water System experiences an average of 2 outages per year that last 20 minutes to several hours. Three of the system's source wells (West Main, North Willoughby, and South Willoughby) are equipped with emergency electrical generators. Historically, power outages have been of short duration such that reservoir storage has been able to supply the City with water until power is restored.
Immediate Actions	1. Assess whether the outage is likely to last more than 2 hours. If no, be on alert for changing conditions and monitor reservoir levels. If yes, complete the following: a. Ensure the standby generators West Main, North Willoughby, and South Willoughby are in operation. b. Implement water shortage response actions to inform customers to cut back on water usage until power is restored.
Notifications	1. Pacific Power (power company) - Let them know that a public water system is experiencing an outage. 2. Implement water shortage response actions to inform customers to cut back on water usage until power is restored.
Follow-Up Actions	1. Turn off and disconnect standby generators at West Main, North Willoughby, and South Willoughby. 2. Return system to general power supply. 3. Inspect reservoirs and pumping facilities to ensure proper operation and to assess any damages.

TABLE 6-18 RESPONSE ACTIONS FOR WATER MAIN BREAK	
Assessment	Visually determine the physical nature of the problem.
Immediate Actions	Visually assess the problem. Return to the area if the water needs to be turned off to effect repairs.
Notifications	Notify customers prior to shutting off water.
Follow-Up Actions	Check with all customers to ensure water has been returned to normal service. Take water samples for bacteriological testing.

TABLE 6-19 RESPONSE ACTIONS FOR DISINFECTION EQUIPMENT FAILURE	
Assessment	Determine the cause of the failure.
Immediate Actions	Replace and/or repair broken equipment.
Notifications	Inform the Public Works Director.
Follow-Up Actions	Return the equipment to service, ensure that it is operating satisfactorily, and check for leaks or other operational problems. Take water samples for bacteriological testing.

TABLE 6-20 RESPONSE ACTIONS FOR MICROBIAL CONTAMINATION	
Assessment	Collect repeat samples to confirm contamination. If confirmed, determine the reason for the cause or source and the locations of the contamination.
Immediate Actions	Inform the Public Works Director, who will review the assessment with the appropriate personnel. Immediately take corrective actions.
Notifications	Contact DOH to discuss public notification, follow-up requirements, and additional steps to resolve the problem. Acute maximum containment levels (MCL) violations require public notification within 24 hours, and a boil water order will almost always be issued.
Follow-Up Actions	If contamination was accidental due to construction or a repair procedure, then those procedures need to be reviewed. If the cause was intentional, then new or existing safeguards need to be implemented or reviewed.

TABLE 6-21 RESPONSE ACTIONS FOR CHEMICAL CONTAMINATION	
Assessment	Collect repeat samples to confirm contamination. If confirmed, determine the cause or source and the location(s) of the contamination.
Immediate Actions	Inform the Public Works Director, who will review the assessment with the appropriate personnel. Immediately take corrective action.
Notifications	Contact DOH to discuss public notification, follow-up requirements, and steps to resolve the problem. Maximum containment levels (MCL) violations require public notification within 24 hours.
Follow-Up Actions	Follow-up actions for chemical contamination monitoring and sampling frequency will be conducted under the procedures listed in WAC 246-290-320 and the Code of Federal Regulation 141.24. If contamination was accidental due to construction or a repair procedure, then those procedures need to be reviewed. If the cause was intentional, then new or existing safeguards need to be implemented or reviewed.

TABLE 6-22 RESPONSE ACTIONS FOR EARTHQUAKE	
Assessment	Visually determine the nature and extent of damage to the water system.
Immediate Actions	Inform the Mayor, the City Administrator, and the Public Works Director, of the nature and extent of damage/disruption to the water system.
Notifications	Notify affected customers.
Follow-Up Actions	Provide customers with estimated length of service disruption.

TABLE 6-23 RESPONSE ACTIONS FOR HAZARDOUS MATERIAL SPILL	
Assessment	Assess the nature and extent of the spill.
Immediate Actions	Contact local agencies including DOH, WDOE, Grandview Police, Yakima County Sheriff, and Yakima County Office of Emergency Management.
Notifications	Notify all affected customers.
Follow-Up Actions	Provide customers with estimated length of service disruption.

TABLE 6-24 RESPONSE ACTIONS FOR ELECTRONIC EQUIPMENT FAILURE	
Assessment	Assess the nature and extent of the failure.
Immediate Actions	Contact certified electrician.
Notifications	Notify all affected customers.
Follow-Up Actions	Provide customers with estimated length of service disruption.

TABLE 6-25 RESPONSE ACTIONS FOR VANDALISM OR TERRORIST ATTACK	
Assessment	Assess the nature and extent of the situation/condition.
Immediate Actions	Contact Grandview Police Department.
Notifications	Notify all affected customers.
Follow-Up Actions	Repair all known problems.

6.4.8 Alternative Water Sources

Water contamination or disruption of supply may require that the water system obtain water from another source to meet basic community needs, and water systems should plan ahead to provide safe water during an emergency. It is important to evaluate potential alternative water supplies ahead of time to ensure the water is safe and the supply is available.

In 2012, the City of Grandview, City of Prosser, City of Sunnyside, and City of Mabton entered into an interlocal agreement (Resolution No. 2011-51) regarding the cooperative use of facilities, equipment, and personnel. The agreement encourages and promotes coordination and use of facilities in the event assistance is needed by any of the agencies involved. This Resolution is included in CHAPTER 10.

Table 6-26 provides information regarding alternative water sources.

TABLE 6-26 ALTERNATIVE WATER SOURCES

Alternative Source	Name	Phone	Availability	Safe for Drinking?
City of Prosser in conjunction with tanker trucks	City of Prosser Marty Groom	(509) 786-1112	yes	yes
City of Sunnyside in conjunction with tanker trucks	City of Sunnyside Shane Fisher	(509) 837-5206	yes	yes
City of Mabton in conjunction with tanker trucks	City of Mabton Public Works	(509) 894-4096	yes	yes
Bottled Water	Central Vending	(509) 248-1212	yes	yes
	Crystal Springs Water Co.	(509) 225-7822	yes	yes
	Culligan Water Conditioning	(509) 452-6601	yes	yes
	Independent Water Service	(509) 457-3631	yes	yes

6.4.9 Returning to Normal Operations

As the emergency passes, the system must prepare to return to normal operation. This may be a very simple or very complex process, depending on the type and severity of the emergency. Returning to normal operation may simply mean the system restores power and the portable generator is disconnected, or it could mean the system has to be repeatedly disinfected to obtain the proper number of satisfactory coliform tests necessary to lift a health advisory.

Many factors may need to be considered before a water system is returned to normal operation. Examples include:

- Has the system been repaired to the point that it can meet demand?
- Has the system manager made a safety and operational inspection of all system components?
- Has the system been properly flushed, disinfected, and pressure tested?
- Has the water been adequately tested in accordance with sampling regulations?
- Does the water meet drinking water standards?
- Is there adequate staff to operate and manage the system?
- Do federal, state, and local agencies support returning the system to normal operation?
- Have the proper public messages and notifications been developed?

Table 6-27 presents a guide of actions and activities for returning the system to normal operation.

TABLE 6-27 ACTIONS FOR RETURNING THE SYSTEM TO NORMAL OPERATION

Action / Activity	Description
Inspect, flush, and disinfect the system	Public Works Director (PWD) and support staff inspect all system facilities and verify that the system has been flushed and disinfected and that all water quality tests have been done.
Verification of water quality	PWD verifies water quality sampling results.
Coordinate with DOH	PWD coordinates with DOH regarding system condition and water quality results.
Notify customers	PWD meets with City Administrator and communications lead to write and distribute notice to customers.

6.5 CROSS-CONNECTION CONTROL PROGRAM

In 2003, Grandview developed and implemented a cross-connection control program intended to protect the City's water distribution system from the possibility of contamination due to existing or potential cross-connections. Grandview's cross-connection program includes the following elements:

1. Adoption of a written ordinance authorizing the establishment and implementation of a cross-connection control program (City Ordinance No. 1649, enacted 2003, now exists as Chapter 13.18 – Cross-Connection Control, within the City of Grandview Municipal Code).
2. Written procedures for implementing the cross-connection control program.
3. Identification of a staff position delegated for organization and implementation of the cross-connection control program, and the qualifications required of personnel working in the cross-connection control program.
4. Detailed procedures for conducting surveys of new and existing facilities to identify all existing and potential cross-connections.
5. A list of approved backflow assemblies.
6. A procedure to ensure all required backflow assemblies are tested upon installation, after a repair or relocation, and on a routine basis as established by State regulation.
7. A record system which includes a list identifying the location of all required cross-connection control devices, the type of device, the testing schedule, the performance results, a description of repairs and/or repair recommendations, and the tester's name and certification number; and
8. A description of the process which will provide cross-connection control information to existing and future users.

Any cross-connection violations shall be enforced, and penalties imposed in accordance with Chapter 15.72 of the Grandview Municipal Code.

A copy of Grandview's *Cross-Connection Control* municipal code chapter and the *2013 Water Quality Report* are included within CHAPTER 10.

6.6 RECORDKEEPING, REPORTING, AND CUSTOMER COMPLAINT PROGRAM

The City of Grandview maintains a Water System Customer Complaint Response Program. The program is designed to formally receive, track, and record complaints received regarding the City's water system. Water system complaints typically include taste, cloudy and/or discolored, odor, low or excessive pressure, and leaky or broken service connections or water mains. 26 complaints have been received by the City for the reporting period between 2008 and 2013, as shown in Table 6-28.

TABLE 6-28 GRANDVIEW WATER SYSTEM COMPLAINTS 2008-2013

Year	Taste	Cloudy and/or Discolored	Odor	Low/High Pressure	Leaky/Broken Service Connections	Other
2008						
2009			1			
2010		4	4			
2011				1		
2012		3	4	2		
2013	1	3	2	1		
TOTALS	1	10	11	4		

Complaints received by the City are recorded onto a *Citizen Contact Record* form. The complaint information and form are routed to the Public Works staff for investigating and resolving the problem. Actions taken to resolve the problem are recorded on the form and kept on file at the Public Works Office. A copy of the *Citizen Contact Record* form is included in CHAPTER 10.

6.6.1 Record Keeping and Reporting

The City of Grandview keeps and maintains records on its water system as shown in Table 6-29.

TABLE 6-29 GRANDVIEW WATER SYSTEM RECORDS

Record Type	Location of Records	Retained For:
Water Consumption (by user category)	City Hall	10 Years
Water Production (by well)	Public Works Department	10 Years
Well Water Level Measurements	Public Works Department	6 Years
Water Quality Testing Results	Public Works Department	System Life
Equipment Maintenance	Public Works Department	6 Years
Water System Complaints	Public Works Department	6 Years
Backflow Assembly Testing	Public Works Department	6 Years

Water quality monitoring results are reported to DOH as required.

6.7 SAFETY PROCEDURES

All City personnel are instructed to exercise the utmost care when working on any water system facility. Safety of City staff and the public is the number one priority. Provided below is an outline of safety procedures to be followed when working on water system facilities:

A. Pumping Equipment

1. Removing Pump

   a. Close valves.
   b. Shut off power to the pump, use lockout/tagout policy and procedures.
   c. Ensure power is disconnected and then remove electrical cables.
   d. Lift pump with proper equipment.

2. Installing Pump

   a. Lift pump with proper equipment.
   b. Ensure all pipe connections are properly installed and tightened.
   c. Employ an electrician to properly connect power cables.
   d. Check pump rotation.
   e. Open valves.
   f. Ensure pump control valve (if present) is operating properly.
   g. Turn on power to the pump and remove lockout/tagout tag.

B. Chlorination Equipment

1. Check all chlorine alarms and sensors for proper operation.
2. Verify leak alarm status before entering the room.
3. Immediately check for chlorine odors.
4. Routinely inspect for leaks.
5. Check ventilation system equipment for proper operation.
6. Properly maintain emergency breathing equipment.

C. Reservoir – Interior Inspection

1. Inspection to be conducted by a minimum of two workers, one work to stay outside the reservoir.
2. Ensure the reservoir interior is properly ventilated and illuminated.
3. Properly set and secure ladder before climbing into reservoir.

D. Distribution System – Pipeline Installation

1. All construction work requiring excavation, trenching, and shoring shall be conducted in accordance with the Department of Labor and Industries Safety Standards for Construction Work.
2. Close all valves connecting to pipe segment.
3. Properly set traffic control signing, barricades, and cones.
4. Install shoring or cribbing in all trenches over 48 inches in depth.
5. Install joint restraints or construct thrust blocking, if required, and partially backfill the trench at a minimum prior to charging the pipeline.
6. Flush, disinfect pipe, and conduct bacteriological testing prior to putting new line into service.

6.8 SERVICE AND SUPPLY REPRESENTATIVES

Provided below is a list of service and supply representatives for the various system components:

A. Pipe, Valves, and Fittings

1. H.D. Fowler Co.
   1100 River Road
   Yakima, WA 98902
   Phone: 509-248-8400
   Contact: Tim Heary – 509-952-7751

2. Consolidated Supply Co.
   1100 Walla Walla Ave
   Wenatchee, WA 98801
   Phone: (509) 662-7128
   Fax: (509) 663-2279

3. Ferguson Waterworks
   1130 W. Washington St.
   Pasco, WA 99301
   Phone: (509) 545-2111

B. Water Service Materials

1. H.D. Fowler Co.
   1100 River Road
   Yakima, WA 98902
   Phone: 509-248-8400
   Contact: Tim Heary – 509-952-7751

2. Consolidated Supply Co.
   1100 Walla Walla Ave
   Wenatchee, WA 98801
   Phone: (509) 662-7128
   Fax: (509) 663-2279

C. Service Meters – Mueller Meters

1. Consolidated Supply Co.
   1100 Walla Walla Ave
   Wenatchee, WA 98801
   Phone: (509) 662-7128
   Fax: (509) 663-2279

D. Chlorination Equipment – Wallace & Tiernan

1. TMG Services
   13202 Second Street East
   Sumner, WA 98390
   Phone: 800-562-2310

E. Chlorine Gas

1. Oxarc
   509 Scoon Road
   Sunnyside, WA
   Phone: (509) 837-6212
   Fax: (509) 839-2961

F. Water Main Tapping

1. Spear Taps, Inc.
   309 NE 159th Street
   Seattle, WA 98155
   Phone: 206-363-8053

G. Electrical

1. H2 Electric
   211 Lappin Ave.
   Sunnyside, WA 98944
   Phone: (509) 837-1453

H. Pumps

1. Lower Valley Machine Shop
   104 West Fifth Street
   Grandview, WA 98930
   Phone: 509-882-3881

2. Picatti Brothers
   111 South Third Avenue
   Yakima, WA 98902
   Phone: 509-248-2540

I. Pressure Reducing Valves

1. Consolidated Supply Co.
   1100 Walla Walla Ave
   Wenatchee, WA 98801
   Phone: (509) 662-7128
   Fax: (509) 663-2279

J. Telemetry System

1. Conley Engineering, Inc.
   1433 Lakeside Court, Suite 100
   Yakima, WA 98902
   Phone: 509-965-9872

K. Pump, Motor Oil, and Bearing Grease

1. R.E. Powell Distributing
   501 East Wine Country Road
   Grandview, WA 98930
   Phone: 509-882-2115

2. 940 E. Wine Country Rd
   Grandview, WA 98930
   Phone: (509) 882-1225

6.9 O&M IMPROVEMENTS

Improvements required for operation of the existing water system, including routine sanitary surveys by DOH, planning document updates, and other miscellaneous operational improvements are discussed in CHAPTER 8. System operational costs associated with water quality testing and administrative tasks are included in the City's general water operational budget and have not been identified or estimated separately.

Recommended improvements necessary for maintenance of the existing system, such as well rehabilitation, reservoir cleaning and inspection, and other miscellaneous maintenance related improvements, are also discussed in detail in CHAPTER 8. Further, CHAPTER 8 includes a schedule for completion of both routine and individual O&M improvements, including their estimated costs.

CHAPTER 7 -

DISTRIBUTION FACILITIES DESIGN AND CONSTRUCTION STANDARDS

HLA
Engineering and Land Surveying, Inc.

7.1 PROJECT REVIEW PROCEDURES

The City of Grandview requires that all water system improvements proposed by others (e.g., developers, industries, etc.) be designed and appropriate construction documents prepared by a professional engineer licensed to practice in the State of Washington. The City may require a project report prior to design and document preparation if the proposed work includes pumps, reservoirs, and/or other unique characteristics.

Project reports and/or construction plans and specifications for water distribution main improvements shall be submitted to the City for review. Review of said documents is undertaken by the City's Public Works Department, Fire District, and engineering consultant under the provisions of WAC 246-290-125(2). Comments and/or required changes are then forwarded to the proponent. Resubmittal of the revised documents, review and City approval are required before construction may proceed. Following completion of construction and acceptance by the City, a completed DOH Construction Completion Report form shall be submitted to the City.

In addition to being reviewed and approved by the City Public Works Department, City Fire Department, and engineering consultant, project design reports and/or construction plans and documents for all projects except for distribution-related projects, as defined in WAC 246-290-010, must be submitted to and approved by DOH as specified in WAC 246-290-120 before construction may proceed. Required documents shall be submitted by the proponent to the following address:

Washington State Department of Health
Office of Drinking Water
Eastern Drinking Water Operations
16201 East Indiana Avenue, Suite #1500
Spokane Valley, WA 99216

7.2 POLICIES AND REQUIREMENTS FOR OUTSIDE PARTIES

Grandview will provide water service to properties outside the City Limits, but within its service area in accordance with the service area policies of Chapter 13.28 of the City's Municipal Code. Customers outside the City Limits must execute an outside utility agreement and will be assessed water rates which are higher than those charged to customers within the City Limits. A copy of the City's Municipal Code is provided in CHAPTER 10.

As a prerequisite to obtaining domestic water service, Grandview requires property owners to hook onto sanitary sewers which are within 200 feet or less of the nearest property corner. If sanitary sewers are not available within 200 feet, the property owner is required to sign a waiver prohibiting the property owner from opposing a future Local Improvement District (LID) for sewer service.

All costs associated with extending water mains to unimproved properties are the responsibility of the developer, including any required inspection fees by the City. Requirements to be met by developers when extending the City's water system are identified in the *Extension by Developers Policy* and the *City of Grandview Design and Construction Standards and Specifications for Public Works Improvements*. Copies of these documents are provided in CHAPTER 10. In addition, Grandview has established, by City Code Chapter 13.28.160, a "Latecomer's Agreement" for extension of water mains. A copy of this chapter is provided in CHAPTER 10.

7.3 CONSTRUCTION AND DESIGN STANDARDS

All water system improvements must conform to Grandview's most current design and construction standards, *City of Grandview Design and Construction Standards and Specifications for Public Works Improvements*. A copy of the design and construction standards is provided in CHAPTER 10.

7.4 CONSTRUCTION CERTIFICATION

Grandview confirms that water system extensions are constructed in accordance with City requirements through construction inspection by City Public Works staff and observation of pressure testing of new water lines by the developer. Construction inspection procedures are addressed in the *City of Grandview Design and Construction Standards and Specifications for Public Works Improvements* and in the "Extension by Developers Policy" as provided in CHAPTER 10. The City may reject construction for which it has not had ample opportunity for inspection.

CHAPTER 8 -

CAPITAL IMPROVEMENT PROGRAM

HLA
Engineering and Land Surveying, Inc.

8.1 IMPROVEMENT PROGRAM OBJECTIVE

The development of a water system improvement program is a primary goal of this Water System Plan. Through the analysis of existing system demands, capabilities and deficiencies, and by projecting future system growth, improvements have been identified throughout the Plan.

In previous sections, deficiencies in the existing City of Grandview water system have been identified and specific improvements have been recommended. The costs of such improvements often prohibit their completion within a short time without seriously impacting budgets and user rates. It is prudent, therefore, to group improvements so they might be reasonably accomplished over several years.

Recommended system improvements have been categorized into three main categories: 1) Operational and Maintenance (O&M) Improvements, 2) Major Capital Improvements, and 3) Future Capital Improvements (Planning). The O&M improvements are necessary for system operation and maintenance of existing facilities, including well and reservoir rehabilitation, water use efficiency (WUE) measure implementation, and other miscellaneous improvements. Major capital improvements are those necessary to improve a system deficiency such as fire flow, source and/or storage capacity, water quality, or replacement of aging and/or undersized system components. The future planning improvements category is improvements that would be necessary to accommodate system expansion to serve the future service area because of new development.

In each improvement category section, except for the future planning improvements section, a prioritized listing of the recommended system improvements, together with a brief description of the need, anticipated construction elements, and estimated project costs (based on 2021 construction costs). Actual costs will vary from those shown in the following estimates because of changes in the construction industry, the competitive bid process, the availability of materials and equipment, and the timing of the improvements. The estimated improvement costs should be increased by the rate of inflation for each subsequent year after 2021.

8.2 OPERATIONAL AND MAINTENANCE (O&M) IMPROVEMENTS

The following is a prioritized listing of the required and/or recommended O&M improvements, including a brief description of the need for each improvement and projected year the improvement will take place. Improvements have been prioritized based on impact to preserving system water quality, and safety to consumers. For instance, reservoir recoating is a top priority because it affects all users in the system. A ten-year schedule for completion of the recommended O&M improvements, and improvement costs, are provided at the end of this Section, in Table 8-1. The estimated costs in Table 8-1 have been inflated for each year after 2021 to reflect the possible future costs, based upon the projected year the improvement will be completed. Improvements that are projected to take place after year 2032 have been inflated to reflect year 2033 costs, although some of these improvements may take place after the year 2033.

1. 3.0 MG RESERVOIR RECOATING

The existing 3.0 MG standpipe interior was last recoated in 1989 and the exterior was recoated in 1995. The anticipated life of a reservoir coating system is approximately 20 to 30 years. During the last tank inspection in 2019, the interior coating was showing signs of corrosion and the exterior was showing signs of weathering. It is recommended the tank be recoated to maintain water quality and structural integrity of the existing tank. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$50,000
Interior Access Ladder	LS	-	-	$10,000
Interior Pressure Wash/Sandblast	LS	-	-	$290,000
Tank Disinfection	LS	-	-	$15,000
Repair/Replace Roof Vent, Hatch, etc.	LS	-	-	$25,000
Exterior Pressure Wash	LS	-	-	$160,000
Repaint Exising Logo	LS	-	-	$25,000
			Construction Cost Subtotal	$575,000
			Sales Tax (8%)	$46,000
			Subtotal	$621,000
			Contingency (20%)	$93,150
			Subtotal	$714,150
			Engineering & Administration (15%)	$107,123
			Construction Engineering (15%)	$107,123
			TOTAL ESTIMATED COST	$928,395

2. SOURCE WELL S14 CLEANING AND REHABILITATION

Source well S14 (Butternut) is one of the City's primary source wells. Capacity has decreased from about 1,500 gpm to 1,275 gpm and the well has had signs of biofouling within the well and aerators because of bacterial growth within the well. The well and pumping equipment have not been rehabilitated since their original installation in 1990. The existing well is about 1,294 feet deep and has a 16-inch diameter production/pump chamber casing installed to a depth of about 739 feet. In 2020, water samples were taken, and a complete well profile analysis was performed. Recommendations from the well analysis include removing the existing pumping equipment following an initial pumping test using the existing pump and completion of a downhole video inspection to verify existing conditions, followed by chemical and mechanical cleaning of the well to address the bacterial issue. Since the new well pump will be out of the well it is recommended the existing pump and column shaft assembly be rebuilt prior to placing the pump back into service. A submersible level transducer should also be installed following well rehabilitation to monitor water levels and well performance. Well S14 does not have a telemetry control panel, so a local panel meter will be needed to record water levels. The City may want to consider installation of a telemetry control panel as part of future electrical and control system upgrades to monitor well production and water levels through the City's existing telemetry control system. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$30,000
Well Pump Testing, Complete	LS	-	-	$20,000
Well Video Inspection, Complete	LS	-	-	$2,000
Mechanical Well Cleaning, Complete	LS	-	-	$45,500
Chemical Well Cleaning, Complete	LS	-	-	$129,650
Pump Maintenance and Rehabilitation	LS	-	-	$30,000
Submersible Level Transducer	LS	-	-	$10,000
			Construction Cost Subtotal	$267,150
			Sales Tax (8.0%)	$21,372
			Subtotal	$288,522
			Contingency (20%)	$57,704
			Subtotal	$346,226
			Engineering & Administration (15%)	$51,934
			Construction Engineering (15%)	$51,934
			TOTAL ESTIMATED COST	$450,094

3. TELEMETRY CONTROL SYSTEM IMPROVEMENTS

Grandview's telemetry control system includes programmable logic controllers (PLCs) and radios at six of the City's source wells, including S03, S07/S16, S10, S13, S17, and S18, and the City's two reservoirs (via S03 and S10), and a master PLC and human machine interface (HMI) computer at the City's public works shop. The City's telemetry control system PLCs and radios were installed in 2005 and the HMI computer and software were last updated in 2015 using Wonderware Intouch 2014 software and a Windows 7 PC. Recommended telemetry system improvements include replacement of all PLCs, radios, and the HMI computer and software to maintain a reliable control system. The proposed telemetry control system improvements do not include installing additional control panels or monitoring features to the existing system. These updates will be included in future source well rehabilitation and/or replacement projects. The estimated total project cost is about $200,000.

4. 0.5 MG RESERVOIR CLEANING AND INSPECTION

The City's 0.5 MG reservoir was last cleaned and inspected in 2007. It is recommended that the City have its reservoirs cleaned and inspected approximately every five to ten years. The estimated cost of this improvement is $5,000.

5. SOURCE WELL PROTECTIVE COVENANTS

Only source wells S01, S03, S07, S08, S12, S16 and S17 currently have protective covenants. The remaining wells are S06, S10, S11, and S18. The City owns sufficient property around each of the remaining wells to establish protective covenants at each location. Provided in the Appendix of the Plan is a "Declaration of Covenant", which is used when the well site property is owned by the municipality. A "Declaration of Covenant" should be executed and filed with the Yakima County Auditor's Office for the remaining wells. The estimated cost for this project is $30,000.

6. SOURCE WELL S10 CLEANING AND REHABILITATION

Source well S10 (North Willoughby) capacity has decreased from 410 gpm to 315 gpm. The well is 613 feet deep with a 12-inch casing to 155 feet, a 10-inch liner casing from 155 feet to 613 feet, and perforations from 223 feet to 245 feet, 392 feet to 412 feet, and 576 feet to 613 feet. This improvement project will include an initial pump testing, water quality sampling and testing using the existing pump, and well video log of the existing conditions to determine the best cleaning and rehabilitation methods to use. Depending on video log results, mechanical and/or chemical cleaning treatments may be used. In tandem with cleaning and rehabilitation of the well, pump rehabilitation and maintenance will also be performed. Telemetry system improvements and software upgrades may be included as part of this project as well. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$15,000
Well Pump Testing, Complete	LS	-	-	$20,000
Well Video Inspection, Complete	LS	-	-	$2,000
Mechanical Well Cleaning, Complete	LS	-	-	$21,700
Chemical Well Cleaning, Complete	LS	-	-	$29,850
Pump Maintenance and Rehabilitation	LS	-	-	$27,000
Level Transducer, Complete	LS	-	-	$10,000
			Construction Cost Subtotal	$125,550
			Sales Tax (8.0%)	$10,044
			Subtotal	$135,594
			Contingency (20%)	$27,119
			Subtotal	$162,713
			Engineering & Administration (15%)	$24,407
			Construction Engineering (15%)	$24,407
			TOTAL ESTIMATED COST	$211,527

7. SOURCE WELL S01 CLEANING AND REHABILITATION

Grandview source wells have a history of capacity declines due to biofouling and encrustation on pumping equipment, well screens, and casings because of iron bacteria and similar organisms. To improve system reliability, well performance, and water quality, routine chemical cleaning, development, and pumping equipment rehabilitation is necessary. Source well S01 (West Main) capacity has decreased from 180 gpm to 70 gpm. The well construction includes a 212-foot long, 10-inch production casing and a 35-foot long, 8-inch perforated casing. This improvement project will include an initial pump testing with the existing pump, water quality sampling and testing, and well video log of the existing conditions to determine the best cleaning and rehabilitation methods to use. Depending on video log results, mechanical and/or chemical cleaning treatments may be used. In tandem with cleaning and rehabilitation of the well, pump rehabilitation and maintenance will also be performed. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$25,000
Well Pump Testing, Complete	LS	-	-	$20,000
Well Video Inspection, Complete	LS	-	-	$2,000
Mechanical Well Cleaning, Complete	LS	-	-	$8,400
Chemical Well Cleaning, Complete	LS	-	-	$10,250
Pump Maintenance and Rehabilitation	LS	-	-	$27,000
			Construction Cost Subtotal	$92,650
			Sales Tax (8.0%)	$7,412
			Subtotal	$100,062
			Contingency (20%)	$20,012
			Subtotal	$120,074
			Engineering & Administration (15%)	$18,011
			Construction Engineering (15%)	$18,011
			TOTAL ESTIMATED COST	$156,097

8. 3.0 MG RESERVOIR CLEANING AND INSPECTION

The City's 3.0 MG reservoir was last cleaned and inspected in 2019. It is recommended that the City have its reservoirs cleaned and inspected approximately every five to ten years. The estimated cost of this improvement is $10,000.

9. SOURCE WELL S18 CLEANING AND REHABILITATION

Grandview source wells have a history of capacity declines due to biofouling and encrustation on pumping equipment, well screens, and casings because of iron bacteria and similar organisms. To improve system reliability, well performance, and water quality, routine chemical cleaning, development, and pumping equipment rehabilitation is necessary. Source well S18 (Pecan) capacity has decreased from 180 gpm to 135 gpm. The well construction includes a 304-foot long, 12-inch production casing, a 35-foot long, 10-inch liner casing, and a 156-foot long, 10-inch perforated casing. This improvement project will include an initial pump testing with the existing pump, water quality sampling and testing using the existing pump, and well video log of the existing conditions to determine the best cleaning and rehabilitation methods to use. Depending on video log results, mechanical and/or chemical cleaning treatments may be used. In tandem with cleaning and rehabilitation of the well, pump rehabilitation and maintenance will also be performed. Telemetry system improvements and software upgrades may be included as part of this project as well. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$15,000
Well Pump Testing, Complete	LS	-	-	$20,000
Well Video Inspection, Complete	LS	-	-	$2,000
Mechanical Well Cleaning, Complete	LS	-	-	$17,500
Chemical Well Cleaning, Complete	LS	-	-	$27,800
Pump Maintenance and Rehabilitation	LS	-	-	$27,000
New Meter and Submersible Level Transducer, Complete	LS	-	-	$20,000
			Construction Cost Subtotal	$129,300
			Sales Tax (8.0%)	$10,344
			Subtotal	$139,644
			Contingency (20%)	$27,929
			Subtotal	$167,573
			Engineering & Administration (15%)	$25,136
			Construction Engineering (15%)	$25,136
			TOTAL ESTIMATED COST	$217,845

10. SOURCE WELL S08 CLEANING AND REHABILITATION

Grandview source wells have a history of capacity declines due to biofouling and encrustation on pumping equipment, well screens, and casings because of iron bacteria and similar organisms. To improve system reliability, well performance, and water quality, routine chemical cleaning, development, and pumping equipment rehabilitation is necessary. Source well S08 (Appleway Well) capacity was initially 93 gpm, but the pump has been removed since 2005 due to bacteria issues. The well construction includes a 134-foot long, 12-inch production casing, a 95-foot long, 8-inch liner casing, and a 113-foot long, 10-inch perforated casing. This improvement project will include an initial pump testing, water quality sampling and testing, and well video log of the existing conditions to determine the best cleaning and rehabilitation methods to use. Depending on video log results, mechanical and/or chemical cleaning treatments may be used. In tandem with cleaning and rehabilitation of the well, pump rehabilitation and maintenance will also be performed. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$28,000
Well Pump Testing, Complete	LS	-	-	$30,000
Well Video Inspection, Complete	LS	-	-	$2,000
Mechanical Well Cleaning, Complete	LS	-	-	$11,900
Chemical Well Cleaning, Complete	LS	-	-	$14,350
Pump Maintenance and Rehabilitation	LS	-	-	$27,000
			Construction Cost Subtotal	$113,250
			Sales Tax (8.0%)	$9,060
			Subtotal	$122,310
			Contingency (20%)	$24,462
			Subtotal	$146,772
			Engineering & Administration (15%)	$22,016
			Construction Engineering (15%)	$22,016
			TOTAL ESTIMATED COST	$190,804

11. WATER SYSTEM PLAN UPDATE

DOH requires Water System Plans to be reviewed and updated every ten years. The total estimated cost to review and update the Water System Plan is $150,000.

12. SOURCE WELL S11 CLEANING AND REHABILITATION

Grandview source wells have a history of capacity declines due to biofouling and encrustation on pumping equipment, well screens, and casings because of iron bacteria and similar organisms. To improve system reliability, well performance, and water quality, routine chemical cleaning, development, and pumping equipment rehabilitation is necessary. Source well S11 (Highland) capacity has decreased from 60 gpm to 42 gpm. The well construction includes a 165-foot long, 12-inch production casing, a 19-foot long, 12-inch liner casing, and a 66-foot long, 10-inch perforated casing. This improvement project will include an initial pump testing using the existing pump, water quality sampling and testing, and well video log of the existing conditions to determine the best cleaning and rehabilitation methods to use. Depending on video log results, mechanical and/or chemical cleaning treatments may be used. In tandem with cleaning and rehabilitation of the well, pump rehabilitation and maintenance will also be performed. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$15,000
Well Pump Testing, Complete	LS	-	-	$20,000
Well Video Inspection, Complete	LS	-	-	$2,000
Mechanical Well Cleaning, Complete	LS	-	-	$9,100
Chemical Well Cleaning, Complete	LS	-	-	$14,350
Pump Maintenance and Rehabilitation	LS	-	-	$27,000
			Construction Cost Subtotal	$87,450
			Sales Tax (8.0%)	$6,996
			Subtotal	$94,446
			Contingency (20%)	$18,889
			Subtotal	$113,335
			Engineering & Administration (15%)	$17,000
			Construction Engineering (15%)	$17,000
			TOTAL ESTIMATED COST	$147,336

13. SOURCE WELL S13 CLEANING AND REHABILITATION

Grandview source wells have a history of capacity declines due to biofouling and encrustation on pumping equipment, well screens, and casings because of iron bacteria and similar organisms. To improve system reliability, well performance, and water quality, routine chemical cleaning, development, and pumping equipment rehabilitation is necessary. Source well S13 (South Willoughby) capacity has decreased from 1,980 gpm to 1,100 gpm. The well construction includes a 687-foot long, 16-inch production casing and a 267-foot long, 12-inch perforated casing. This improvement project will include an initial pump testing using the existing pump, water quality sampling and testing, and well video log of the existing conditions to determine the best cleaning and rehabilitation methods to use. Depending on video log results, mechanical and/or chemical cleaning treatments may be used. In tandem with cleaning and rehabilitation of the well, pump rehabilitation and maintenance will also be performed. Telemetry system improvements and software upgrades may be included as part of this project as well. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$30,000
Well Pump Testing, Complete	LS	-	-	$20,000
Well Video Inspection, Complete	LS	-	-	$2,000
Mechanical Well Cleaning, Complete	LS	-	-	$33,600
Chemical Well Cleaning, Complete	LS	-	-	$93,650
Pump Maintenance and Rehabilitation	LS	-	-	$45,000
Telemetry System, Software Updates, Level Transducer, Complete	LS	-	-	$20,000
			Construction Cost Subtotal	$244,250
			Sales Tax (8.0%)	$19,540
			Subtotal	$263,790
			Contingency (20%)	$52,758
			Subtotal	$316,548
			Engineering & Administration (15%)	$47,482
			Construction Engineering (15%)	$47,482
			TOTAL ESTIMATED COST	$411,512

14. SOURCE WELL S07/S16 CLEANING AND REHABILITATION

Source Wells S07 and S16 are located on the same site and will be rehabilitated under the same project. Source well S07 (Olmstead A) capacity has decreased from its design capacity of 245 gpm to about 180 gpm. The primary concern is that the capacity of S16 (Olmstead B) has declined from 90 gpm to 40 gpm and less than 20 gpm when run for an extended period. As a result, the blending capability of the two sources to reduce nitrate levels below the MCL is eliminated. Well S07 is 110 feet deep and includes a 12-inch production/pump chamber casing to a depth of 36 feet, a 10-inch liner casing to 53 feet, and a 1-inch perforated casing from 53 feet to 110 feet. Well S16 is 623 feet deep with a 16-inch production/pump chamber casing installed to a depth of 230 feet, a 12-inch liner casing from 230 feet to 349 feet, and a perforated casing from 349 feet to 623 feet. This improvement project will include an initial pump testing using the existing pump, water quality sampling and testing, and well video log of the existing conditions to determine the best cleaning and rehabilitation methods to use. Depending on video log results, mechanical and/or chemical cleaning treatments may be used. In tandem with cleaning and rehabilitation of the well, pump rehabilitation and maintenance will also be performed. This project will also include replacement of the source meters to improve accuracy. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$20,000
Well Pump Testing, Complete	LS	-	-	$20,000
Well Video Inspection, Complete	LS	-	-	$3,000
Mechanical Well Cleaning, Complete	LS	-	-	$25,900
Chemical Well Cleaning, Complete	LS	-	-	$55,600
Pump Maintenance and Rehabilitation	LS	-	-	$55,000
Meter Upgrades	LS	-	-	$20,000
			Construction Cost Subtotal	$199,500
			Sales Tax (8.0%)	$15,960
			Subtotal	$215,460
			Contingency (20%)	$43,092
			Subtotal	$258,552
			Engineering & Administration (15%)	$38,783
			Construction Engineering (15%)	$38,783
			TOTAL ESTIMATED COST	$336,118

15. SOURCE WELL S17 CLEANING AND REHABILITATION

Grandview source wells have a history of capacity declines due to biofouling and encrustation on pumping equipment, well screens, and casings because of iron bacteria and similar organisms. To improve system reliability, well performance, and water quality, routine chemical cleaning, development, and pumping equipment rehabilitation is necessary. Source well S17 (Ashael Curtis) capacity was initially 93 gpm, but the pump has been removed since 2005 due to bacteria and performance issues. The well construction includes a 340-foot long, 16-inch production casing, a 149-foot long, 12-inch liner casing, and a 231-foot long, 12-inch perforated casing. This improvement project will include an initial pump testing, water quality sampling and testing using the existing pump, and well video log of the existing conditions to determine the best cleaning and rehabilitation methods to use. Depending on video log results, mechanical and/or chemical cleaning treatments may be used. In tandem with cleaning and rehabilitation of the well, pump rehabilitation and maintenance will also be performed. Telemetry system improvements and software upgrades may be included as part of this project as well. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$30,000
Well Pump Testing, Complete	LS	-	-	$20,000
Well Video Inspection, Complete	LS	-	-	$2,000
Mechanical Well Cleaning, Complete	LS	-	-	$25,200
Chemical Well Cleaning, Complete	LS	-	-	$61,750
Pump Maintenance and Rehabilitation	LS	-	-	$45,000
Telemetry System, Software Updates, Level Transducer, Complete	LS	-	-	$20,000
			Construction Cost Subtotal	$203,950
			Sales Tax (8.0%)	$16,316
			Subtotal	$220,266
			Contingency (20%)	$44,053
			Subtotal	$264,319
			Engineering & Administration (15%)	$39,648
			Construction Engineering (15%)	$39,648
			TOTAL ESTIMATED COST	$343,615

16. RESERVOIR RECOATING

The existing 0.5 MG standpipe was last recoated in 2007. The anticipated life of a reservoir coating system is approximately 20 to 30 years. The estimated project cost is $600,000. This estimated cost does not include structural or mechanical repairs to the reservoirs.

TABLE 8-1 SCHEDULE OF RECOMMENDED O&M IMPROVEMENTS

Priority No.	Improvement Description	Estimated Cost in 2021 Dollars	Completion Year											Funding Source
			2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033 to 2042	
1	3.0 MG Reservoir Recoating	928,395		985,000											City
2	Source Well S14 Rehabilitation	450,094			492,000										City
3	Telemetry System Computer and Software Update	200,000		213,000											City
4	0.5 MG Reservoir Cleaning and Inspection	5,000			6,000						7,000				City
5	Source Wells Protective Covenants	30,000			33,000										City
6	Source Well S10 Rehabilitation	211,527				239,000									City
7	Source Well S01 Rehabilitation	156,097						187,000							City
8	3.0 MG Reservoir Cleaning and Inspection	10,000							13,000					15,000	City
9	Source Well S18 Rehabilitation	217,845								276,000					City
10	Source Well S08 Rehabilitation	190,804										257,000			City
11	2021 Water System Plan Update	150,000											208,000		City
12	Source Well S11 Rehabilitation	147,336												211,000	City
13	Source Well S13 Rehabilitation	411,512												587,000	City
14	Source Well S07/S16 Rehabilitation	336,118												480,000	City
15	Source Well S17 Rehabilitation	343,615												490,000	City
16	Source Well S18 Rehabilitation	217,845												311,000	City
17	Phase 3 Telemetry System Improvements	150,000												214,000	City
18	0.5 MG Reservoir Recoating	600,000												856,000	City
	TOTAL COSTS	4,756,186	0	1,198,000	531,000	239,000	0	187,000	13,000	276,000	7,000	257,000	208,000	3,164,000	
Note: Improvement costs for years following 2022 include 3% inflation per year.															

8.3 MAJOR CAPITAL IMPROVEMENTS

The following listing of recommended major capital improvements has been sub-divided into two categories: 1) year 2022 through year 2032 prioritized improvements and 2) year 2033 through year 2042 prioritized improvements, since not all the recommended improvements can be completed within the next ten years. Improvements have been prioritized primarily based on addressing declining well capacity issues and improving water quality. Additionally, impact to system capacity for projected population growth was also considered. System capacity is currently limited by reservoir standby storage, making storage upgrades a top priority. Because capacity and storage are both essential to increasing system capacity, a new primary source well is also prioritized. The recommended improvements from both categories are identified in Figure 8-1 Recommended Water System Capital Improvements

CITY OF GRANDVIEW

Water System Plan Update

WATER SYSTEM CAPITAL IMPROVEMENTS

LEGEND

RETAIL SERVICE AREA BOUNDARY (CITY LIMITS)

SERVICE AREA BOUNDARY (URBAN GROWTH AREA)

IMPROVEMENTS

Year 2023 Improvements

1. FUTURE WELL C AND WELL REHABILITATION IMPROVEMENTS

Year 2024 Improvements

2. NEW 3.0 MG RESERVOIR AND TRANSMISSION MAIN

Year 2026 Improvements

3. 16" AC WATER MAIN REPLACEMENT - PHASE 1

Year 2028 Improvements

4. WELL S07/S16 TRANSMISSION MAIN

Year 2030 Improvements

5. FUTURE WELL A/B

Year 2033 - 2042 Improvements

6. BALCOM & MOE WELL S02 RECONSTRUCTION
7. 16" AC WATER MAIN REPLACEMENT - PHASE 2
8. 16" AC WATER MAIN REPLACEMENT - PHASE 3
9. CEDAR ST. WATER MAIN UPSIZING
10. N. ELM ST. WATER MAIN UPSIZING
11. W. 3RD ST. WATER MAIN UPSIZING
12. W. 4TH ST. WATER MAIN UPSIZING
13. GLEN ST. WATER MAIN UPSIZING
14. HILLCREST RD. AND VISTA DR. WATER MAIN LOOP AND UPSIZING
15. W. CONCORD AVE. WATER MAIN UPSIZING
16. PRINCEVILLE ST. WATER MAIN LOOP
17. GRANDRIDGE RD. AND APRICOT RD. WATER MAIN LOOP
18. W. 2ND ST. WATER MAIN UPSIZING
19. PECAN ST. WATER MAIN LOOP
20. WELL S07 AND S10 NITRATE TREATMENT SYSTEM
21. BUTTERNUT WELL S14 ELECTRICAL AND CONTROL SYSTEM UPGRADES

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FIGURE 8-1

8.3.1 Year 2022 through Year 2032 Prioritized Improvements

1. FUTURE WELL A/C AND WELL REHABILITATION IMPROVEMENTS

This project consists of constructing a new 1,500 gpm source well located within NE ¼, NW ¼, S24, T9N, R23E at the City's County Park. This source well will draw from the Wanapum Basalt Aquifer, at a depth of less than 1,200 feet. This project will improve the source capacity of Grandview's water system, allowing for future growth, and utilizing the City's water rights. This project also includes source well rehabilitation improvements determined by source capacity loss and scope of rehab. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Schedule A - New 1,500 GPM Wanapum Aquifer Well Drilling				
Mobilization	LS	1	$80,000	$80,000
Drill and Install 24-Inch Surface Casing	LF	50	$500	$25,000
Drill and Install 16-Inch Chamber Casing	LF	700	$650	$455,000
Drill and Install 12-Inch Well Screen (Incl. Filter Pack)	LF	200	$980	$195,900
Well Development and Testing	LS	1	$92,800	$92,800
Schedule B - New Well Control Building				
Mobilization	LS	1	$100,000	$100,000
Clearing and Grubbing	LS	1	$10,000	$10,000
Shoring or Extra Excavation	LS	1	$1,000	$1,000
Well Building, Complete	LS	1	$350,000	$350,000
Well Pump and Motor, Complete	LS	1	$100,000	$100,000
Electrical and Control System, Complete	LS	1	$200,000	$200,000
Engine Generator and Transfer Switch, Complete	LS	1	$80,000	$80,000
Site Piping, Fittings, and Valves, Complete	LS	1	$100,000	$100,000
Site Improvements, Grading, Drainage, and Fencing, Complete	LS	1	$95,000	$95,000
Schedule C - Existing Well Rehabilitation				
Mobilization	LS	1	$20,000	$20,000
Well Pumping Test, Complete	LS	1	$20,000	$20,000
Well Video Inspection, Comlete	EA	2	$2,000	$4,000
Mechanical Well Cleaning, Complete	LS	1	$26,000	$26,000
Chemical Well Cleaning, Complete	LS	1	$56,000	$56,000
Pump Maintenance and Rehab	LS	1	$55,000	$55,000
Meter and Control Upgrades	LS	1	$20,000	$20,000
			Construction Cost Subtotal	$2,085,700
			Sales Tax (8%)	$166,900
			Subtotal	$2,252,600
			Contingency (20%)	$450,500
			Construction Cost Subtotal	**$2,703,100**
			Engineering & Administration (15%)	$312,900
			Construction Engineering (15%)	$312,900
			Electrical Design and Programming	$100,000
			Hydrogeological Services	$50,000
			Environmental/Cultural Review	$15,000
			Project Administration	$30,000
			Plan Review and Building Permit Fees	$10,000
			Bid Advertisement Fees	$2,000
			DOH Review Fees	$2,000
			Audit Cost	$5,000
			Total Estimated Cost	$3,542,900
			TOTAL ESTIMATED COST INCL. 1% DWSRF LOAN FEE	**$3,578,329**

2. NEW 3.0 MG RESERVOIR AND TRANSMISSION MAIN

This major capital improvement project assumes the construction of a 3.0 MG standpipe reservoir located north of the SVID canal at Bethany Road. 1.5 MG is needed between elevations 897.5 feet and 941.6 feet to meet storage requirements. Other alternatives may be investigated at the City's request. Since system capacity is currently limited by standby storage, this improvement will provide additional storage, and improve fire flow for a large portion of the City. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$350,000
Temporary Traffic Control	LS	-	-	$2,000
Reservoir Excavation and Backfill	LS	-	-	$200,000
Site Grading and Drainage	LS	-	-	$100,000
16-Inch Transmission Main	LF	7,700	$100	$770,000
16-Inch Butterfly Valve	EA	5	$3,500	$17,500
3.0 MG Standpipe Reservoir	LS	-	-	$2,250,000
Inlet/Outlet Valve and Site Piping	LS	-	-	$200,000
Submersible Mixer	LS	-	-	$50,000
Electrical, Telemetry, and Control System	LS	-	-	$100,000
HMA Surfacing	SY	500	$60	$30,000
			Construction Cost Subtotal	$4,069,500
			Sales Tax (8%)	$325,560
			Subtotal	$4,395,060
			Contingency (20%)	$879,012
			Subtotal	$5,274,072
			Engineering & Administration (15%)	$791,111
			Construction Engineering (15%)	$791,111
			Property/Easement Acquisition	$100,000
			TOTAL ESTIMATED COST	$6,956,294

3. 16-INCH AC WATER MAIN REPLACEMENT – PHASE 1

The City's existing 16-inch transmission main that supplies water from the 3.0 MG reservoir the City's water distribution system is construction of aging asbestos cement pipe. Phase 1 of the 16-inch AC water main replacement project includes installation of approximately 1,560 feet of new C900 PVC piping. The new water main will be installed from the S10 wellhouse and 3.0 MG reservoir near Grandview Public Works and continue along E. Elm St. until crossing to the west side of the SVID canal. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$40,000
Temporary Traffic Control	LS	-	-	$6,000
16-Inch C900 PVC Water Main	LF	1,560	$100	$156,000
16-Inch Butterfly Valve	EA	2	$3,500	$7,000
HMA Surface Repair	SY	920	$60	$55,200
Gravel Surface Repair	SY	190	$40	$7,600
			Construction Cost Subtotal	$271,800
			Sales Tax (8%)	$21,744
			Subtotal	$293,544
			Contingency (20%)	$58,709
			Subtotal	$352,253
			Engineering & Administration (15%)	$52,838
			Construction Engineering (15%)	$52,838
			TOTAL ESTIMATED COST	$457,929

4. WELL S07/S10/S13 TRANSMISSION MAIN

Blending is used to reduce the nitrate levels in Well S07 and S16 below the MCL. If Well S16 is out of service or the capacity is not sufficient to make blending feasible, blending with other source wells may be needed to improve system reliability. Well S10 and S13 are located approximately 3,960 feet south of the S07/S16 site, near the City's public works shop and 3.0 MG reservoir. Constructing a 6-inch transmission main from the S07/S16 well site to the blend with S13 prior to entering the 3.0 MG reservoir is a feasible option to maintain the City's blending strategy for nitrate treatment. This improvement project includes installation of approximately 3,960 LF of new 6-inch PVC transmission main piping within the existing SVID canal right-of-way, then down N. Willoughby Road to the 3.0 MG reservoir. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$39,200
Shoring	LF	3,960	$1	$3,960
Temporary Traffic Control	LS	-	-	$5,000
6-Inch C900 Water Main	LF	3,960	$80	$316,800
6-Inch Valve	EA	2	$2,500	$5,000
HMA Surface Repair	SY	840	$60	$50,400
Gravel Surface Repair	SY	270	$40	$10,800
			Construction Cost Subtotal	$431,160
			Contingency (20%)	$86,232
			Subtotal	$517,392
			Sales Tax (8%)	$41,391
			Construction Subtotal	$558,783
			Engineering & Administration (15%)	$83,818
			Construction Engineering (15%)	$83,818
			Easement Acquisition	$50,000
			TOTAL ESTIMATED COST	$776,418

5. FUTURE WELL A/B

This project consists of constructing a new 250 gpm source well located within the fairgrounds at a location to be determined. This source well will draw from the Saddle Mountain Aquifer, a depth of less than 700 feet. Should the City desire to draw from the Wanapum Basalt Aquifer, the well will need to be drilled deeper and aeration treatment will likely be necessary. This project will improve the source capacity of Grandview's water system, allowing for future growth, and utilizing the City's water rights. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$85,000
Surface Casing	LS	50	500	$25,000
Drill and Install 12" Pump Chamber Casing	LF	450	$525	$236,250
Furnish and Install 8" Well Screen (Incl. Filter Pack)	LF	200	$400	$80,000
Well Development and Testing	LS	-	-	$70,000
Well Pump and Level Transducer	LS	-	-	$70,000
Electrical and Control System	LS	-	-	$80,000
Well Building Including Internal Piping, HVAC, and Chlorination	LS	-	-	$230,000
Site Piping	LS	-	-	$30,000
Site Grading and Drainage	LS	-	-	$35,000
Fencing	LS	-	-	$15,000
			Construction Cost Subtotal	$956,250
			Sales Tax (8%)	$76,500
			Subtotal	$1,032,750
			Contingency (20%)	$206,550
			Subtotal	$1,239,300
			Engineering & Administration (15%)	$185,895
			Construction Engineering (15%)	$185,895
			TOTAL ESTIMATED COST	$1,611,090

8.3.2 Year 2033 through Year 2042 Deferred Improvements

6. BALCOM & MOE WELL S02 RECONSTRUCTION

This project consists of demolishing the existing well building, installing a new booster pump and well enclosure, and constructing a new treatment building complete with aeration and chlorination equipment, electrical, and HVAC. Production from Well S02 has declined from its original capacity of about 690 gpm to 268 gpm in 2021. This improvement will increase water system supply capacity by about 400 gpm, improving system reliability and water quality. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$80,000
Demolition	LS	-	-	$40,000
Aeration Equipment	LS	-	-	$135,000
Chlorination Equipment	LS	-	-	$70,000
HVAC	LS	-	-	$40,000
Booster Pump (Aeration)	LS	-	-	$50,000
Site Piping	LS	-	-	$45,000
Building (900 SF)	LS	-	-	$225,000
Electrical and Control System	LS	-	-	$170,000
Well Enclosure	LS	-	-	$18,000
Site Grading and Drainage	LS	-	-	$27,000
Fencing	LF	200	$27	$5,400
30' Gate	EA	1	$800	$800
HMA Surface Repair	SY	140	$60	$8,400
Gravel Surface Repair	SY	340	$40	$13,600
Cement Conc. Sidewalk	SY	40	$90	$3,600
			Construction Cost Subtotal	$931,800
			Sales Tax (8%)	$74,544
			Subtotal	$1,006,344
			Contingency (20%)	$201,269
			Subtotal	$1,207,613
			Engineering & Administration (15%)	$181,142
			Construction Engineering (15%)	$181,142
			TOTAL ESTIMATED COST	$1,569,897

7. 16-INCH AC WATER MAIN REPLACEMENT – PHASE 2

Phase 2 of the 16-inch AC transmission main replacement project includes installation of approximately 3,890 feet of new C900 PVC piping. In Phase 2, the new water main will be installed along N. Elm Street, where the pipe will then turn west across an open field to Wilson Hwy, adjacent to Deangela Drive. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$50,000
Temporary Traffic Control	LS	-	-	$10,000
16-Inch C900 PVC Water Main	LF	3,890	$100	$389,000
16-Inch Butterfly Valve	EA	2	$3,500	$7,000
HMA Surface Repair	SY	860	$60	$51,600
Unsurfaced Area Repair	SY	1,580	$5	$7,900
			Construction Cost Subtotal	$515,500
			Sales Tax (8%)	$41,240
			Subtotal	$556,740
			Contingency (20%)	$111,348
			Subtotal	$668,088
			Engineering & Administration (15%)	$100,213
			Construction Engineering (15%)	$100,213
			TOTAL ESTIMATED COST	$868,514

8. 16-INCH AC WATER MAIN REPLACEMENT – PHASE 3

Phase 3 of the 16-inch AC transmission main replacement project includes installation of approximately 6,270 feet of new C900 PVC piping. In Phase 3, the new water main will be installed west along N. Wilson Hwy to the intersection of E. Bonnieview Rd. The installation will continue south along N Ave B to terminate at the well house adjacent Wine Country Road, and west along W. Bonnieview Rd./Forsell Rd., terminating at Wallace Way. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$50,000
Temporary Traffic Control	LS	-	-	$45,000
16-Inch C900 PVC Water Main	LF	6,270	$100	$627,000
16-Inch Butterfly Valve	EA	2	$3,500	$7,000
HMA Surface Repair	SY	4,130	$60	$247,800
Gravel Surface Repair	SY	290	$40	$11,600
			Construction Cost Subtotal	$988,400
			Sales Tax (8%)	$79,072
			Subtotal	$1,067,472
			Contingency (20%)	$213,494
			Subtotal	$1,280,966
			Engineering & Administration (15%)	$192,145
			Construction Engineering (15%)	$192,145
			TOTAL ESTIMATED COST	$1,665,256

9. CEDAR ST. WATER MAIN UPSIZING

This improvement project will replace the existing 6-inch water main pipes with 8-inch along Cedar Street between 4th Street and Wine Country Road. The improvement will improve both fire flow capacity and system reliability in this residential area. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$20,000
Temporary Traffic Control	LS	-	-	$10,000
Shoring or Extra Excavation	LF	1,400	$1	$1,400
Select Backfill	CY	45	$50	$2,250
8-Inch C900 Water Main	LF	1,400	$65	$91,000
8-Inch Gate Valve	EA	6	$2,000	$12,000
Water Service Connection	EA	38	$1,500	$57,000
HMA Surface Repair	SY	950	$60	$57,000
Hydrant Assembly	EA	4	$5,000	$20,000
			Construction Cost Subtotal	$270,650
			Sales Tax (8%)	$21,652
			Subtotal	$292,302
			Contingency (20%)	$58,460
			Subtotal	$350,762
			Engineering & Administration (15%)	$52,614
			Construction Engineering (15%)	$52,614
			TOTAL ESTIMATED COST	$455,991

10. N. ELM STREET WATER MAIN UPSIZING

This improvement project will replace the existing 8-inch water main pipes with 10-inch along North Elm Street between Wine Country Road and Bonnieview Road. The improvement will improve both fire flow capacity and system reliability in this residential area. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$15,000
Temporary Traffic Control	LS	-	-	$5,000
Shoring or Extra Excavation	LF	1,000	$1	$1,000
Select Backfill	CY	130	$50	$6,500
12-Inch C900 Water Main	LF	1,000	$75	$75,000
12-Inch Gate Valve	EA	8	$2,500	$20,000
Water Service Connection	EA	9	$1,500	$13,500
HMA Surface Repair	SY	700	$60	$42,000
Hydrant Assembly	EA	3	$5,000	$15,000
			Construction Cost Subtotal	$193,000
			Sales Tax (8%)	$15,440
			Subtotal	$208,440
			Contingency (20%)	$41,688
			Subtotal	$250,128
			Engineering & Administration (15%)	$37,519
			Construction Engineering (15%)	$37,519
			TOTAL ESTIMATED COST	$325,166

11. W. 3RD ST. WATER MAIN UPSIZING

This improvement project will replace the existing 6-inch water main pipes with 8-inch along West 3rd Street between Hillcrest Road and Euclid Road. The improvement will improve both fire flow capacity and system reliability in this residential area. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$20,000
Temporary Traffic Control	LS	-	-	$10,000
Shoring or Extra Excavation	LF	1,350	$1	$1,350
Select Backfill	CY	170	$50	$8,500
8-Inch C900 PVC Water Main	LF	1,350	$65	$87,750
8-Inch Gate Valve	EA	6	$2,000	$12,000
Water Service Connection	EA	29	$1,500	$43,500
HMA Surface Repair	SY	900	$60	$54,000
Hydrant Assembly	EA	5	$5,000	$25,000
			Construction Cost Subtotal	$242,100
			Sales Tax (8%)	$19,368
			Subtotal	$261,468
			Contingency (20%)	$52,294
			Subtotal	$313,762
			Engineering & Administration (15%)	$47,064
			Construction Engineering (15%)	$47,064
			TOTAL ESTIMATED COST	$407,890

12. W. 4TH ST. WATER MAIN UPSIZING

This improvement project will replace the existing 6-inch water main pipes with 8-inch along West 4th Street between Hillcrest Road and Avenue "J". The improvement will improve both fire flow capacity and system reliability in this residential area. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$10,000
Temporary Traffic Control	LS	-	-	$10,000
Shoring or Extra Excavation	LF	700	$1	$700
Select Backfill	CY	70	$50	$3,500
8-Inch C900 PVC Water Main	LF	700	$65	$45,500
8-Inch Gate Valve	EA	6	$2,000	$12,000
Water Service Connection	EA	29	$1,500	$43,500
HMA Surface Repair	SY	470	$60	$28,200
Hydrant Assembly	EA	2	$5,000	$10,000
			Construction Cost Subtotal	$153,400
			Sales Tax (8%)	$12,272
			Subtotal	$165,672
			Contingency (20%)	$33,134
			Subtotal	$198,806
			Engineering & Administration (15%)	$29,821
			Construction Engineering (15%)	$29,821
			TOTAL ESTIMATED COST	$258,448

13. GLEN ST. WATER MAIN UPSIZING

This improvement project will replace the existing 6-inch water main pipes with 8-inch along Glen Street between Hillcrest Road and Avenue "J". The improvement will improve both fire flow capacity and system reliability in this residential area. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$10,000
Temporary Traffic Control	LS	-	-	$10,000
Shoring or Extra Excavation	LF	650	$1	$650
Select Backfill	CY	90	$50	$4,500
8-Inch C900 PVC Water Main	LF	650	$65	$42,250
8-Inch Gate Valve	EA	5	$2,000	$10,000
Water Service Connection	EA	15	$1,500	$22,500
HMA Surface Repair	SY	450	$60	$27,000
Hydrant Assembly	EA	3	$5,000	$15,000
			Construction Cost Subtotal	$131,900
			Sales Tax (8%)	$10,552
			Subtotal	$142,452
			Contingency (20%)	$28,490
			Subtotal	$170,942
			Engineering & Administration (15%)	$25,641
			Construction Engineering (15%)	$25,641
			TOTAL ESTIMATED COST	$222,225

14. HILLCREST RD. AND VISTA DR. WATER MAIN LOOP AND UPSIZING

This improvement project will connect two branches of the water distribution system with 8-Inch water main. The improvement will improve both fire flow capacity, system reliability, and water quality in the southern residential area of the City. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$5,000
Temporary Traffic Control	LS	-	-	$5,000
Select Backfill	CY	70	$50	$3,500
8-Inch Water Main	LF	600	$65	$39,000
8-Inch Gate Valve	EA	2	$2,000	$4,000
HMA Surface Repair	SY	400	$60	$24,000
Service Connection	EA	19	$1,500	$28,500
Hydrant Assembly	EA	2	$5,000	$10,000
			Construction Cost Subtotal	$119,000
			Sales Tax (8%)	$9,520
			Subtotal	$128,520
			Contingency (20%)	$25,704
			Subtotal	$154,224
			Engineering & Administration (15%)	$23,134
			Construction Engineering (15%)	$23,134
			TOTAL ESTIMATED COST	$200,491

15. W. CONCORD AVE. WATER MAIN UPSIZING

This improvement project will replace the existing 4-inch and 6-inch water main pipes with 8-inch along West Concord Avenue. The improvement will improve both fire flow capacity and system reliability in this residential area. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$16,500
Temporary Traffic Control	LS	-	-	$20,000
Shoring or Extra Excavation	LF	1,700	$1	$1,700
Select Backfill	CY	80	$50	$4,000
8-Inch Water Main	LF	1,700	$65	$110,500
8-Inch Gate Valve	EA	7	$2,000	$14,000
Water Service Connection	EA	28	$1,500	$42,000
HMA Surface Repair	SY	1,150	$60	$69,000
Hydrant Assembly	EA	4	$5,000	$20,000
			Construction Cost Subtotal	$297,700
			Sales Tax (8%)	$23,816
			Subtotal	$321,516
			Contingency (20%)	$64,303
			Subtotal	$385,819
			Engineering & Administration (15%)	$57,873
			Construction Engineering (15%)	$57,873
			TOTAL ESTIMATED COST	$501,565

16. PRINCEVILLE ST. WATER MAIN LOOP

This project loops an existing 2-inch water main to an existing dead-end 6-inch water main with a new 8-inch water main. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$1,000
Temporary Traffic Control	LS	-	-	$500
8-Inch C900 Water Main	LF	100	$65	$6,500
8-Inch Valve	EA	1	$2,000	$2,000
Gravel Surface Repair	SY	40	$40	$1,600
Hydrant Assembly	EA	1	$5,000	$5,000
			Construction Cost Subtotal	$16,600
			Sales Tax (8%)	$1,328
			Subtotal	$17,928
			Contingency (20%)	$3,586
			Subtotal	$21,514
			Engineering & Administration (15%)	$3,227
			Construction Engineering (15%)	$3,227
			Easement Acquisition	$8,000
			TOTAL ESTIMATED COST	$32,741

17. GRANDRIDGE RD. AND APRICOT RD. WATER MAIN LOOP

This project consists of looping an existing 6-inch water main located at the corner of Euclid Road and Apricot Road with a 10-inch water main and connecting the line to an existing 10-inch water main located at the corner of Grandridge Road and Pleasant Avenue. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$40,000
Temporary Traffic Control	LS	-	-	$30,000
12-Inch C900 Water Main	LF	5,400	$75	$405,000
12-Inch Butterfly Valve	EA	6	$2,500	$15,000
Hydrant Assembly	EA	5	$5,000	$25,000
HMA Surface Repair	SY	3,600	$60	$216,000
			Construction Cost Subtotal	$731,000
			Sales Tax (8%)	$58,480
			Subtotal	$789,480
			Contingency (20%)	$157,896
			Subtotal	$947,376
			Engineering & Administration (15%)	$142,106
			Construction Engineering (15%)	$142,106
			TOTAL ESTIMATED COST	$1,231,589

18. W. 2ND ST. WATER MAIN UPSIZING

This project consists of replacing an existing 8-inch water main with a 12-inch water main located along West 2nd Street between Hillcrest Road and Westridge Drive. The improvement will improve both fire flow capacity and system reliability in this area. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$30,000
Temporary Traffic Control	LS	-	-	$70,000
12-Inch C900 Water Main	LF	1,450	$75	$108,750
12-Inch Butterfly Valve	EA	2	$2,500	$5,000
Service Connection	EA	3	$1,500	$4,500
HMA Surface Repair	SY	1,000	$60	$60,000
			Construction Cost Subtotal	$278,250
			Sales Tax (8%)	$22,260
			Subtotal	$300,510
			Contingency (20%)	$60,102
			Subtotal	$360,612
			Engineering & Administration (15%)	$54,092
			Construction Engineering (15%)	$54,092
			TOTAL ESTIMATED COST	$468,796

19. PECAN ST. WATER MAIN LOOP

This project consists of looping an existing 6-inch water main located at the corner of Pecan Road and Appleway Road with an 8-inch water main and connecting the line to an existing 6-inch water main located at the corner of Pecan Road and Butternut Road and replacing the 2-inch water main that dead-ends. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$1,500
Temporary Traffic Control	LS	-	-	$25,000
8-Inch Water Main	LF	1,000	$65	$65,000
8-Inch Gate Valve	EA	2	$2,000	$4,000
6-Inch Gate Valve	EA	2	$1,500	$3,000
Hydrant Assembly	EA	1	$5,000	$5,000
HMA Surface Repair	SY	15	$60	$900
Gravel Surface Repair	SY	250	$40	$10,000
			Construction Cost Subtotal	$114,400
			Sales Tax (8%)	$9,152
			Subtotal	$123,552
			Contingency (20%)	$24,710
			Subtotal	$148,262
			Engineering & Administration (15%)	$22,239
			Construction Engineering (15%)	$22,239
			TOTAL ESTIMATED COST	$192,741

20. WELL S07 AND S10 NITRATE TREATMENT SYSTEM

Well S07 and S10 have a history of nitrate levels exceeding the MCL. The City currently uses a blending strategy with adjacent wells to bring nitrate levels within an acceptable range, however, if one of the blending wells is out of service both sources must be temporarily taken offline. To improve system reliability in the future, and to address rising nitrate levels, a nitrate treatment and removal system will be needed. It is recommended that the treatment facility be constructed near Well S10 and the City's 3.0 MG reservoir. If S07/S16 blending is no longer effective, a transmission main can be construction from S07 to the S10 site as a separate improvement project to treat both wells at the same location. The proposed nitrate treatment and removal system will have a total capacity of about 800 gpm and include installation of a 200-gpm side stream reverse osmosis membrane filtration unit to remove nitrates and blend the filtered water with 600 gpm of untreated water to reduce nitrate levels below the MCL. The treatment equipment and controls will be housed in a new building near S10. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	1	$165,100	$165,100
Shoring or Extra Excavation	LF	3,960	$1	$3,960
Temporary Traffic Control	LS	1	$5,000	$5,000
6-Inch C900 Water Main	LF	3,960	$80	$316,800
6-inch Gate Valve	EA	2	$2,500	$5,000
HMA Surface Repair	SY	840	$60	$50,400
Gravel Surface Repair	SY	270	$40	$10,800
Treatment Equipment Building and Piping	SF	500	$500	$250,000
Reverse Osmosis Treatment Skid	LS	1	$757,500	$757,500
Site Piping	LS	1	$50,000	$50,000
Electrical Control System	LS	1	$201,500	$201,500
			Construction Cost Subtotal	$1,816,060
			Contingency (20%)	$363,212
			Subtotal	$2,179,272
			Sales Tax (8%)	$174,342
			Subtotal	$2,353,614
			Engineering & Administration (15%)	$353,042
			Construction Engineering (15%)	$353,042
			Pilot Study	$100,000
			TOTAL ESTIMATED COST	$3,159,698

21. BUTTERNUT WELL S14 ELECTRICAL AND CONTROL SYSTEM UPGRADES

This project consists of upgrading the electrical and control system at Butternut Well. VFDs will be installed on the well pump and wet well booster pump motors, and programming will be completed to allow flow to be controlled depending on the water demand. This improvement project will also provide remote monitoring and control of the source and auxiliary power to improve water system reliability. Provided below are the estimated project costs:

Item	Unit	Qty.	Unit Cost	Total Cost
Mobilization	LS	-	-	$25,000
Electrical and Control System Upgrades	LS	-	-	$300,000
Engine Generator and Transfer Switch, Complete	LS	-	-	$60,000
Telemetry System Improvements	LS	-	-	$100,000
Flow Meters and Instrumentation	LS	-	-	$50,000
			Construction Cost Subtotal	$535,000
			Sales Tax (8%)	$42,800
			Subtotal	$577,800
			Contingency (20%)	$115,560
			Subtotal	$693,360
			Engineering & Administration (15%)	$104,004
			Construction Engineering (15%)	$104,004
			TOTAL ESTIMATED COST	$901,368

8.3.3 Major Capital Improvement Schedule

Table 8-2 provides a ten-year schedule for completion of some of the recommended major capital improvements. Scheduling of the remaining improvements beyond this ten-year period should be reviewed yearly as priorities and City growth patterns change and progress. The estimated improvement costs are provided in Table 8-2, as well as the total projected yearly cost. The estimated costs in Table 8-2 have been inflated for each year after 2022 to reflect the possible future costs based upon the projected year the improvement will be completed. Improvements that are projected to take place after year 2032 have been inflated to reflect year 2033 costs although many of these improvements will take place after the year 2033.

TABLE 8-2 SCHEDULE OF RECOMMENDED MAJOR CAPITAL IMPROVEMENTS

Priority No.	Improvement Description	Estimated Cost in 2021 Dollars	Completion Year											Funding Source
			2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033 to 2042	
1	Future Well A/C and Existing Well Rehabilitation	3,578,329		3,578,329											SRF Loan
2	New 3.0 MG Reservoir and Transmission Main	6,956,294			7,602,000										SRF Loan/City/ Grant/Private
3	16" AC Water Main Replacement - Phase 1	457,929					531,000								SRF Loan/City
4	Well S07/S16 Transmission Main	776,418							955,000						SRF Loan/City
5	Future Well B/D	1,611,090									2,103,000				SRF Loan/City/ Grant/Private
6	Balcom & Moe Well S02 Reconstruction	1,569,897												2,239,000	SRF Loan/City
7	16" AC Water Main Replacement - Phase 2	868,514												1,239,000	SRF Loan/City
8	16" AC Water Main Replacement - Phase 3	1,665,256												2,375,000	SRF Loan/City
9	Cedar St. Water Main Upsizing	455,991												651,000	SRF Loan/City
10	N. Elm St. Water Main Upsizing	325,166												464,000	SRF Loan/City
11	W. 3rd St. Water Main Upsizing	407,890												582,000	SRF Loan/City
12	W. 4th St. Water Main Upsizing	258,448												369,000	SRF Loan/City
13	Glen St. Water Main Upsizing	222,225												317,000	SRF Loan/City
14	Hillcrest Rd. and Vista Dr. Water Main Loop and Upsizing	200,491												286,000	SRF Loan/City
15	W. Concord Ave. Water Main Upsizing	501,565												716,000	SRF Loan/City
16	Princeville St. Water Main Loop	32,741												47,000	SRF Loan/City
17	Grandridge Rd. and Apricot Rd. Water Main Loop	1,231,589												1,756,000	SRF Loan/City
18	W. 2nd St. Water Main Upsizing	468,796												669,000	SRF Loan/City
19	Pecan St. Water Main Loop	192,741												275,000	SRF Loan/City
20	Three-Well Blending Nitrate Treatment (S07, S10, S13)	3,159,698												4,505,000	SRF Loan/City
21	Butternut Well S14 Electrical and Control System Upgrades	901,368												1,286,000	SRF Loan/City
	TOTAL COSTS	25,842,436	0	3,578,329	7,602,000	0	531,000	0	955,000	0	2,103,000	0	0	17,776,000	

Note: Improvement costs for years following 2022 include 3% inflation per year.

8.4 FUTURE MAJOR CAPITAL IMPROVEMENTS (PLANNING)

A general plan for future major capital improvements that would be a result of system expansion is shown in Figure 8-1. Recommended major capital improvements discussed in Section 8.3 are also shown in Figure 8-1 for reference. This plan represents the projected water mains/structures, including estimated sizes, required as development expands beyond what the existing system serves within the City's current and future service area boundaries. Although conditions and circumstances in the City's water system may change the exact location and/or configuration of needed improvements, the general plan shown in Figure 8-1 allows the City to review proposed development with respect to system expansion. Also, as new development is proposed and/or occurs, the City will need to further evaluate the improvement required and review the effects that the system expansion plans will have on the existing distribution system.

CHAPTER 9 -

FINANCIAL PROGRAM

HLA
Engineering and Land Surveying, Inc.

9.1 PAST AND PRESENT FINANCIAL STATUS

Development of a comprehensive financial program requires an understanding of the water system's current financial status and past budgetary trends. The City's Water Operating Fund beginning and ending balance histories for the six-year period, 2015 through 2021 is presented in Table 9-1.

TABLE 9-1 WATER OPERATING FUND BALANCES

Year	2015	2016	2017	2018	2019	2020	2021
Beginning Fund Balance	$3,545,052	$4,096,424	$4,745,502	$5,277,453	$6,076,192	$6,766,244	$6,474,189
Ending Fund Balance	$4,096,424	$4,745,502	$5,277,453	$6,076,192	$6,766,244	$6,474,189	$6,983,523
Net Increase (Decrease)	$551,372	$649,078	$531,951	$798,739	$690,052	($292,055)	$509,334

Presented below in Table 9-2 is a summary of the City's Water Operating Fund actual revenues and expenditures history for the 7-year period, 2015 through 2021. Over this 7-year period, Water Department operating revenues (not including loan/bond proceeds) have increased by approximately 83% in total. Over the same period, operating expenses have increased by approximately 23% in total. Although the fund balances have remained positive and recent trends generally present net increases, implementation of the recommended system improvements presented in CHAPTER 8 requires a close examination of the City's future financial plan and rate structure. A funding request has been submitted for the Well A/C project and is pending approval until February 2022. Other recommended system improvements will require financing by the City Operating Fund or alternative funding sources. The proposed financial plan to fund recommended improvements is presented later in Table 9-4.

TABLE 9-2 WATER OPERATING FUND REVENUES AND EXPENDITURES							
Year Ending	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
	$3,545,052	**$4,096,424**	**$4,745,502**	**$5,277,453**	**$6,076,192**	**$6,767,645**	**$6,474,189**
Water Service Fees	$1,844,348	$1,837,745	$1,847,263	$1,962,688	$1,921,227	$1,850,442	$1,903,455
Connection Fees	$11,426	$6,064	$11,510	$10,338	$15,937	$39,810	$61,750
Interest Earnings	$19,485	$29,848	$35,661	$80,511	$100,148	$26,258	$20,012
Rents and Leases	$7,529	$5,877	$5,877	$6,202	$9,423	$10,745	$11,239
Other Water Revenue	$12	$15,490	$661	$6,950	$12,804	$33,645	$965
Loan/Bond Proceeds	$47,402	$811,428					
Utility Tax	$516,798	$514,746	$520,864	$552,444	$543,539	$541,127	$551,270
TOTAL - REVENUE	$2,447,000	$3,221,198	$2,421,836	$2,619,133	$2,603,078	$2,502,027	$2,548,691
Salaries and Wages	$271,076	$290,959	$301,742	$309,675	$362,940	$423,301	$359,173
Benefits	$124,772	$129,018	$132,134	$144,689	$175,052	$199,172	$168,087
Supplies	$71,986	$83,340	$79,896	$93,000	$100,388	$135,084	$114,235
Other Services & Charges	$441,121	$419,605	$439,937	$480,327	$501,864	$540,683	$609,080
Utility Tax	$516,798	$467,690	$470,593	$498,375	$489,336	$466,896	$497,315
Operating Transfers Out	$0	$0	$0	$0	$0	-	$0
Subtotal - Water Operations	$1,425,753	$1,390,612	$1,424,302	$1,526,066	$1,629,580	$1,765,136	$1,747,890
Major Capital Improvements	$199,461	$906,198	$131,707	$0	$0	-	$0
Misc. Capital Improvements	$39,315	$44,776	$41,605	$9,669	$1,142	$32,588	$69,235
O&M Improvements	$0	$994	$0	$0	$0	$772,044	$0
Subtotal - Capital Outlays	$238,776	$951,968	$173,312	$9,669	$1,142	$804,632	$69,235
99 Well Rehab	$28,494	$28,223	$27,951	$27,680	$27,680		
03 SRF Loan	$152,619	$151,218	$149,818	$148,418	$148,418	$145,618	$144,218
New Yakima County SIED Loan	$28,500	$28,500	$28,500	$28,500	$28,500		
New USDA Loan	$21,192	$21,192	$21,192	$21,192	$21,192	$21,600	$21,600
OIE DWSRF Loan			$58,470	$58,462	$57,779	$57,096	$56,414
Future Debt Service					$0	-	$-
Subtotal - Loans	$230,805	$229,133	$285,931	$284,252	$283,569	$224,314	$222,232
Transfers to Bond Redemption	$294	$407	$6,340	$407	($1,265)	-	$-
Subtotal - Debt Service	$231,099	$229,540	$292,271	$284,659	$282,304	$224,314	$222,232
TOTAL - EXPENDITURES	$1,895,628	$2,572,120	$1,889,885	$1,820,394	$1,913,026	$2,794,082	$2,039,357
Ending Fund Balance	**$4,096,424**	**$4,745,502**	**$5,277,453**	**$6,076,192**	**$6,766,244**	**$6,475,590**	**$6,983,523**
Net Increase (Decrease)	$551,372	$649,078	$531,951	$798,739	$690,052	$(292,055)	$509,334

Notes:
1. 2015 through 2020 data based on actual revenue and expenditures.
2. 2021 data projected to year end based on data collected through November 2021.

9.2 AVAILABLE REVENUE SOURCE

Recommended system improvements are scheduled for completion in annual increments for the next ten years. In addition, as areas outside the current service area develop, extension of the City's water system will be necessary. Future transmission mains, sources of supply, and reservoirs will undoubtedly require major local bond funding and/or outside funding participation to offset the high costs of the improvements.

There are five basic categories of potential financing for domestic water-related improvements:

1. Local Public Enterprise Funds
2. Use of Local Public Powers
3. State Assisted or Guaranteed Resources
4. Federally Assisted or Guaranteed Resources
5. Private Development

Current availability of funding is limited with a number of the sources within these categories. Many also restrict the use of funds to certain projects and others limit their participation to a percentage of the total cost. Each of these categories is described briefly below.

1. Local Public Enterprise Funds

   Reserves in the Enterprise Fund are accumulated from available revenues from water user fees. The amount of the reserves will depend on the balance of operation and maintenance costs of the system versus total revenue generated by the fees. These reserves may be used to finance any water system related project allocated by the City Council.

   Funds for future projects may be generated by increases in user fees, thus building the reserves in the Enterprise Fund. With this method of financing, often called the "pay-as-you-go" approach, the City is collecting interest on the reserves as opposed to paying interest on a loan balance. One method used by some communities to accumulate reserves is through the development of a capital recovery charge system. This approach is similar to assessing connection fees, except the amount is based on the capital costs of constructing collection system trunk lines and treatment facilities, and the collected funds are usually set aside as capital reserves for future projects.

2. Use of Local Public Powers

   In this section, three primary bonding techniques will be presented: general obligation bonds, revenue bonds, and special assessment bonds. There are advantages and disadvantages to each. The type of bond issued to finance a community improvement depends in part on custom and in part on the circumstances of a particular offering. General information about the three principal types of municipal bonds follows.

   General Obligation Bonds: These bonds pledge the unlimited taxing power and the full faith and credit of the issuing government to meet the required principal and interest payments.

Special Assessment Bonds (LID Bonds): LID bonds are used to finance improvements where the property specially benefited can be identified. Special assessment bonds are frequently used to make capital improvements in a particular neighborhood. Principal and interest payments for these bonds are made by special assessment on the property benefiting from the improvement. Before special assessment bonds are issued, estimated costs are mailed to property owners, a public hearing is held to allow the affected property owners to say whether they want the improvement, and a 30-day protest period elapses during which property owners may protest the improvements prior to City Council action formally establishing the project. Debt financed by special assessment bonds is not subject to debt limitations.

Revenue Bonds: Revenue bonds are frequently used to finance City-owned utilities, industrial parks, and other municipal public facilities. The bonds pledge the revenue from a particular revenue source to meet the principal and interest payments. Revenue bonds are appropriate debt instruments when the enterprise fund can be expected to generate sufficient revenue to meet both operating and debt service cost. Revenue bonds generally do not become a general obligation of the government issuing them. Communities may have to pay higher rates of interest on these bonds than on general obligation bonds, because revenue bonds are considered less secure. But, revenue bonds also have an important advantage over general obligation bonds in that the amount of the revenue bonds is not included in the amount of indebtedness subject to state debt limitations. The legal requirements for issuing revenue bonds are more complex than those for issuing general obligation bonds. When revenue bonds are issued, a special authority (Water Fund) operates the facility and a special revenue fund receives and disburses all funds. A trust agreement to provide for the monthly reimbursement of revenues and containing provisions to protect the bond holders must be formulated.

3. State Assisted or Guaranteed Resources

Public Works Trust Fund (PWTF): This fund was created in 1985 to provide loans for replacement of public works facilities. Applications for construction funds may be submitted once each year (in May), and applications for pre-construction funds (for such items as engineering design, bid document preparation, right of way acquisition and environmental studies) may be submitted once each month. Projects are evaluated based on:

a. Merits of the project as to need.
b. Degree of capital improvement planning.
c. Adequacy of existing rate structure.
d. Degree of local participation in financing project; and
e. Whether the area is economically distressed.

Current allocations of funds have been allowed for a wide variety of projects, including domestic water system replacement projects. The interest rates on PWTF loans generally range from 0.5% to 2% depending on the amount of matching money provided by the City.

PWTF loans have recently become less reliable due to legislative transfers from the PWTF into the general fund as a result of budget deficits.

Drinking Water State Revolving Fund (DWSRF): This fund provides low-interest loans to publicly and privately owned water systems for projects which improve water systems and ensure public health. Up to 100% of eligible project costs are fundable through this program. Applications are accepted once a year between October 1st and November 30th.

Community Economic Revitalization Board (CERB): CERB is a state board focused on economic development through job creation in partnership with local governments. The Board has the authority to finance public infrastructure improvements that encourage new private business development and expansion. However, by law CERB may only fund construction projects which can demonstrate that either significant private job creation or significant private investment will occur as a result of the public project. CERB is primarily a loan program with grants awarded on a case-by-case basis. The interest rates on CERB loans are 2.5% for distressed areas and 3.0% for non-distressed areas. Applications are accepted year around, while the Board considers applications every two months.

4. Federally Assisted or Guaranteed Resources

Three federally financed funding sources are available for domestic water system construction: 1) the USDA's Rural Development, Rural Utilities Service (RUS) Program; 2) the Economic Development Administration's (EDA) Public Works Grants and Loans Program; and 3) the Department of Housing and Urban Development's (HUD) Community Development Block Grants administered by the State Department of Community Planning and Development.

Rural Utilities Service Water & Waste Disposal Direct Loans and Grants Program: This program is one of several programs established by the USDA to provide public works assistance to small communities in rural areas. Public entities such as municipalities, counties, special purpose districts or authorities, Indian tribes, and nonprofit corporations or cooperatives are eligible in areas with a population under 10,000. Priority will be given to public entities in areas smaller than 5,500 people to restore a deteriorating water supply, or to improve, enlarge, or modify a water facility. Preference will also be given to requests which involve the merging of small facilities and those serving low-income communities. Loans and grant funds may be used to construct, repair, improve, expand, or otherwise modify rural water supply and distribution, including reservoirs, pipelines, wells, and pumping stations. Targeted at the neediest communities, grants are designed to keep costs economical. Grants are limited to reducing the facility per user costs for debt service to a minimum of 1% of the area's family income. Loans in the past have also been available at a 5% interest rate for the useful life of the facility, or the statutory limit on the applicant's borrowing authority, or for a maximum of 40 years.

Currently, Grandview does not qualify for this program due to population.

Public Works Grants and Loans Program: This program is funded by the Economic Development Administration (EDA) and is used to encourage long-range development gains in jurisdictions where economic growth is lagging, or where the economic base is shifting. The program provides public works and development facilities needed to attract new industry and provide business expansion. Financial aid may be used to acquire and develop land and improvements for public works, and to acquire, construct, rehabilitate, alter, expand or improve such facilities, including related machinery and equipment. When completed, such projects are expected to bring additional private investment to the area.

U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant Program: This program is administered by the State Department of Community Development. Communities with a population under 50,000 can apply for grants to undertake activities in providing adequate housing, expanded economic opportunities, and correcting deficiencies in public facilities which affect public safety and health of an area or community of residents. The program is designed to aid low- and moderate-income people and is also directed to have a maximum impact on stated community problems. Its primary focus is to assist blighted communities, or communities suffering a particular community or economic development problem.

5. Private Development

   Expansion of domestic water facilities to newly developing areas outside the existing service area is a common requirement of the private developer. Installation of public utilities within housing subdivisions is normally financed entirely by the developer. The City may participate by paying the cost of over-sizing the water main for possible extension at a later time.

Although funding has been curtailed in several programs within the last few years, projects are still receiving financing statewide. Competition for available funds, however, has increased significantly. Projects which show the greatest need and have the largest local funding participation or benefit to low-income families are receiving the majority of financing from these programs. Careful planning and packaging of the project is necessary so that the most effective dollar use, including local participation, may obtain the maximum benefit for the greatest number of people.

Table 9-3 provides a summary of funding sources and projects which are eligible under each program.

TABLE 9-3 FUNDING SOURCE SUMMARY

FUNDING SOURCE	ELIGIBLE PROJECTS
Domestic Water Enterprise Fund	All water system projects
General Obligation Bond	All water system projects
Revenue Bond	All water system projects
Special Assessment Bond	Local Improvement District projects
Public Works Trust Fund	Replacement of existing water system facilities
Drinking Water State Revolving Fund (DWSRF)	All water system projects, except for the sole purpose of fire flow or growth
Community Economic Revitalization Board (CERB)	All water system projects demonstrating job creation or private investment
USDA RUS Rural Water Grant	All water system projects
USDA RUS Rural Water Loan	All water system projects
EDA Public Works Grant	Water system projects to attract new industries and provide for business expansion
EDA Public Works Loan	Water system projects to attract new industries and provide for business expansion
HUD Community Development Block Grant	Water system projects which directly benefit low and moderate-income families
Private Development	All water system projects necessary for new housing and / or commercial developments

9.3 RECOMMENDED FINANCING STRATEGY

Provided in Table 9-4 is a financial program for the City's Water Operating Fund, which incorporates projected water service fees, operating costs, improvements, and loan costs for the next ten-year period. The values for year 2021 are budgeted figures used by the City.

The projected Water Department revenue from water service fees after 2022 includes additional revenue from a combination of projected increases in the number of services and rate increases at the beginning of the year. These projected revenue increases are necessary to complete the recommended system improvements, while maintaining a positive balance in the water fund. If conditions change that reduce the projected future revenue or increase future water department expenses, the financial program shown in Table 9-4 should be revised to account for the reduced revenue, or modifications to successive year rate increases will have to be made.

Project financing methods presented are subject to change based on availability of funding programs, criteria of those programs, and funding limits. Financing strategies for each project will be sought at least one year prior to the project implementation year listed in the capital improvement program. Should financing options become unavailable, the City will consider raising rates or postponing projects to future years.

The City doesn't use a dedicated reserve fund, but instead draws from its water system fund balance to finance minor expenses and O&M improvements. Since 2015, the City has maintained a fund balance of at least $3 million, and at least $6 million since 2019. As shown in Table 9-4, the water system fund balance is projected to be around $6 million for the next 10 years, and trend upward beyond 2032. The table conservatively projects revenue increases due to population grow

Future Water Department expenses were estimated based upon an average inflation rate of 2% per year, as seen in Table 9-4.

The City has already been awarded a $3.5 million loan from DWSRF to fund source well improvements in 2023. Funding for major capital improvements scheduled to be completed after 2023 has not been obtained and will be required to complete those recommended system improvements. Further evaluation and research of available funding sources may be necessary in the future to ensure a funding package will be established to meet the requirements of the proposed financial plan. If loan and/or grant funding is not available for major capital improvements, project construction will most likely need to be delayed until funds become available or sufficient local funds are saved. For this reason, it is critical that the City actively seek and apply for available grants and low interest loans whenever possible. Funding for most O&M improvements is based upon using City funds unless otherwise noted.

The City of Grandview will continue annual reviews of the water system's financial program during their budget preparation process. The financial program will also be reviewed and revised as needed during the *Water System Plan* update in 2022. This continued review will allow for modifications to the proposed rate and revenue increases, should financial conditions change.

TABLE 9-4 WATER SYSTEM CASH FLOW ANALYSIS

Year Ending	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Beginning Fund Balance	**$ 6,983,523**	**$ 11,111,746**	**$ 14,289,346**	**$ 6,207,885**	**$ 6,520,432**	**$ 6,029,087**	**$ 6,886,212**	**$ 6,027,328**	**$ 8,014,308**	**$ 6,004,055**	**$ 5,891,532**
Revenue											
Water Service Fees	$ 1,941,524	$ 1,980,355	$ 2,019,962	$ 2,100,760	$ 2,184,791	$ 2,272,182	$ 2,363,069	$ 2,457,592	$ 2,555,896	$ 2,658,132	$ 2,764,457
Connection Fees	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000
Interest Earnings	$ 69,835	$ 111,117	$ 142,893	$ 62,079	$ 65,204	$ 60,291	$ 68,862	$ 60,273	$ 80,143	$ 60,041	$ 58,915
Rents and Leases	$ 10,800	$ 10,800	$ 10,800	$ 10,800	$ 10,800	$ 10,800	$ 10,800	$ 10,800	$ 10,800	$ 10,800	$ 10,800
Other Water Revenue	$ 984	$ 1,004	$ 1,024	$ 1,045	$ 1,065	$ 1,087	$ 1,108	$ 1,131	$ 1,153	$ 1,176	$ 1,200
Loan / Bond Proceeds	$ 3,578,329	$ 7,602,000		$ 531,000		$ 955,000		$ 2,103,000			
Utility Tax	$ 469,849	$ 479,246	$ 488,831	$ 508,384	$ 528,719	$ 549,868	$ 571,863	$ 594,737	$ 618,527	$ 643,268	$ 668,999
TOTAL - REVENUE	$ 6,106,321	$ 10,219,522	$ 2,698,510	$ 3,249,067	$ 2,825,580	$ 3,884,228	$ 3,050,703	$ 5,262,533	$ 3,301,519	$ 3,408,417	$ 3,539,371
Expenditures											
Salaries and Wages	$ 369,948	$ 381,047	$ 392,478	$ 404,252	$ 416,380	$ 428,871	$ 441,737	$ 454,990	$ 468,639	$ 482,698	$ 497,179
Benefits	$ 173,130	$ 178,323	$ 183,673	$ 189,183	$ 194,859	$ 200,705	$ 206,726	$ 212,928	$ 219,315	$ 225,895	$ 232,672
Supplies	$ 117,662	$ 121,192	$ 124,828	$ 128,572	$ 132,430	$ 136,403	$ 140,495	$ 144,709	$ 149,051	$ 153,522	$ 158,128
Other Services and Charges	$ 627,352	$ 646,173	$ 665,558	$ 685,525	$ 706,091	$ 727,273	$ 749,092	$ 771,564	$ 794,711	$ 818,553	$ 843,109
Utility Tax	$ 469,849	$ 479,246	$ 488,831	$ 508,384	$ 528,719	$ 549,868	$ 571,863	$ 594,737	$ 618,527	$ 643,268	$ 668,999
Operating Transfers Out	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal – Water Operations	$ 1,757,941	$ 1,805,981	$ 1,855,368	$ 1,915,917	$ 1,978,478	$ 2,043,120	$ 2,109,912	$ 2,178,928	$ 2,250,244	$ 2,323,936	$ 2,400,087
Capital Outlays											
Major Capital Improvements	$ -	$ 3,578,329	$ 7,602,000	$ -	$ 531,000	$ -	$ 955,000	$ -	$ 2,103,000	$ -	$ -
Misc. Capital Improvements	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
O & M Improvements	$ -	$ 1,198,000	$ 531,000	$ 239,000	$ -	$ 187,000	$ 13,000	$ 276,000	$ 7,000	$ 257,000	$ 208,000
Subtotal – Capital Outlays	$ -	$ 4,776,329	$ 8,133,000	$ 239,000	$ 531,000	$ 187,000	$ 968,000	$ 276,000	$ 2,110,000	$ 257,000	$ 208,000
Debt Service											
99 Well Rehabilitation											
03 SRF Loan	$ 142,820	$ 141,420									
New Yakima County SIED Loan											
New USDA Loan	$ 21,605	$ 21,605	$ 21,605	$ 21,605	$ 21,605	$ 21,605	$ 21,605	$ 21,605	$ 21,605	$ 21,605	$ 21,605
OIE DWSRF Loan	$ 55,732	$ 55,050	$ 54,367	$ 53,685	$ 53,002	$ 52,320	$ 51,637	$ 50,955	$ 50,273	$ 50,955	$ 50,273
Future Debt Services		$ 241,537	$ 715,631	$ 706,314	$ 732,839	$ 723,057	$ 758,433	$ 748,065	$ 879,651	$ 867,443	$ 855,236
Subtotal – Loans	$ 220,157	$ 459,612	$ 791,603	$ 781,604	$ 807,446	$ 796,982	$ 831,675	$ 820,625	$ 951,528	$ 940,003	$ 927,113
Transfers to Bond Redemption	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal – Debt Service	$ 220,157	$ 459,612	$ 791,603	$ 781,604	$ 807,446	$ 796,982	$ 831,675	$ 820,625	$ 951,528	$ 940,003	$ 927,113
TOTAL – EXPENDITURES	$ 1,978,098	$ 7,041,922	$ 10,779,971	$ 2,936,521	$ 3,316,925	$ 3,027,102	$ 3,909,587	$ 3,275,554	$ 5,311,772	$ 3,520,939	$ 3,535,200
Ending Fund Balance	**$ 11,111,746**	**$ 14,289,346**	**$ 6,207,885**	**$ 6,520,432**	**$ 6,029,087**	**$ 6,886,212**	**$ 6,027,328**	**$ 8,014,308**	**$ 6,004,055**	**$ 5,891,532**	**$ 5,895,703**
Net Increase (Decrease)	$ 4,128,223	$ 3,177,600	$ (8,081,461)	$ 312,547	$ (491,345)	$ 857,126	$ (858,885)	$ 1,986,980	$ (2,010,253)	$ (112,523)	$ 4,171
Population Revenue Increase	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Rate Increase	**0.0**	**0.0**	**0.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**

Notes:
1. O&M costs are assumed to increase at 3 percent per year.

Over the eleven-year period from 2022 to 2023, the City anticipates a 3.3% increase of expenditures year over year, but expects a total revenue and rate increase of 4% beginning in 2025. Since population is expected to grow 3 – 4% per year from 2023 to 2032, yearly revenue could be greater than the conservative 2% increase shown in Table 9-4. Fund balances decrease five of eleven years, but only as a result of significant capital improvements. Despite anticipating over $17 million in capital and O&M improvements, the City's ending fund balance in 2032 is expected to be only 15% lower than the beginning fund balance in 2022, and trends upward beyond 2032.

City Council has an annual goal to maintain 10% in reserve funds above the annual budgeted amount. Currently, the City has nearly 100% in reserves above the budgeted amount. At the end of 2032, the City is expected to have reserves well over its 10% annual goal.

9.4 WATER RATES

Grandview's current water rates and rate structure were adopted in 2017, Ordinance No. 2017-12, with a domestic water rate increase of 1% over the previous year. A summary of the current water service rates for the City is provided below. All consumption beyond the consumption threshold is charged at the overage rate shown. The complete list of the City's current water rates is provided in Ordinance No. 2017-12, a copy of which is provided in CHAPTER 10.

a) Within City Limits:

Meter Size	Rate
5/8 to 3/4 inch	$23.77
1 inch	$27.73
1 1/4 inch	$32.55
1 1/2 inch	$36.53
2 inch	$54.14
3 inch	$71.50
4 inch	$91.92
6 inch	$176.18
8 inch	$354.90

b) Consumption charges:

Consumption in Gallons	Rate
1,000 to 3,000	$0.36
3,001 to 15,000	$2.19
15,001 to 30,000	$1.76
30,000 and above	$1.52

c) Outside City Limits:

Rates shall be 150 percent of the applicable rate within the city limits, including standby or fire protection service charges.

Based on the above rates, the typical monthly charge for a Single-Family residential customer (1" meter) within the corporate limits, consuming 8,000 gallons of water in a month would be equal to $29.92. This monthly service charge is very reasonable, compared with neighboring cities of a similar size and amount of water use.

The City's current rates and/or total revenue will need to be increased in future years to maintain a positive operating fund balance, pay for rising O & M costs, fund necessary improvement projects, and make the necessary debt service payments for prior and future improvement projects. The annual rate increases will have a minor impact on customers, but will be necessary for operations, maintenance, and system improvements.

A more detailed rate analysis will be necessary in the future to determine the rate structure required to achieve the recommended revenue increases as shown in the financial program. Following the proposed rate analysis, annual review of the proposed rates and revenue increases will be necessary to determine required adjustments to either base rates, usage charges, or both.

With the City's current rate structure, customers pay more with increased water usage. Further conservation may be possible by changing to an inclining block rate or similar structure. This type of conservation rate structure would penalize customers that use excessive amounts of water, encouraging more efficient use of water. Further evaluation of the City's water rate structure will be considered in the future.

9.5 CUSTOMER ASSISTANCE

The City addresses utility rates for low-income seniors and low-income disabled persons in Municipal Code 13.30. If criterial is met for being a senior, disabled, or low-income person, they are entitled to a 20% rate reduction on applicable utilities. An application for reduced utility rates is obtained from the city clerk, and reduced rates become effective on the following billing cycle. Each application is effective for twelve (12) months, whereby the applicant shall be responsible to re-submit the application after the period is over.

The City also has provisions for customers negatively affected by Covid-19. Utility shutoffs due to non-payment have temporarily been suspended, and late fees for utility bills have been waived. Additionally, payment plans have been established. The City can work with its customers to distribute payments over a longer period. To be eligible for Covid-19 financial assistance, the customer must complete an application available at City Hall which outlines the financial need and establishes a payment plan.

CHAPTER 10 -

MISCELLANEOUS DOCUMENTS

HLA
Engineering and Land Surveying, Inc.

10.1 MISCELLANEOUS DOCUMENTS INDEX

1. State Environmental Policy Act (SEPA) Documentation
2. 2021 Water Facility Inventory
3. Water System Plan Comments and Responses
4. Consumer Meeting & Water System Plan Adoption
5. Water Use Efficiency Program and Goal Adoption Process Documentation
6. Local Government Consistency Review Checklist(s)
7. City of Grandview Fire Department Letter
8. City of Grandview Municipal Code, Ordinances, and Resolutions
   a. Chapter 13.04 General Provisions
   b. Chapter 13.18 Cross Connection Control
   c. Chapter 13.24 Water Service Regulations
   d. Chapter 13.28 Rates and Charges
   e. Chapter 13.30 Low-Income Senior Citizens and Low-Income Disabled Persons Utility Rates
   f. Chapter 13.36 Water Use
   g. Chapter 13.40 Capital Facilities Plan for Public Works Facilities
   h. Chapter 13.44 Recommended Standards for Water Works
9. Extension by Developers Policy
10. Property Deeds
11. Declaration of Covenants
    a. S01 – West Main
    b. S03 – Velma
    c. S07 & S16 – Olmstead A & B
    d. S08 – Appleway
    e. S12 – Pecan A
    f. S17 – Ashael Curtis
12. Well Logs
    a. S01 – West Main
    b. S02 – Balcom & Moe
    c. S03 – Velma
    d. S06 – Euclid
    e. S07 – Olmstead A
    f. S08 – Appleway
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    h. S11 – Highland
    i. S12 – Pecan A
    j. S13 – South Willoughby
    k. S14 – Butternut
    l. S16 – Olmstead B
    m. S17 – Ashael Curtis
    n. S18 – Pecan B
13. Water Right Status Summary Memorandum – 10/24/2011
14. Water Right Documents
15. Same Body of Public Groundwater and Impairment Analyses Memorandum – 08/25/2009

16. Susceptibility Assessment Forms
    a. S01 – West Main
    b. S02 – Balcom & Moe
    c. S03 – Velma
    d. S07 – Olmstead A
    e. S08 – Appleway
    f. S10 – North Willoughby
    g. S11 – Highland
    h. S12 – Pecan A
    i. S13 – South Willoughby
    j. S14 – Butternut
    k. S16 – Olmstead B
    l. S17 – Ashael Curtis
    m. S18 – Pecan B
17. Wellhead Protection Plan and Notification Letters
18. 2015 Coliform Monitoring Plan
19. Water Quality (Consumer Confidence) Report
20. Disinfection Byproducts Monitoring Plan
21. Water Quality Monitoring Schedule
22. Source Sample Chemical Analysis Results (IOC, Nitrate, VOC, SOC, and Radionuclide)
23. Distribution System Chemical Analysis Results (Bacteriological, Lead, Copper, and Disinfection Byproducts)
24. Computer Printout of Hydraulic Analysis Results
25. Telemetry Control System Screen Printouts
26. City of Grandview Design and Construction Standards and Specifications for Public Works Improvements
27. Citizen Contact Record Form
28. Grandview Fire Department Hydrant Flow Test
29. Sanitary Survey
    a. Sanitary Survey Report
    b. Sanitary Survey Short Summary
    c. Sanitary Survey Compliance Report
30. Nitrate Treatment Alternatives Report

Map A - Existing Water System
Map B - Hydraulic Analysis Nodes and Pipes

CITY OF GRANDVIEW

1.
STATE ENVIRONMENTAL POLICY ACT (SEPA) DOCUMENTATION

HLA
Engineering and Land Surveying, Inc.

CITY OF GRANDVIEW
Yakima County, Washington

CITY OF GRANDVIEW

WATER SYSTEM PLAN UPDATE

STATE ENVIRONMENTAL POLICY ACT

ENVIRONMENTAL CHECKLIST

Prepared by

HLA Engineering and Land Surveying, Inc.
2803 River Road
Yakima, WA 98902
509.966.7000
Fax 509.965.3800
www.hlacivil.com

HLA Project No. 21033E
December 2021

STATE ENVIRONMENTAL POLICY ACT

ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. *Name of Proposal, if Applicable:* Wastewater Treatment Plant Improvements

2. *Name of Proponent:* City of Grandview
   Phone Number: (509) 882-9213
   Address of Proponent: 207 W. 2nd Street
   P.O. Box 95
   Grandview, WA 98930

3. *Person Completing Form:* Jakob W. Michael, EIT
   Phone Number: (509) 966-7000
   Address: HLA Engineering and Land Surveying, Inc.
   2803 River Road
   Yakima, WA 98902

4. *Date Checklist Prepared:* December 2021

5. *Agency Requesting Checklist:* City of Grandview

6. *Proposed timing or schedule (including phasing, if applicable):*
   Water System Plan Update adoption in November 2022

7. *Do you have any plans for future additions, expansions, or further activity related to or connected with this proposal? If yes, explain.*
   Yes. This water system plan (PLAN) identifies the on-going maintenance activities as well as replacement and growth-related improvements of the City's municipal water system.

8. *List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.*
   None.

9. *Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.*
   None at this time.

10. *List any governmental approvals or permits that will be needed for your proposal, if known.*
    a) Department of Health – Approval of all water system related projects.
    b) Department of Ecology – Issuance and administration of water rights.
    c) City of Grandview - approval of PLAN submission to DOH.

11. *Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.*

Adoption of the Water System Plan for the City of Grandview Urban Growth Area. The plan identifies the following recommended maintenance- and growth-related improvements to the City's water system. Construction, with potential construction-related impacts, will be necessary to implement the WSP recommendations. Further environmental review is required for all non-exempt construction activities, and project specific checklist responses will be provided at that time

12. *Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit application related to this checklist.*

    The proposed water system improvements are located throughout the incorporated and unincorporated areas within the City of Grandview Growth Area boundary, and are shown on Map B of the Water System Plan.

B. ENVIRONMENTAL ELEMENTS

1. EARTH

a. *General description of the site (underline one): Flat, rolling, hilly, steep slopes, mountainous, other*.

b. *What is the steepest slope on the site (approximate percent slope)?*

    Less than 2% slope.

c. *What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.*

    One soil type is found within the City boundary: Warden silt loam.

    Warden silt loam is a very deep, well drained soil, typically found in terraces. Permeability of this soil is moderate. Runoff from this soil is rapid, and the water erosion hazard is high. The effective rooting depth is 60 inches or more. This soil is typically used for irrigated field and orchard crops, rangeland, wildlife habitat, and home sites.

d. *Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.*

    No.

e. *Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.*

    None proposed.

f. *Could erosion occur as a result of clearing, construction, or use? If so, generally describe.*

    Erosion is not expected to occur because of clearing or construction.

g. *About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or building)?*

    No additional impervious surfaces.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:
None.

2. AIR

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.
None.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.
No.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:
None.

3. WATER

a. Surface Water:

1. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.
Yes; the Sunnyside Valley Irrigation District seasonal irrigation canal is located 700' east of Elm Street. The Yakima River is within 600 feet of the wastewater treatment plant (WWTP)

2. Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.
No.

3. Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.
None.

4. Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.
No.

5. Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.
No.

6. Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.
No.

b. Ground Water:

1. Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

Approximately 404 acre-feet of ground water is presently being withdrawn for water supply of the Grandview water system. The City has rights for 4,640 acre-feet per year.

2. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage, industrial, containing the following chemicals...; agricultural, etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

None.

c. Water Runoff (including storm water):

1. Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will the water flow? Will this water flow into other waters? If so, describe.

Not applicable.

2. Could waste materials enter ground or surface waters? If so, generally describe.

No.

3. Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

Not applicable.

4. PLANTS

a. Check or underline type of vegetation found on the site:

- X deciduous tree: alder, maple, aspen, other
- X evergreen tree: fir, cedar, pine, other
- X shrubs
- X grass
- X pasture
- ____ crop or grain
- ____ Orchards, vineyards or other permanent crops
- ____ wet soil plants; cattail, buttercup, bullrush, skunk cabbage, other
- ____ water plants: water lily, eelgrass, milfoil, other
- X other types of vegetation - weeds

b. What kind and amount of vegetation will be removed or altered?

None.

c. List threatened or endangered species known to be on or near the site.

None are known to exist

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

None planned.

e. List all noxious weeds and invasive species known to be on or near the site.

Not applicable.

5. ANIMALS

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

Bird: hawk, heron, eagle, songbird, other
Mammals: deer, bear, elk, beaver, other
Fish: bass, salmon, trout, herring, shellfish, other

b. List any threatened or endangered species known to be on or near the site.

There are no listed endangered or threatened animals that reside within the UGA Limits.

c. Is this site part of a migration route? If so, explain.

The City of Grandview may be within a migratory route for some bird species.

d. Proposed measures to preserve or enhance wildlife, if any:

The proposed project will improve water quality, so fish species will benefit.

e. List any invasive animal species known to be on or near the site.

None.

6. ENERGY AND NATURAL RESOURCES

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electric will be used and solar may be considered.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

VFDs will be used, and solar panels may be considered.

7. ENVIRONMENTAL HEALTH

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

No additional hazards will occur because of the proposal.

1. *Describe any known or possible contamination at the site from present or past uses.*
   None known.

2. *Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmissions pipelines located within the project area and in the vicinity.*
   None.

3. *Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.*
   None.

4. *Describe special emergency services that might be required.*
   No special emergency services will be required.

5. *Proposed measures to reduce or control environmental health hazards, if any:*
   None.

b. Noise

1. *What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?*
   None.

2. *What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.*
   None.

3. *Proposed measures to reduce or control noise impacts, if any:*
   None.

8. LAND AND SHORELINE USE

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.
The City of Grandview Urban Growth Area is a combination of residential, commercial, industrial, and public uses.

b. Has the project site been used as working farmlands or working forest land? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?
Historically, land within the City of Grandview Urban Growth Area has been used for agriculture. However, some of the land area has been converted to non-agricultural urban uses.

1. *Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:*
   No effect.

c. *Describe any structures on the site.*
   Not applicable.

d. *Will any structures be demolished? If so, what?*
   Not applicable – none anticipated.

e. *What is the current zoning classification of the site?*
   The incorporated and unincorporated City of Grandview Urban Growth Area consists of a wide range of zoning classifications including agricultural, residential, commercial, industrial, and public.

f. *What is the current comprehensive plan designation of the site?*
   Not applicable.

g. *If applicable, what is the current shoreline master program designation of the site?*
   Not applicable.

h. *Has any part of the site been classified as a critical area by the city or county? If so, specify.*
   No.

i. *Approximately how many people would reside or work in the completed project?*
   Projects are planned to be constructed within City and UGA boundaries.

j. *Approximately how many people would the completed project displace?*
   None.

k. *Proposed measures to avoid or reduce displacement impacts, if any:*
   Not applicable.

l. *Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:*
   None.

m. *Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:*
   Not applicable.

9. HOUSING

a. *Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.*
   None.

b. *Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.*
   None.

c. *Proposed measures to reduce or control housing impacts, if any:*

Not applicable.

10. AESTHETICS

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Not applicable.

b. What views in the immediate vicinity would be altered or obstructed?

None.

c. Proposed measures to reduce or control aesthetic impacts, if any:

Not applicable.

11. LIGHT AND GLARE

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Not applicable.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

None.

12. RECREATION

a. What designated and informal recreational opportunities are in the immediate vicinity?

The City of Grandview contains numerous municipal parks and school playgrounds.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

None.

13. HISTORIC AND CULTURAL PRESERVATION

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

No.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Is there any material evidence, artifacts,

or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

None.

c. *Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.*

None.

d. *Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.*

None anticipated.

14. TRANSPORTATION

a. *Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.*

The City of Grandview Urban Growth Area contains numerous City of Grandview, Yakima County, and Washington Department of Transportation streets and highways. Public streets are shown on Map A and Map B of this Comprehensive Water Plan.

b. *Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?*

No public transit service is provided within the City of Grandview.

c. *How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?*

None.

d. *Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).*

No.

e. *Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.*

The Burlington Northern-Santa Fe Stampede Pass main line traverses the City of Grandview City Limits.

f. *How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?*

No change to vehicular traffic.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No effect.

h. *Proposed measures to reduce or control transportation impacts, if any:*

None.

15. PUBLIC SERVICES

a. *Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other?) If so, generally describe.*

No.

b. *Proposed measures to reduce or control direct impacts on public services, if any.*

None.

16. UTILITIES

a. *Underline the utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, irrigation, cable TV, drains, other.*

b. *Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.*

None.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

12/29/21

Jakob W. Michael, EIT — Date
Project Engineer
HLA Engineering and Land Surveying, Inc.

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

1. *How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?*

Not likely.

Proposed measures to avoid or reduce such increases are:

Taking precautions as recommended in standard literature by DOE.

2. *How would the proposal be likely to affect plants, animals, fish, or marine life?*

Proposal may result in better water quality discharge to surface waters.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:
Generally improving surface water quality.

3. *How would the proposal be likely to deplete energy or natural resources?*
Not likely.

Proposed measures to protect or conserve energy and natural resources are:
Use energy-efficient equipment and resources.

4. *How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?*
Not likely.

Proposed measures to protect such resources or to avoid or reduce impacts are:
Best practices will be used in for work described in this proposal. No surrounding endangered species within proposal area.

5. *How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?*
Not applicable – no shorelines within project areas.

Proposed measures to avoid or reduce shoreline and land use impacts are:
N/A.

6. *How would the proposal be likely to increase demands on transportation or public services and utilities?*
No transportation demand increases. Demand on existing public utilities would be reduced by proposed projects.

Proposed measures to reduce or respond to such demand(s) are:
Capital improvements, maintaining and upgrading infrastructure, and improving system integrity reduces demand on public utilities.

7. *Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.*
Not applicable – proposal will not conflict with existing laws.

DETERMINATION OF NONSIGNIFICANCE (DNS)

Description of Proposal:
City of Grandview Water System Plan Update 2022

Proponent:
City of Grandview

Location of proposal, including street address, if any:
City of Grandview
207 W. 2nd Street
Grandview, WA 98930

Lead Agency:
City of Grandview

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

__ *There is no comment period for this DNS.*

X *This DNS is issued under 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date below. Comments must be submitted by*

_____.

Responsible Official: Cus Arteaga

Position/title: City Administrator/ Public Works Director

Address: City of Grandview
207 W. 2nd Street
Grandview, WA 98930

Phone: (509) 882-9213

Date: 9-23-22

Signature: _____

CITY OF GRANDVIEW

2.
2021 WATER FACILITY INVENTORY

HLA
Engineering and Land Surveying, Inc.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

Quarter: 1
Updated: 02/24/2020
Printed: 12/17/2021
WFI Printed For: On-Demand
Submission Reason: Contact Update

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
28970 J	GRANDVIEW CITY OF	YAKIMA	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS	7. OWNER NAME & MAILING ADDRESS
CASTULO T. ARTEAGA [PW DIRECTOR] CITY OF GRANDVIEW 207 W 2ND ST GRANDVIEW, WA 98930	GRANDVIEW, CITY OF CASTULO T. ARTEAGA 207 W SECOND ST GRANDVIEW, WA 98930 PW DIRECTOR
STREET ADDRESS IF DIFFERENT FROM ABOVE	**STREET ADDRESS IF DIFFERENT FROM ABOVE**
ATTN ADDRESS CITY STATE ZIP	ATTN ADDRESS CITY STATE ZIP

9. 24 HOUR PRIMARY CONTACT INFORMATION		10. OWNER CONTACT INFORMATION	
Primary Contact Daytime Phone: (509) 882-9213		Owner Daytime Phone: (509) 882-9213	
Primary Contact Mobile/Cell Phone: (509) 830-9213		Owner Mobile/Cell Phone:	
Primary Contact Evening Phone: (xxx)-xxx-xxxx		Owner Evening Phone: (xxx)-xxx-xxxx	
Fax:	E-mail: xxxxxxxxxxxxxxxxxxx	Fax: (509) 882-9232	E-mail: xxxxxxxxxxxxxxxxxxx

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

- [x] Not applicable (Skip to #12)
- [ ] Owned and Managed
- [ ] Managed Only
- [ ] Owned Only

SMA NAME: _____ SMA Number:

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

- [x] Agricultural
- [x] Commercial / Business
- [x] Day Care
- [x] Food Service/Food Permit
- [x] 1,000 or more person event for 2 or more days per year
- [x] Hospital/Clinic
- [x] Industrial
- [x] Licensed Residential Facility
- [x] Lodging
- [x] Recreational / RV Park
- [x] Residential
- [x] School
- [ ] Temporary Farm Worker
- [x] Other (church, fire station, etc.): _____

13. WATER SYSTEM OWNERSHIP (mark only one)

- [ ] Association
- [x] City / Town
- [ ] County
- [ ] Federal
- [ ] Investor
- [ ] Private
- [ ] Special District
- [ ] State

14. STORAGE CAPACITY (gallons)

3,500,000

- SEE NEXT PAGE FOR A COMPLETE LIST OF SOURCES -

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
28970 J	GRANDVIEW CITY OF	YAKIMA	A	Comm

15	16	17	18 SOURCE CATEGORY									19 USE			20	21 TREATMENT						22	23	24 SOURCE LOCATION			
Source Number	LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN INTERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	W. Main Well		X									X			Y		X					180	135	NE NW	23	09N	23E
S02	Balcom Well		X									X			Y		X					1150	268	SW NE	23	09N	23E
S03	Velma Well		X									X			Y		X					1650	102	NE SE	22	09N	23E
S06	Euclid Well		X											X	Y	X						248	30	NE NE	22	09N	23E
S07	Olmstead (A) Well		X											X	Y		X				X	112	165	SW SW	12	09N	23E
S08	InAct 06/22/2005 Appleway Well		X									X			Y		X					342	0	NW SW	22	09N	23E
S09	InAct 11/01/1993 (Abandoned Well)		X									X				X						157	0	SE NE	03	08N	23E
S10	North Willoughby Well		X									X			Y		X				X	620	315	NE SW	13	09N	23E
S11	Highland Well		X									X			Y		X					250	42	NW SW	24	09N	23E
S12	InAct 06/29/2006 Pecan Well		X									X			Y		X					320	0	SW SW	22	09N	23E
S13	South Willoughby Well		X									X			Y		X				X	954	1,000	NE SE	13	09N	23E
S14	Butternut Well		X									X			Y		X					1294	1,275	NE SW	22	09N	23E
S15	InAct 01/01/1999 (River)		X									X				X						140	30	NE NE	03	08N	23E
S16	Olmstead (B) Well		X									X			Y		X				X	349	20	SW SW	12	09N	23E
S17	Ashael Curtis Well - AAS242		X									X			Y		X					489	92	NE SE	21	09N	23E
S18	Pecan Well - AAS161		X									X			Y		X					339	70	SW SW	22	09N	23E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
28970 J	GRANDVIEW CITY OF	YAKIMA	A	Comm

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)		3306	Unspecified
A. Full Time Single Family Residences (Occupied 180 days or more per year)	~~2722~~	2758	
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	~~27~~	60	
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	~~584~~	474	
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	~~28~~ 349	~~28~~ 349	
28. TOTAL SERVICE CONNECTIONS		~~3334~~ 3,581	

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 11010

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?												
B. How many days per month is water accessible to the public?												

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students, daycare children and/or employees are present each month that are NOT alrealy included in the residential population?												
B. How many days per month are they present?												

33. ROUTINE COLIFORM SCHEDULE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	10	10	10	10	10	10	10	10	10	10	10	10

34. NITRATE SCHEDULE	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
(One Sample per source by time period)			

35. Reason for Submitting WFI:

☒ Update - Change ☐ Update - No Change ☐ Inactivate ☐ Re-Activate ☐ Name Change ☐ New System ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: Digitally signed by Justin Bellamy Date: 2021.12.29 13:22:41 -08'00' DATE: December 29, 2021

PRINT NAME: Justin L. Bellamy, PE TITLE: City Consulting Engineer

CITY OF GRANDVIEW

3.
WATER SYSTEM PLAN COMMENTS AND RESPONSES

HLA
Engineering and Land Surveying, Inc.

From:	DOH EPH DW ERO ADMIN
To:	mendozag@grandview.wa.us; carteaga@grandview.wa.us
Cc:	Justin Bellamy; kait.wolterstorff@co.yakima.wa.us; Kossik, Christopher (ECY); Cervantes, Andres (DOH); Clark, Jamie C (DOH); McLaughlin, Katrina M (DOH); Preuss, Sarita (DOH)
Subject:	Grandview, City of; PWS ID # 28970 PWS ID#; Yakima County; Water System Plan; Submittal #22-0107; DOH Comments
Date:	Tuesday, June 28, 2022 12:45:14 PM
Attachments:	image001.png image002.png DOH COMMENT RESPONSE FORM.doc E003014_GrandviewWSP.pdf

STATE OF WASHINGTON

DEPARTMENT OF HEALTH

EASTERN DRINKING WATER REGIONAL OPERATIONS

16201 E Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830

(509) 329-2100 • 711 Washington Relay Service

June 28, 2022

Dear Gloria Mendoza, Mayor:

Subject: Grandview, City of; PWS ID # 28970 PWS ID#; Yakima County
Water System Plan; Submittal #22-0107; DOH Comments

Thank you for providing the draft Water System Plan (WSP) for the City of Grandview received in this office on January 5, 2022. The following comments will need to be addressed before the Department of Health (DOH) can approve the document:

Executive Summary/General Comments

1) Provide a signed and dated stamp from a Professional Engineer licensed in the State of Washington.

2) On page "i", at the bottom of the page, last sentence, edit the sentence to say that the plan requires regular updating, with approvals lasting up to 10 years.

Chapter 1

3) In section 1.4.1, provide a statement from the city that states under what conditions the city would consider consolidation of systems within the city's service area and/or neighboring water systems (or refer in this section to applicable policies in section 1.5).

4) Provide a signed Local Government Consistency Determination form from the Yakima County Planning Department.

Chapter 2

5) Provide one year's worth of monthly production data per source.

6) In section 2.3, clarify that DSL cannot be accurately determined based off a three-year average and remove the three-year average line. Provide an estimated DSL (if enough meter repairs have occurred to allow such) or utilize estimates per the WSDM. If meter repairs are not complete yet, provide a status update and estimated timeline to completion.

7) In section 2.6.1, Table 2-17, if possible, please provide years 2022-2032 broken out yearly.

Chapter 3

8) The provided Asset Management Tables do not include assets other than sources, reservoirs, and telemetry. We recommend Asset Management tables include all water system assets, including distribution lines, meters, valves, treatment, etc. While distribution line size information was provided, it does not include breakdown of material or condition assessments. If possible, please add these elements to the tables provided.

9) Section 3.2, general comment, multiple tables in this section include data that is more than 10 years old and possibly carried over from the previous WSP. Please review this section and update the information to be consistent with the sample results in Appendix 22. The most current full samples should be listed in the tables. The Water Quality Monitoring Sheet will note the waiver requirements per source, sample, and last date sampled.

10) Pages 3-53 through 3-55, revisit the calculations and equations used to determine the total number of approved connections available for the nested storage (FSS in the plan) approved by the local fire authority. In addition, using the multiple source method for calculating stand-by storage (SB), is based on the capability of the remaining sources minus the largest source off-line to meet the SB volume required for the city. Keep in mind, DOH recommends the minimum value for SB per ERU is 200-gpd.

Chapter 4

11) Provide public notice, signed meeting minutes, and signed resolution adopting WUE goal(s).

Chapter 5

12) Thank you for providing copies of property deeds and covenants in Appendix 10 and 11, respectively. To aid in visualizing the coverage provided to the sanitary control areas for each source, please provide a table in Chapter 5 that lists what type of document covers each source and if it covers the full 100 foot radius. Please also provide a quick description of any physical

protections for each source, such as fencing, location within a locked well house, signage, etc.

13) In section 5.3, explain in the text when the last notification letters were sent, who they were sent to, and how often they are sent out.

Chapter 6

14) Provide a copy of the nitrate blending program for the blending pairs of S07, S16, and S10, S13. These plans should identify the initial steps the city must follow when a nitrate result for these pairs exceeds the nitrate MCL or the emergency source (S13) is brought back on-line, including the Public Notice and triggered monitoring requirements. Typical monitoring includes hand-held daily nitrate samples from the post-treatment sample taps, monthly laboratory post-treatment samples, and annual samples from the raw water sample tap.

15) Provide map(s) that include sampling locations for coliform and lead and copper.

16) Include a section in this chapter that discusses sanitary surveys. Provide a copy of the last sanitary survey letter and include in the text a discussion of any significant deficiencies or significant findings during the last survey.

Chapter 8

17) Provide a brief discussion of how improvements were prioritized.

Chapter 9

18) After multiple years of high net increases, 2020 and 2021 decreased or increased minimally. Additionally, the provided budget shows net decreases in seven out of eleven years provided and a substantial drop in ending fund balance over the next 10 years. Please provide a serious discussion on how the city intends to address this issue over the next 10 years to ensure adequate funds beyond the 10 year mark; or, provide an updated budget, factoring in rate increases and/or spending decreases to stabilize the budget provided.

19) Considering the increasing rarity of grants and competitive and costly loan processes, please provide a discussion on how the city intends to address financial viability in the next 10 years, including full cost of service, cost recovery, and reserves.
    - Additionally, the provided budget information does not show any dedicated reserve funds and the text does not state any annual reserve goals. Please provide discussion.

20) Provide information on the city's customer assistance program. How does the city assist customers that are unable to pay their bill or need to pay down a balance?

Other

21) Provide a signed copy of the Determination of Non-significance in Appendix 1.

22) The water system must meet the consumer input process outlined in WAC 246-290-100(8). Please include documentation of a consumer meeting discussing the Water System Plan prior to its approval. Documentation must include public notice and signed meeting minutes.

23) When DOH is ready to approve the document, we will notify you. At that time, the governing body will need to officially approve the Water System Plan and send DOH documentation of plan approval by the governing body, such as a copy of the signed meeting minutes or a copy of the signed resolution. When the documentation is received, we will send a letter documenting DOH approval.

END OF COMMENTS

The department's review of your planning document does not confer or guarantee any right to a specific quantity of water. Our review is based on your representation of available water quantity. If the Washington Department of Ecology, a local planning agency, or other authority responsible for determining water rights and water system adequacy determines that you have use of less water than you represent, the number of approved connections may be reduced commensurate with the actual amount of water and your legal right to use it.

We hope that you have found these comments to be clear, constructive, and helpful in the development of your final planning document. We ask that you submit **two copies** of the revised WSP **on or before September 22, 2022,** one copy on paper and one copy in electronic format. To expedite the review of your revised submittal, please complete the enclosed DOH Comment Response Form summarizing how each of the above comments was addressed in the revised WSP and where each response is located (i.e., page numbers, Appendices, etc.).

Regulations establishing a schedule for fees for review of planning, engineering, and construction documents have been adopted (WAC 246-290-990). Please note that we have included an invoice for **$3,705.00** for the review of the Water System Plan. This fee covers our cost for review of the initial submittal, plus the review of one revised document. Please remit your complete payment in the form of a check or money order within thirty days of the date of this letter to: DOH, Revenue Section, P.O. Box 1099, Olympia, WA 98507-1099.

Thank you again for submitting your draft Water System Plan for our review. If you have any comments or questions concerning our review, please contact Andres R. Cervantes, PE, at (509) 329-2120 or by email at andres.cervantes@doh.wa.gov or Jamie Clark at (509) 329-2137 or by email at jamie.clark@doh.wa.gov .

Sincerely,

Andres Cervantes, PE
Office of Drinking Water, Regional Engineer

Jamie Clark

Office of Drinking Water, Regional Planner

Attachment(s)

cc: Yakima Health District
Yakima County Planning Department

Eastern Regional Operations Admin
Office of Drinking Water
Environmental Public Health
Washington State Department of Health
eroadmin@doh.wa.gov
509-329-2100 | www.doh.wa.gov
509-329-2104 (fax)

DOH Comment Response Form

DOH Comment No.	DOH Comment	Water System Response	Page Number of Response	Other Water System Comments
Executive Summary/General Comments				
1	Provide a signed and dated stamp from a Professional Engineer licensed in the State of Washington.	The final draft plan has been stamped, dated, and signed.	N/A	
2	On page "i", at the bottom of the page, last sentence, edit the sentence to say that the plan requires regular updating, with approvals lasting up to 10 years.	The last sentence on the last paragraph of page i has been revised as suggested.	ES-i	
Chapter 1				
3	In section 1.4.1, provide a statement from the city that states under what conditions the city would consider consolidation of systems within the city's service area and/or neighboring water systems (or refer in this section to applicable policies in section 1.5).	A statement referencing the service area policies in Section 1.5 has been added to Section 1.4.1. Due to current system capacity needs, the City is not planning to pursue consolidation of neighboring small water systems at this time. The City is willing to administratively assist these systems if a need arises, or supply water on an emergency basis if necessary.	1-8	
4	Provide a signed Local Government Consistency Determination form from the Yakima County Planning Department.	Signed Local Government Consistency Determination forms have been added to Chapter 10, Section 6.	Chapter 10, Section 6	
Chapter 2				
5	Provide one year's worth of monthly production data per source.	One year of monthly well production data has been added to Section 2.2.1	2-4	
6	In section 2.3, clarify that DSL cannot be accurately determined based off a three-year average and remove the three-year average line. Provide an estimated DSL (if enough meter repairs have occurred to allow such) or utilize estimates per the WSDM. If meter repairs are not complete yet, provide a status update and estimated timeline to completion.	Section 2.3 has been updated to clarify that DSL cannot be determined from the most recent 3-year average. Estimated DSL from the 2021 WUE report has been added to the plan.	2-14	
7	In section 2.6.1, Table 2-17, if possible, please provide years 2022-2032 broken out yearly.	Table 2-18 has been updated with years 2022-2023 broken out yearly.	2-19	
Chapter 3				
8	The provided Asset Management Tables do not include assets other than sources, reservoirs, and telemetry. We recommend Asset Management tables include all water system assets, including distribution lines, meters, valves, treatment, etc. While distribution line size information was provided, it does not include breakdown of material or condition assessments. If possible, please add these elements to the tables provided.	Distribution lines, meters, valves, and treatment have been added to Table 3-5.	3-15 to 3-16	
9	Section 3.2, general comment, multiple tables in this section include data that is more than 10 years old and possibly carried over from the previous WSP. Please review this section and update the information to be consistent with the sample results in Appendix 22. The most current full samples should be listed in the tables. The Water Quality Monitoring Sheet will note the waiver requirements per source, sample, and last date sampled.	The water quality data tables in Section 3.2 have been updated to represent current sample results.	3-18 to 3-38	

DOH Comment No.	DOH Comment	Water System Response	Page Number of Response	Other Water System Comments
10	Pages 3-53 through 3-55, revisit the calculations and equations used to determine the total number of approved connections available for the nested storage (FSS in the plan) approved by the local fire authority. In addition, using the multiple source method for calculating stand-by storage (SB), is based on the capability of the remaining sources minus the largest source off-line to meet the SB volume required for the city. Keep in mind, DOH recommends the minimum value for SB per ERU is 200-gpd.	Storage equations to calculate the SB storage volume were updated to correspond with Section 3.4.3. - 200 gallons per day per ERU for one day has been used throughout.	3-53 to 3-55	
Chapter 4				
11	Provide public notice, signed meeting minutes, and signed resolution adopting WUE goal(s).	A copy of the public notice, signed meeting minutes, and signed resolution adopting the WUE goal is provided in Chapter 10, Section 5	Chapter 10	
Chapter 5				
12	Thank you for providing copies of property deeds and covenants in Appendix 10 and 11, respectively. To aid in visualizing the coverage provided to the sanitary control areas for each source, please provide a table in Chapter 5 that lists what type of document covers each source and if it covers the full 100-foot radius. Please also provide a quick description of any physical protections for each source, such as fencing, location within a locked well house, signage, etc.	Table 5-1 has been added to Section 5.1 summarizing the sanitary control areas for each source.	5-1	
13	In section 5.3, explain in the text when the last notification letters were sent, who they were sent to, and how often they are sent out.	An explanation of the last wellhead protection notification letters has been added to Section 5.3	5-3	
Chapter 6				
14	Provide a copy of the nitrate blending program for the blending pairs of S07, S16, and S10, S13. These plans should identify the initial steps the city must follow when a nitrate result for these pairs exceeds the nitrate MCL or the emergency source (S13) is brought back on-line, including the Public Notice and triggered monitoring requirements. Typical monitoring includes hand-held daily nitrate samples from the post-treatment sample taps, monthly laboratory post-treatment samples, and annual samples from the raw water sample tap.	A copy of the City's Nitrate Treatment Alternatives Project Report, which includes a nitrate blending plan, has been added to Chapter 10, Section 30. The project report has been submitted to DOH separately for review and approval. The daily and monthly O&M task descriptions in Section 6.2 and nitrate monitoring requirements in Section 6.3.1 have been updated to match the project report.	6-5 and 6-7, Chapter 10, Section 30	
15	Provide map(s) that include sampling locations for coliform and lead and copper.	Figure 6-2 and Figure 6-3 have been added to Chapter 6 showing coliform and lead and copper sampling locations.	6-8 and 6-9	
16	Include a section in this chapter that discusses sanitary surveys. Provide a copy of the last sanitary survey letter and include in the text a discussion of any significant deficiencies or significant findings during the last survey.	A copy of the latest letter has been added to Chapter 10, Section 29, and a text discussion has been added to Section 6.3.	6-11 and Chapter 10, Section 29.	
Chapter 8				
17	Provide a brief discussion of how improvements were prioritized.	A brief discussion of how improvements have been prioritized has been added to Section 8.2 and 8.3.	8-1 and 8-14	

DOH Comment No.	DOH Comment	Water System Response	Page Number of Response	Other Water System Comments
Chapter 9				
18	After multiple years of high net increases, 2020 and 2021 decreased or increased minimally. Additionally, the provided budget shows net decreases in seven out of eleven years provided and a substantial drop in ending fund balance over the next 10 years. Please provide a serious discussion on how the city intends to address this issue over the next 10 years to ensure adequate funds beyond the 10-year mark; or, provide an updated budget, factoring in rate increases and/or spending decreases to stabilize the budget provided.	The City budget has been updated and stabilized, with minimal drop in ending fund balance over the next 10 years.	9-8	
DOH Comment No.	**DOH Comment**	**Water System Response**	**Page Number of Response**	**Other Water System Comments**
19	Considering the increasing rarity of grants and competitive and costly loan processes, please provide a discussion on how the city intends to address financial viability in the next 10 years, including full cost of service, cost recovery, and reserves. • Additionally, the provided budget information does not show any dedicated reserve funds and the text does not state any annual reserve goals. Please provide discussion.	Financial viability and project funding discussion has been added to Section 9.3. City reserve goal discussion has also been added to Section 9.3.	9-7, 9-9	
20	Provide information on the city's customer assistance program. How does the city assist customers that are unable to pay their bill or need to pay down a balance?	Section 9.5 has been added to describe the City's customer assistance program.	9-10	
Other				
21	Provide a signed copy of the Determination of Non-significance in Appendix 1.	A signed DNS has been added to Chapter 10, Section 1.	Chapter 10	
22	The water system must meet the consumer input process outlined in WAC 246-290-100(8). Please include documentation of a consumer meeting discussing the Water System Plan prior to its approval. Documentation must include public notice and signed meeting minutes.	A copy of the consumer input process documentation has been added to Chapter 10, Section 4.	Chapter 10	
23	When DOH is ready to approve the document, we will notify you. At that time, the governing body will need to officially approve the Water System Plan and send DOH documentation of plan approval by the governing body, such as a copy of the signed meeting minutes or a copy of the signed resolution. When the documentation is received, we will send a letter documenting DOH approval.	Noted.	N/A	

RESOLUTION NO. 2001-33

A RESOLUTION OF THE CITY OF GRANDVIEW, WASHINGTON, AUTHORIZING THE MAYOR TO SIGN AN INTERLOCAL AGREEMENT WITH THE CITY OF SUNNYSIDE AND CITY OF PROSSER AS PART OF THE WELLHEAD PROTECTION CONTINGENCY PLAN

WHEREAS, the Cities of Grandview, Sunnyside, and Prosser are currently participating in the Wellhead Protection Act (WHP); and,

WHEREAS, one element of the WHP is contingency planning to ensure that consumers have an adequate supply of water; and,

WHEREAS, should a contamination event or natural disaster occur, the other cities unaffected agree to allow said affected city to obtain water from their supply to be trucked into the affected city,

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GRANDVIEW, AS FOLLOWS:

The Mayor is hereby authorized to enter into an Interlocal Agreement with the City of Sunnyside and City of Prosser with respect to the Wellhead Protection Contingency Plan in the form as is attached hereto and incorporated herein by reference.

PASSED by the **CITY COUNCIL** and **APPROVED** by the **MAYOR** at its regular meeting on August 6, 2001.

MAYOR

ATTEST:

CITY CLERK

APPROVED AS TO FORM:

CITY ATTORNEY

INTERLOCAL AGREEMENT

THIS AGREEMENT is made and entered into on the dates set forth below, by and between the CITY OF GRANDVIEW, hereinafter referred to as "Grandview"; the CITY OF SUNNYSIDE, hereinafter referred to as "Sunnyside"; and the CITY OF PROSSER, hereinafter referred to as "Prosser."

I. Recitals

WHEREAS, Congress enacted the Safe Drinking Water Act (SDWA) in 1974 with the goal of providing safe water to all users of public water systems; and

WHEREAS, the SDWA gave the U.S. Environmental Protection Agency (EPA) the authority to develop a uniform national drinking water program and to establish national standards for known or suspected drinking water contaminants; and

WHEREAS, in 1986 SDWA amendments authorized two new provisions for groundwater protection, one of which was the Wellhead Protection Act (WHP); and

WHEREAS, the cities which are parties to this agreement are currently participating WHP's; and

WHEREAS, one element of such WHP is contingency planning to ensure that consumers have adequate supply of water.

II. Agreement

NOW, THEREFORE, the cities named herein agree as follows:

1. In the event of a contamination event or natural disaster which creates a situation in one of the cities whereby consumers do not have an adequate supply of water for drinking or sanitary purposes, the other cities unaffected by such contamination event or disaster shall allow said affected city to obtain water from their supply to be trucked into the affected city.

2. Cost. All water provided by one city to the other pursuant to this agreement shall be billed by the providing city to the using city at its normal at its normal water rates for commercial users.

3. Transportation. Any city utilizing this agreement shall provide its own transportation of its water to and from the providing city.

4. In no event shall a participating city be required to provide water to another participating city if such water usage would endanger the providing city's ability to provide adequate water for its citizens' health and safety.

5. This agreement shall be binding when approved by all parties and shall be filed with the Yakima County and Benton County Auditors in accordance with RCW 39.34.040.

6. This agreement may be modified only in writing executed by the authorized representative of each of the participating cities.

7. The term of this agreement shall commence on the date signed by the last party to sign and shall continue in effect through June 1, 2020, unless sooner terminated as provided in section 8 below.

8. Any party to this agreement may terminate its participation in this agreement by delivering six (6) months prior written notice to all of the other parties to this agreement. This notice shall be mailed by means of certified mail to the Public Works Directors of the non-terminating cities.

9. This agreement shall be administered by a board of three members made up of the Public Works Directors for the Cities of Grandview, Sunnyside and Prosser. This board shall meet on the first Wednesday of August each year, at 12:00 p.m., to discuss and review any issue relating to implementation or performance of this agreement.

10. This agreement constitutes the entire agreement of the parties and may be modified only in writing executed by the authorized representative of each of the participating cities.

11. Each provision of this agreement is severable from all other provisions. In the event any court of competent jurisdiction determines that any provision of this agreement is invalid or unenforceable for any reason, all remaining provisions will remain in full force and effect.

IN WITNESS HERETO, the authorized representatives of the parties have signed their names for and on behalf of the designated parties, as set forth below.

CITY OF GRANDVIEW

By: _____
Mayor

Date: August 6, 2001

ATTEST:

_____
Clerk

APPROVED AS TO FORM:

_____
City Attorney

CITY OF PROSSER

By: _____
Mayor

Date: AUG 17, 2001

ATTEST:

_____
Clerk

APPROVED AS TO FORM:

_____
City Attorney

CITY OF SUNNYSIDE

By: _____
Dave Fonfara, City Manager

Date: July 9, 2001

ATTEST:

_____
Judith F. Essary, Deputy City Clerk

APPROVED AS TO FORM:

_____
Mark Kunkler, City Attorney

4.
CONSUMER MEETING & WATER SYSTEM PLAN ADOPTION

HLA
Engineering and Land Surveying, Inc.

CITY OF GRANDVIEW
WATER SYSTEM CONSUMER INFORMATIONAL MEETING

The City of Grandview will hold an informational meeting for water system consumers on Tuesday, January 25, 2022 at 6:00 pm, at the regularly scheduled Grandview City Council Committee-of-the-Whole meeting, to review and discuss the City's draft 2022 Water System Plan update. The purpose of this informational meeting is to give customers an opportunity to provide input on the water system planning process. All interested persons are encouraged to attend.

This meeting will be held in person in the Council Chambers at City Hall, 207 West Second Street, Grandview, Washington, and will also be available via teleconference.

Join Zoom Meeting
https://us06web.zoom.us/j/87126895177?pwd=VGJsTEVKdkNDQjYrTFBWRTBuRS9Zdz09
Meeting ID: 871 2689 5177
Passcode: 040360

To join via phone: +1 253 215 8782
Meeting ID: 871 2689 5177
Passcode: 040360

A copy of the City's draft 2022 Water System Plan update is available for review prior to the meeting, during regular business hours, at Grandview Public Works, 603 N Willoughby Rd, Grandview, WA 98930.

Any questions concerning this meeting can be directed to Cus Arteaga, City Administrator/Public Works Director at 509 882-9211.

City of Grandview
Anita Palacios, City Clerk

Publish: Grandview Herald – January 5, 2022

4510

AFFIDAVIT OF PUBLICATION

State of Washington } ss.
County of Yakima }

The undersigned on oath states that

Jacob Hatch

is an authorized representative of the GRANDVIEW HERALD, a weekly newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and is now and has been for more than six months prior to the date of the publications hereinafter referred to, published in the English language continually as a weekly newspaper in Grandview, Yakima County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of said newspaper. The notice, in the exact form annexed, was published in regular issues of The GRANDVIEW HERALD, which was regularly distributed to its subscribers during the below stated period. The annexed notice, a Water System Consumer Info Meeting

was published on January 5, 2022

The amount of the fee charged for the foregoing publication is the sum of $ 60.62 which amount has been paid in full.

Jake Hatch

Subscribed and sworn to before me on

January 5, 2022

Annette C. Jones

Notary Public for the State of Washington

ANNETTE C JONES
NOTARY PUBLIC #193643
STATE OF WASHINGTON
COMMISSION EXPIRES
JULY 10, 2025

Notice

CITY OF GRANDVIEW
WATER SYSTEM CONSUMER INFORMATIONAL MEETING

The City of Grandview will hold an informational meeting for water system consumers on Tuesday, January 25, 2022 at 6:00 pm, at the regularly scheduled Grandview City Council Committee-of-the-Whole meeting, to review and discuss the City's draft 2022 Water System Plan update. The purpose of this informational meeting is to give customers an opportunity to provide input on the water system planning process. All interested persons are encouraged to attend.

This meeting will be held in person in the Council Chambers at City Hall, 207 West Second Street, Grandview, Washington, and will also be available via teleconference.

Join Zoom Meeting
https://us06web.zoom.us/j/87126895177?pwd=VGJsTEVKd-kNDQjYrTFBWRTBuRS9Zdz09
Meeting ID: 871 2689 5177
Passcode: 040360
To join via phone: +1 253 215 8782
Meeting ID: 871 2689 5177
Passcode: 040360

A copy of the City's draft 2022 Water System Plan update is available for review prior to the meeting, during regular business hours, at Grandview Public Works, 603 N Willoughby Rd, Grandview, WA 98930.

Any questions concerning this meeting can be directed to Cus Arteaga, City Administrator/Public Works Director at 509-882-9211.

CITY OF GRANDVIEW
Anita Palacios, City Clerk
Published: The Grandview Herald
Published: January 5, 2022

GRANDVIEW CITY COUNCIL
COMMITTEE-OF-THE-WHOLE MEETING MINUTES
JANUARY 25, 2022

1. CALL TO ORDER

Mayor Gloria Mendoza called the Committee-of-the-Whole meeting to order at 6:00 p.m., in the Council Chambers at City Hall.

The meeting was held in person and was also available via teleconference.

2. ROLL CALL

Present in person: Mayor Mendoza and Councilmembers David Diaz, Bill Moore (Mayor Pro Tem), Robert Ozuna, Javier Rodriguez and Joan Souders

Present via teleconference: Councilmembers Diana Jennings and Mike Everett

Absent: None

Staff present: City Administrator/Public Works Director Cus Arteaga, City Treasurer Matt Cordray, City Attorney Quinn Plant, Police Chief Kal Fuller, Fire Chief Pat Mason, Assistant Public Works Director Todd Dorsett and City Clerk Anita Palacios

3. PUBLIC COMMENT

Cody Goeppner, Past President/Member of the Chamber of Commerce introduced the 2022 Board of Directors:

- Steffani Cooper, President, Bleyhl Co-op
- Humberto Rodriguez, Vice President, United Family Center
- Kathy Viereck, Treasurer, Winners Circle Award Ribbons
- Angela Key, Secretary, Miss Grandview Scholarship
- Monica Niemeyer, Board Member, Colonial Insurance
- Brittnee Sanchez, Board Member, Community Activist
- Tammy Ouelette, Ambassador, Key Bank-Grandview

4. NEW BUSINESS

A. 2022 Water System Plan Update Introduction and Executive Summary – Water System Consumer Input

City Administrator Arteaga explained that notice was issued for a Water System Consumer Informational Meeting to be held on January 25th to review and discuss the City's draft 2022 Water System Plan update. The purpose of the informational meeting was to give customers an opportunity to provide input on the Water System Planning process.

City Engineers Justin Bellamy and Jakob Michael with HLA Engineering and Land Surveying, Inc., presented the Introduction and Executive Summary of the Water System Plan. The City recognized the need to improve and expand its water system if it was to meet the demands of its system users and to keep pace with other growth-oriented improvements. HLA was authorized by the City to prepare the Water System Plan which represented the culmination of planning and

data collection efforts. The principal goal of Water System Planning was to make efficient use of available resources. This was accomplished by making decisions about water system capital improvements and operations which were in accordance with overall system policies and directions expressed in a utility's Water System Plan. An equally important reason for developing a Water System Plan was to assure orderly growth of the system while maintaining reliable delivery of high-quality water. The plan was intended to guide water utility actions in a manner consistent with other activities taking place in the community. The Water System Plan was intended to look ahead at least 20 years in the future. Development of a definite improvement schedule and financial program was required for the first ten-year period, while the planning approach for the second period may be more conceptual. To continually provide adequate guidance to decision makers, the plan would require updating every six years. Once adopted by the City and approved by the Department of Health (DOH), the Water System Plan was considered by DOH to be a commitment to implement the actions identified in the improvement schedule. Future water system decision shall be in accordance with the Water System Plan.

Discussion took place. No action was taken.

B. Resolution declaring two Police Department handguns as surplus and authorizing transfer to the retired police officers

Police Chief Fuller explained that in 2018, a Memorandum of Agreement between the Teamsters Local No. 760 and City was approved allowing an officer retiring with 20 years of service to be awarded his duty handgun upon retirement. The contract requires written notice to the Mayor and a Notice of Surplus Property to be presented to City Council. On February 22, 2022, Officer James Driscoll will retire in good standing with over 20 years of service. The duty handgun assigned to Officer Driscoll was an HK .45 caliber pistol, Serial No. 25-135603. On April 1, 2022, Officer Mitch Fairchild will retire in good standing with over 20 years of service. The duty handgun assigned to Officer Fairchild was a Glock .45 caliber pistol, Serial No. ABXD987. Notices of a Retirement Handgun Award were presented to the Mayor. The handguns may be declared surplus property and the process started to transfer personal ownership of the handguns to Officers Driscoll and Fairchild upon their retirement.

Discussion took place.

On motion by Councilmember Moore, second by Councilmember Diaz, the C.O.W. moved a resolution declaring two Police Department handguns as surplus and authorizing transfer to the retired police officers to the February 8, 2022 regular Council meeting for consideration.

Roll Call Vote:

- Councilmember Diaz – Yes
- Councilmember Everett – Yes
- Councilmember Jennings – Yes
- Councilmember Moore – Yes
- Councilmember Ozuna – Yes
- Councilmember Rodriguez – Yes
- Councilmember Souders – Yes

C. ARPA Eligible Project List – Councilmember Ozuna

Councilmember Ozuna provided an update on the meeting with the City of Walla Walla regarding the ARPA funding. He stated that the final rules were announced by the U.S. Treasury and he would distribute an overview of the final rule booklet. He provided an update on the ARPA Group and explained that the Group developed an inclusive process that would include all Councilmembers in the decision making and approval process. He stated that all ARPA projects and activities must meet strict guidelines and requirements. He introduced a list of eligible projects, services and ideas. He explained the process for identifying, submitting and reviewing projects was as follows:

- Step One – Review list and agree or disagree
- Step Two – Submit proposed projects
- Step Three – Council meets and approves all projects
- Step Four – City implements all approved projects

Discussion took place.

The Eligible Project List would be emailed to the Mayor and Council for completion and return to City Clerk Palacios by February 2nd.

5. RECESS & RECONVENE OF COMMITTEE-OF-THE-WHOLE MEETING

On motion by Councilmember Moore, second by Councilmember Rodriguez, the Committee-of-the-Whole recessed the Committee-of-the-Whole meeting at 7:00 p.m., to proceed into the regular Council meeting. The Committee-of-the-Whole meeting was reconvened at 7:45 p.m., to discuss item (D) 2022 Budget Process Debrief.

D. 2022 Budget Process Debrief – Councilmember Jennings

Councilmember Jennings stated that this year's preliminary budget process was long, overwhelming, confusing and counter-productive. She proposed going back to the budget process used prior to 2021 and requested the process be formalized.

City Administrator Arteaga explained the previous year's process which included a Council Retreat during the month of July and staff presenting a balanced budget to the Mayor and Council.

Discussion took place.

City Administrator Arteaga and City Treasurer Cordray would draft a formal process for Council consideration.

6. OTHER BUSINESS – None

7. ADJOURNMENT

On motion by Councilmember Moore, second by Councilmember Souders, the Committee-of-the-Whole meeting adjourned at 8:00 p.m.

Gloria Mendoza
Mayor Gloria Mendoza

Anita Palacios, City Clerk

CITY OF GRANDVIEW

5.
WATER USE EFFICIENCY PROGRAM AND GOAL ADOPTION PROCESS DOCUMENTATION

HLA
Engineering and Land Surveying, Inc.

Si necesita esta información en espanol,
visite www.grandview.wa.us o llame al 882-9200, Gracias

CITY OF GRANDVIEW
NOTICE OF PUBLIC HEARING
WA STATE DEPARTMENT OF HEALTH
WATER USE EFFICIENCY REQUIREMENTS

NOTICE IS HEREBY GIVEN that the City Council of the City of Grandview, Washington, will conduct a public hearing on **TUESDAY, SEPTEMBER 13, 2022 at 7:00 p.m.,** in the Council Chambers at City Hall, 207 West Second Street, Grandview, WA, to receive comments on the City's water use efficiency goals. A copy of which is available for review at City Hall.

All persons are invited to appear and provide comments. Comments may also be submitted in writing to the City Clerk, 207 West Second Street, Grandview, WA 98930 until 5:00 p.m., the day of the hearing and will be entered into the record. The Grandview City Hall is handicap accessible. Arrangements to reasonably accommodate special needs, including handicap accessibility or interpreter, will be made upon receiving 24-hour advance notice. Contact City Clerk Anita Palacios at (509) 882-9200, located at Grandview City Hall at 207 West Second Street.

CITY OF GRANDVIEW

Anita G. Palacios, MMC
City Clerk

Publication: Grandview Herald – Wednesday, August 17 & August 24, 2022

4718

AFFIDAVIT OF PUBLICATION

State of Washington }
County of Yakima } ss.

The undersigned on oath states that

Madelyne Creasy

is an authorized representative of the GRANDVIEW HERALD, a weekly newspaper. That said newspaper is a legal newspaper and has been approved as a legal newspaper by order of the superior court in the county in which it is published and is now and has been for more than six months prior to the date of the publications hereinafter referred to, published in the English language continually as a weekly newspaper in Grandview, Yakima County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of said newspaper. The notice, in the exact form annexed, was published in regular issues of The GRANDVIEW HERALD, which was regularly distributed to its subscribers during the below stated period. The annexed notice, a Notice of Public Hearing - WA State Department of Health Water Use Efficiency Requirements

was published on August 17, and 24, 2022

The amount of the fee charged for the foregoing publication is the sum of $ 87.62 which amount has been paid in full.

Madelyne Creasy

Subscribed and sworn to before me on August 24, 2022

Annette C Jones

Notary Public for the State of Washington

Notice

CITY OF GRANDVIEW
NOTICE OF PUBLIC HEARING
WA STATE DEPARTMENT OF HEALTH
WATER USE EFFICIENCY REQUIREMENTS

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CITY OF GRANDVIEW
Anita G. Palacios, MMC
City Clerk
Published: The Grandview Herald
Published: August 17, and 24, 2022

ANNETTE C JONES
NOTARY PUBLIC #193643
STATE OF WASHINGTON
COMMISSION EXPIRES
JULY 10, 2025

GRANDVIEW CITY COUNCIL
REGULAR MEETING MINUTES EXCERPT
SEPTEMBER 13, 2022

1. CALL TO ORDER

Mayor Gloria Mendoza called the regular meeting to order at 7:00 p.m. in the Council Chambers at City Hall.

The meeting was held in person and was also available via teleconference.

Present in person: Mayor Mendoza and Councilmembers David Diaz, Jessie Espinoza, Bill Moore (Mayor Pro Tem), Javier Rodriguez and Joan Souders

Present via teleconference: Councilmember Mike Everett

Absent: Councilmember Robert Ozuna

On motion by Councilmember Moore, second by Councilmember Espinoza, Council excused Councilmember Robert Ozuna from the meeting.

Staff present: City Administrator/Public Works Director Cus Arteaga, City Attorney Quinn Plant, City Treasurer Matt Cordray, Assistant Public Works Director Todd Dorsett and City Clerk Anita Palacios

7. ACTIVE AGENDA

C. Public Hearing – City of Grandview Water Use Efficiency Goals

Mayor Mendoza opened the public hearing to receive comments on the City's Water Use Efficiency Goals by reading the public hearing procedure.

City Administrator Arteaga explained that Water systems were required by the Washington State Department of Health (DOH) to update water use efficiency goals and measures at least every six years, or as part of the water system plan update process. Water use efficiency goals were last adopted by the City in 2015, and the City was in the process of updating its water system plan. A public hearing was held to review and adopt water use efficiency goals and measures, as required by the DOH. In accordance with WAC 246-290-830, water use efficiency goals must be set in a public forum and be designed to promote efficient use of water by customers. To continue promotion of efficient water use, and to reduce future water system demands, the following goal was proposed to be adopted by the City:

- Reduce total water consumption by 2% over the 10-year reporting period of 2022–2032.

He explained that the City would take the following measures to achieve this goal:

- Water Conservation School Career Days Outreach Program – Once a year, the City's Water System Operator would attend the local school's Career Day and teach children about the many ways to protect and conserve the City's water resource.
- Irrigation Run Time Reduction – The City would prepare water wise guidelines and water conservation pamphlets and distribute to customers in promoting reduction of irrigation run times, ultimately reducing potable water consumption.

- Customer Leak Detection – Public Works staff would work closely with utility billing staff in identifying high water usage customers. When high usage was revealed, Public Works staff would contact the customer in a timely manner.
- DOH Publication Distribution – Public Works staff would print and deliver DOH publications to customers. This would be accomplished through door-to-door communication.
- Water Conservation Devices – Public Works staff would inform customers about available water saving devices and effects of utilizing such devices. Example water conservation devices include water saving shower heads, toilet tank bank, rain sensors, irrigation timers
- Consumer Consumption History – The monthly utility statements that the City sends out to its customers indicate monthly water consumption. Customers may request a more detailed breakdown of water consumption history, allowing customers to track and compare their usage. Citizens can be informed of their own water use trends.

He further explained that if the water use efficiency goal was achieved, the average day demand would be reduced by about 50,000 gallons per day, or a savings of about 18.25 million gallons of water a year for the entire system.

No comments were received during the public hearing or by mail and the hearing was closed.

D. Resolution No. 2022-40 adopting Water Use Efficiency (WUE) Goals and Measures

On motion by Councilmember Espinoza, second by Councilmember Rodriguez, Council approved Resolution No. 2022-40 adopting Water Use Efficiency (WUE) Goals and Measures.

Roll Call Vote:
- Councilmember Diaz – Yes
- Councilmember Espinoza – Yes
- Councilmember Everett – Yes
- Councilmember Moore – Yes
- Councilmember Rodriguez – Yes
- Councilmember Souders – Yes

RESOLUTION 2022-40

A RESOLUTION OF THE CITY OF GRANDVIEW, WASHINGTON, ADOPTING WATER USE EFFICIENCY (WUE) GOALS AND MEASURES

WHEREAS, the Department of Health (DOH) requires all public water systems evaluate and reestablish water use efficiency (WUE) goals through a public process as part of updating a water system plan, in accordance with WAC 246-290-830; and

WHEREAS, the WUE program is intended to help water customers use water more efficiently and reduce future water system demands; and

WHEREAS, the WUE goals must include evaluation and establishment of measures supporting how the goals will be met; and

WHEREAS, it is the goal of the City to promote water conservation;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GRANDVIEW, AS FOLLOWS:

GOAL: Reduce single-family residential water consumption per service by 2% over the next 10-year planning period.

MEASURES: The City plans to implement the following measures to achieve the above goal.

1. Water Conservation School Career Days Outreach Program
2. Irrigation Run Time Reduction
3. Customer Leak Detection
4. DOH Publication Distribution
5. Water Conservation Devices
6. Consumer Consumption History

PASSED by the **CITY COUNCIL** and **APPROVED** by the **MAYOR** at its regular meeting on September 13, 2022.

MAYOR

ATTEST:

CITY CLERK

APPROVED AS TO FORM

CITY ATTORNEY

CHAPTER 4 -

WATER USE EFFICIENCY (WUE) PROGRAM

HLA
Engineering and Land Surveying, Inc.

4.1 WATER USE EFFICIENCY PROGRAM (WUE)

4.1.1 Planning Requirements

In 2003, the Washington State Legislature passed the Municipal Water Supply-Efficiency Requirements Act (commonly called the Municipal Water Law) as part of a multi-year effort to reform the state's water laws. The act requires all municipal water suppliers to use water more efficiently in exchange for water right certainty and flexibility to meet future water demands. The Legislature directed the DOH to adopt a rule that establishes water use efficiency requirements for all municipal suppliers. The Water Use Efficiency (WUE) Rule, which became effective on January 22, 2007, includes the following key items:

- WUE Program – This element of the rule requires the collection of water production and consumption data, forecast of future water demands, evaluation of system leakage, evaluation of water rate structures, and the implementation of WUE measures. This Program is a required element of all Water System Plans prepared after January 22, 2008.

- Distribution System Leakage (DSL) Standard – Municipal water suppliers with 1,000 or more connections are required to satisfy a DSL standard equal to 10% or less of total production by July 1, 2010.

- WUE Goal Setting and Performance Reporting – Municipal water suppliers are required to set WUE goals through a public process and report annually on their performance to customers and to DOH. For water systems with 1,000 or more connections, the deadline for establishing systems goals was July 1, 2009. WUE goals must be established through a public process for a six-year period and should be re-evaluated each cycle.

The rule requirements and compliance deadlines are shown in Table 4-1.

TABLE 4-1 WATER USE EFFICIENCY RULE REQUIREMENTS

Requirement	Deadlines	
	1,000 or more Connections	Under 1,000 Connections
Begin Production & Consumption Data Collection	January 1, 2007	January 1, 2008
Establish WUE Goals	July 1, 2009	July 1, 2010
Include WUE Program in Planning Documents	January 22, 2008	January 22, 2008
Submit First Annual Performance Report	July 1, 2008	July 1, 2009
Submit Service Meter Installation Schedule	July 1, 2008	July 1, 2009
Meet DSL Standard	July 1, 2010	July 1, 2011
Complete Installation of all Service Meters	January 22, 2017	January 22, 2017

A WUE Program is one requirement of the WUE Rule. All Water System Plans submitted to the DOH after January 22, 2008, are required to include a WUE Program. WAC 246-290-810(4) requires municipal water suppliers to include the following items in their WUE program:

- Description of the current water conservation program including an estimation of water saved through program implementation over the last six years;
- Description of the chosen WUE goals;
- Evaluation and implementation of WUE measures;
- Projected water savings;
- Customer education;
- WUE program effectiveness; and
- DSL evaluation.

4.1.2 Current Water Conservation Program

Grandview's current Water Conservation Program, or Water Use Efficiency (WUE) Program, was prepared in November 2015. As part of this *Water System Plan*, the City's current WUE Program was expanded and restructured in accordance with WAC 246-290-810(4) and consists of the following elements:

- Water Use Efficiency Goals
- Evaluation and Implementation of Water Use Efficiency Measures
- WUE Measure Implementation
- Customer Education
- Water Use Efficiency Program Effectiveness
- Distribution System Leakage (DSL) Evaluation

Provided in Table 4-2 is a summary of the population, number of water services, water consumption, and per capita water consumption from 2014 to 2020. Further information on historical water use is provided in (Table Below). Since 2014, total system annual water consumption has increased by approximately 2.5%. Annual residential demand and demand per service per day shows a decreasing trend from 2014 to 2017, and an increasing trend from 2017 to 2020.

TABLE 4-2 WATER CONSUMPTION INFORMATION 2014-2020							
Year	Population[a]	Total Water Services[b]	Annual Water Production (MG)	Annual Water Consumption (MG)	Annual Residential Consumption (MG)	Residential Water Services	Residential Avg. Day Consumption per service (gal/service/day)
2014	11,170	2,904	633.19	630.50	255.35	2,609	221
2015	11,200	2,744	645.00	603.29	253.77	2,515	216
2016	11,160	2,761	617.36	595.41	247.68	2,533	206
2017	11,170	2,750	611.53	616.15	239.29	2,533	200
2018	11,180	2,759	578.48	663.61	250.56	2,542	210
2019	11,200	2,837	613.87	673.94	252.20	2,581	211
2020	11,230	2,889	641.31	634.19	259.89	2,607	220
Note: Residential water services represents Single-Family Residential user category only. [a] From Washington State OFM population estimates. [b] City began recording total accounts vs accounts with consumption in 2015.							

The City's 2008 *Water Use Efficiency Program* included a goal to reduce total water consumption from 2015 to 2021 by 10 million gallons. The City's goal was first met in 2016 and since, the City has sustained the 25-million-gallon reduction from the 2008. Since producing 672.29 MG in 2008, annual production has decreased to 641.31 MG in 2020, an overall decrease of 4.8%. It should be noted that from 2017 to 2020, source meter issued developed in South Willoughby (Well S13) resulting in greater consumption than production.

Since 2015, the City has replaced several water service lines, valves, and distribution mains that were suspected to be leaking. These efforts have assisted in reducing the difference between water production and consumption volumes.

4.1.3 Water Use Efficiency Goals

WUE goals are an integral component of the WUE program, setting the groundwork for more efficient use of water. The City of Grandview has observed reductions in single-family residential consumption per service through past conservation measures, resulting in less production. Therefore, the City of Grandview has proposed the following WUE goals for their water system:

1. The City of Grandview's water system will work towards reducing total consumption by 2% during the 10-year reporting period of 2022 - 2032.

The WUE goals will be presented at a public study session to be adopted by City Council. Documentation of the public forum is included in CHAPTER 10. Adoption of the above WUE goal is expected to improve system performance and consequently reduce water production volumes.

4.1.4 Evaluation and Implementation of Water Use Efficiency Measures

Water use efficiency (WUE) measures are necessary actions taken to attain a water system's established efficiency goals. Measures are intended to support the WUE program and should address both supply and demand efficiencies. For this reason, the WUE measures that have been evaluated and/or implemented are separated into two primary categories, demand side and supply side measures. All the selected WUE measures pertaining to Grandview's WUE goals were presented to the public during the goal setting process.

Demand Side Measures

Municipal water systems are required to evaluate or implement a specified number of demand side water use efficiency (WUE) measures based upon the size of the water system. Table 4-3 shows the minimum number of measures required to be evaluated or implemented by the City of Grandview.

TABLE 4-3 WATER USE EFFICIENCY MEASURES

Number of Service Connections	Number of Water Use Efficiency Measures to be Evaluated
Less than 500	1
500 - 999	4
1,000 – 2,499	5
2,500 – 9,999	6 (Grandview's current requirement)
10,000 – 49,999	9
Greater than 50,000	12

A discussion of the demand side measures that the City of Grandview has evaluated to achieve its specified efficiency goal are provided below, along with the estimated costs to implement the measures and the projected water savings. Evaluation of the following measures for cost-effectiveness is primarily based upon the overall implementation costs as compared to the amount of potential water savings.

Water Conservation School Career Days Outreach Program – Once a year, the City of Grandview's Water System Operator will attend the local school's Career Day and teach children about the many ways to protect and conserve the City's water resource. This activity involves preparation of educational programs for school children targeted to increase awareness of local water resources and encourage water conservation practices, and includes school presentations, preparation of curriculum material, and tours of water system facilities. Costs associated with this measure would primarily be in preparation of curriculum material, and time involved in working with the school district for the presentation of the program.

WUE Measure Cost Estimate: $1,500 for preparation of curriculum materials.

Estimated Water Savings: 150,000 gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled annually.

Irrigation Run Time Reduction – Grandview owns and operates a pressurized irrigation system that supplies pressurized irrigation water to approximately 500 residences. The remaining 1,727 single-family residential customers within the City utilize potable water for irrigating lawns, gardens, and other landscaping. The City of Grandview will prepare water wise guidelines and water conservation pamphlets and distribute to customers in promoting reduction of irrigation run times, ultimately reducing potable water consumption.

WUE Measure Cost Estimate: $800 for preparation of materials

Estimated Water Savings: 1.4 million gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for implementation in 2023.

Customer Leak Detection – Grandview Public Works staff will work closely with utility billing staff in identifying high water usage customers. When high usage is revealed, Public Works staff will contact the customer in a timely manner. Staff will provide leak detection services to customers and offer solutions for leak repairs. Following inspections, customers will receive DOH pamphlets promoting water conservation and tips toward consumption reduction.

WUE Measure Cost Estimate: $800 for printing materials

Estimated Water Savings: 800,000 gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for implementation in 2023.

DOH Publication Distribution – Grandview Public Works staff will print and deliver DOH publications to customers. This will be accomplished through door-to-door communication. The City has found face to face interaction as the most effective means of communicating with customers.

WUE Measure Cost Estimate: $800 for printing materials

Estimated Water Savings: 800,000 gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for implementation in 2024.

Water Conservation Devices – Grandview Public Works staff will inform customers about available water saving devices and effects of utilizing such devices. Example water conservation devices include:

- Water saving shower heads
- Toilet Tank Bank
- Rain sensors
- Irrigation timers

WUE Measure Cost Estimate: No cost.

Estimated Water Savings: 1.4 million gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for bi-annual implementation starting in 2022.

City Webpage Additions – The City's current webpage includes a page devoted to the Public Works department, which includes a link to the City's *Water Quality Report* annual publication. The Report describes the quality of Grandview's drinking water, sources, and programs in place to protect water quality. The City plans to add a specific webpage devoted to the City's Water Use Efficiency Program. Information will include conservation tips.

WUE Measure Cost Estimate: $1,500 for updating webpage.

Estimated Water Savings: 150,000 gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for implementation in 2024.

Advertising – During the 2022-2032 reporting period, the City of Grandview will publish water conservation advertisements in the local newspaper (the Grandview Herald). These advertisements will include tips and strategies for conserving water during high usage seasons, from April – November. The advertisements will be published at the beginning of each high usage season, typically April.

WUE Measure Cost Estimate: $800 annually.

Estimated Water Savings: 150,000 gallons over 10-year reporting period.

WUE Measure Action Status: Scheduled for annual implementation beginning in 2023.

Consumer Consumption History – The monthly utility statements that the City sends out to its customers indicate monthly water consumption. Customers may request a more detailed breakdown of water consumption history, allowing customers to track and compare their usage. Citizens can be informed of their own water use trends. The City normally contacts a customer that has had a couple of months of higher-than-normal bills. The awareness can allow them to evaluate their individual water conservation needs and alert them of potential leaks. This measure is implemented across all user categories.

WUE Measure Cost Estimate: $200 per category, annually.

a. Single-Family Residential
b. Outside Residential
c. Multi-Family Residential
d. Mobile Home Residential

Estimated Water Savings: Unknown but anticipated to continue reducing consumption through customer awareness.

WUE Measure Action Status: City to schedule implementation.

It should be noted that water savings attributable to public information activities are difficult to quantify because they are not directly linked to physically saving water. Although these measures cannot be specifically quantified, they are an integral part of the WUE Program, raising awareness of the importance of water conservation and increasing community participation in other conservation activities.

A summary of the estimated costs to implement the selected measures, their estimated water savings, and overall cost-effectiveness are provided in Table 4-4.

TABLE 4-4 SUMMARY OF DEMAND SIDE WUE MEASURES			
Measure Description	Implementation Cost	Year of Implementation	Estimated Water Savings, 10-year period, MG
Water Conservation School Career Days Outreach Program	$1,500	Annually	0.15
Irrigation Run Time Reduction	$800	2023	1.4
Customer Leak Detection	$800	2023	0.80
DOH Publication Distribution	$800	2024	0.80
Water Conservation Devices	None	Bi-Annually	1.4
Customer Consumption History – Single-Family Res.	$200	Annually	9.0
Customer Consumption History – Outside Residential	$200	Annually	0.30
Customer Consumption History – Multi-Family Residential	$200	Annually	0.30
Customer Consumption History – Mobile Home Res.	$200	Annually	1.0
City Webpage Additions	$1,500	2024	0.15
Advertising	$800	Annually	0.15

The above measures are planned to be implemented as shown in Table 4-6. The City will reevaluate the effectiveness of the measures during each program update to determine its potential for future implementation. Costs to implement these measures are included in the City's water operations budget.

Supply Side Measures

Supply side measures are essential to control distribution system leakage (DSL), improve supply efficiency, and overall system performance. The following are discussions of supply side WUE measures that have already or will be implemented within the next ten years to satisfy the City's WUE Program objective. The estimated cost of these measures and anticipated water savings are also provided.

Reservoir Cleaning and Inspection – The City periodically cleans and inspects its reservoirs for leaks and any other deficiencies. Corrosion causes unnecessary leakage directly contributing to distribution system losses (DSL). The City's reservoirs should be cleaned and inspected every five (5) years to identify any corrosion and potential DSL. The approximate cost of inspecting and cleaning each reservoir is generally $12,000, assuming no significant repairs are necessary.

WUE Measure Cost Estimate: Approximately $20,000 per reservoir.

Estimated Water Savings: Unknown.

WUE Measure Action Status: Annual budgeting and inspection schedule.

Source Meter Calibration – The City must calibrate and maintain source meters and large service meters (4-inch and larger) based on generally accepted industry standards and manufacturer information. Compliance will be maintained by the City by performing maintenance on the source and service meters every two (2) years as recommended by DOH. Actual water savings from meter calibration is unknown, but if the accuracy of all source meters is improved by 0.5%, the resulting water savings could be as much as 3,205,000 gallons, considering that approximately 641 million gallons were pumped into the system in 2020. It should be noted that the opposite of water savings could result, therefore, it is unknown if distribution system leakage (DSL) will be reduced or how much water could be saved through meter calibration.

WUE Measure Cost Estimate: $2,000 annually for calibration of one source meter and half of the larger service meters.

Estimated Water Savings: Unknown, could potentially reduce DSL by 0.5%.

WUE Measure Action Status: City to schedule implementation.

Table 4-5 is a summary of supply side measures implemented by the City.

TABLE 4-5 SUMMARY OF SUPPLY SIDE WUE MEASURES

Measure Description	Implementation Cost	Year of Implementation	Projected Water Savings, MG
Reservoir Cleaning and Inspection	$20,000 per reservoir	City Option	Unknown
Source Meter Calibration	$2,000 annually	City Option	3.21

4.1.5 WUE Measure Implementation

A summary of the WUE program measures that are planned for implementation is provided in Table 4-6, including measure description, implementation cost, and year of implementation. All the implemented measures support the system's WUE goals to reduce distribution system leakage and single-family residential consumption.

TABLE 4-6 SUMMARY AND PROJECTED SAVINGS OF WATER USE EFFICIENCY MEASURES

Measure Description	Implementation Cost	Year of Implementation	Projected Water Savings, MG
Water Conservation School Career Days Outreach Program	$1,500	Annually	0.15
Irrigation Run Time Reduction	$800	2023	1.4
Customer Leak Detection	$800	2023	0.80
DOH Publication Distribution	$800	2024	0.80
Water Conservation Devices	None	Bi-Annually	1.4
Customer Consumption History – Single-Family Res.	$200	Annually	9.0
Customer Consumption History – Outside Residential	$200	Annually	0.30
Customer Consumption History – Multi-Family Residential	$200	Annually	0.30
Customer Consumption History – Mobile Home Res.	$200	Annually	1.0
City Webpage Additions	$1,500	2024	0.15
Advertising	$800	Annually	0.15
Reservoir Cleaning and Inspection	$20,000 per reservoir	City Option	Unknown
Source Meter Calibration	$2,000 annually	City Option	3.21

The City plans to budget funds each year for the next ten-year period to fund the WUE measures listed above in Table 4-6. These budget amounts are reflected in the proposed City of Grandview financial plan in CHAPTER 9. as part of the general operational budget and/or O&M improvement costs.

4.1.6 Customer Education

Customer education is intended to inform citizens about the need for, and the methods to achieve water conservation. Customer education involves publicizing and promoting the need for water conservation to all classes of customers. Grandview currently publicizes water conservation information in its annual *Water Quality Report* to inform customers of the City's conservation efforts. In the future, the City plans to provide additional conservation information to customers on their website, to further educate the public on the purpose of using water more efficiently.

Customer education programs that Grandview has considered for further evaluation include the following:

- Program Promotion – Program promotion can include public service announcements, news articles, information provided in the City's annual *Water Quality Report*, bill inserts, providing water use history as part of utility bills, and distribution of inexpensive, easily installed water-saving devices such as shower flow restrictors, toilet tank water displacement bags, and leak detection dye tablets. As previously discussed, Grandview intends to initiate program promotion in 2022 using its annual *Water Quality Report* and water bill notifications.

- Speaker's Bureaus – Speaker's bureaus involve identifying water conservation speaking opportunities appropriate to various civic, service, community, and other groups. Such speaking opportunities focus on increasing public awareness of water resource and conservation issues and may involve the use of audio and visual aids.

- Theme Shows and Fairs – This activity involves preparation of a portable display of water conservation devices and selected written materials for display at local area theme festivals and activities.

- School Outreach – School outreach involves preparation of educational programs for school children targeted to increase awareness of local water resources and encourage water conservation practices. These may include school presentations, preparation of curriculum material, and tours of water system facilities. As previously discussed, representatives of Grandview's Public Works Department will attend a Career Day at the local schools and teach children about the many ways to protect and conserve the City's water source.

Grandview has identified some of these customer education programs as evaluated WUE measures. Besides those identified, Grandview does not plan to further evaluate or implement any of the additional customer education programs listed above.

4.1.7 Water Use Efficiency Program Effectiveness

The Water Use Efficiency Rule requires the completion of annual performance reporting to system customers and to the DOH. The City will use preparation of the Annual WUE Performance Report as an opportunity to review the effectiveness of the WUE measures and determine if established goals require revision. The annual effectiveness evaluation and the Annual WUE Performance Report will include the following elements:

- Calculation of distribution system leakage in terms of volume and percent of total water production.

- Identification of WUE goals.

- Evaluation of established WUE goals, including estimating water savings achieved through implemented measures and progress towards satisfying goals.

Grandview will submit its Annual WUE Performance Report to DOH by July 1st of each year. Information contained in the Annual WUE Performance Report will also be included in the City's *Water Quality Report*, which will be published on the City's website. WUE Program effectiveness will also be evaluated every ten years when the Water System Plan is updated again. At this time both goals and measures will be reevaluated to determine the most cost-effective method to achieve the updated goals.

4.1.8 Water Use Efficiency Savings

To quantify the reduction in water supply requirements expected due to implementing WUE measures identified in Section 4.1.5, estimates of water use savings have been calculated. Provided in Table 4-7 is a summary of the water demand projections for years 2032 and 2042, with and without WUE measures implemented.

TABLE 4-7 DEMAND FORECAST WITH AND WITHOUT PROJECTED WUE SAVINGS

Year	Total Annual Demand (MG/Year)		ADD (MGD)		MDD (MGD)	
	Without WUE	With WUE	Without WUE	With WUE	Without WUE	With WUE
2032	824.75	808.26	2.486	2.436	5.456	5.346
2042	893.92	876.04	2.667	2.613	5.856	5.738

CITY OF GRANDVIEW

6.
LOCAL GOVERNMENT CONSISTENCY REVIEW CHECKLIST(S)

HLA
Engineering and Land Surveying, Inc.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Local Government Consistency Determination Form

Water System Name: City of Grandview Water System PWS ID: 28970J

Planning/Engineering Document Title: Water System Plan Plan Date: 2022

Local Government with Jurisdiction Conducting Review: Yakima County Planning Department

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

Local Government Consistency Statement	For use by water system: Identify the page(s) in submittal	For use by local government: Yes or Not Applicable
a) The water system service area is consistent with the adopted land use and zoning within the service area.	1-9 to 1-14	Yes
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	2-18 to 2-20	NO
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.	1-15 to 1-17	Yes
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	1-15 to 1-17	Yes
e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	1-6 to 1-8	Yes

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Aman walia 8/9/2022

Signature Date

Aman walia, Planning Tech. Yakima County

Printed Name, Title, & Jurisdiction

Consistency Review Guidance

For Use by Local Governments and Municipal Water Suppliers

This checklist may be used to meet the requirements of WAC 246-290-108. When using an alternative format, it must describe all of the elements; 1a), b), c), d), and e), when they apply.

For **water system plans (WSP)**, a consistency review is required for the service area and any additional areas where a municipal water supplier wants to expand its water right's place of use.

For **small water system management programs**, a consistency review is only required for areas where a municipal water supplier wants to expand its water right's place-of-use. If no water right place-of-use expansion is requested, a consistency review is not required.

For **engineering documents,** a consistency review is required for areas where a municipal water supplier wants to expand its water right's place-of-use (water system plan amendment is required). For noncommunity water systems, a consistency review is required when requesting a place-of-use expansion. All engineering documents must be submitted with a service area map (WAC 246-290-110(4)(b)(ii)).

A) Documenting Consistency: The planning or engineering document must include the following when applicable.

a) A copy of the adopted **land use/zoning** map corresponding to the service area. The uses provided in the WSP should be consistent with the adopted land use/zoning map. Include any other portions of comprehensive plans or development regulations that relate to water supply planning.

b) A copy of the **growth projections** that correspond to the service area. If the local population growth projections are not used, explain in detail why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.

c) Include water service area policies and show that they are consistent with the **utility service extension ordinances** within the city or town boundaries. *This applies to cities and towns only.*

d) All **service area policies** for how new water service will be provided to new customers.

e) **Other relevant elements** the Department of Health determines are related to water supply planning. See Local Government Consistency – Other Relevant Elements, Policy B.07, September 2009.

B) Documenting an Inconsistency: Please document the inconsistency, include the citation from the comprehensive plan or development regulation, and explain how to resolve the inconsistency.

C) Documenting a Lack of Local Review for Consistency: Where the local government with jurisdiction did not provide a consistency review, document efforts made and the amount of time provided to the local government for review. Please include: name of contact, date, and efforts made (letters, phone calls, and emails). To self-certify, please contact the DOH Planner.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Local Government Consistency Determination Form

Water System Name: City of Grandview PWS ID: 28970

Planning/Engineering Document Title: Water System Plan Update Plan Date: September, 2022

Local Government with Jurisdiction Conducting Review: City of Grandview

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, he or she should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on reverse.

Local Government Consistency Statement	For use by water system: Identify the page(s) in submittal	For use by local government: Yes or Not Applicable
a) The water system service area is consistent with the adopted land use and zoning within the service area.	1-7 to 1-13	Yes
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	2-17 to 2-23	Yes
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.	1-16	Yes
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	1-14 to 1-16	Yes
e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	N/A	N/A

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

C. Arteaga 12-23-21

Signature Date

Cus Arteaga, City Administrator/Public Works Director, City of Grandview

Printed Name, Title, & Jurisdiction

Consistency Review Guidance

For Use by Local Governments and Municipal Water Suppliers

This checklist may be used to meet the requirements of WAC 246-290-108. When using an alternative format, it must describe all of the elements; 1a), b), c), d), and e), when they apply.

For **water system plans (WSP)**, a consistency review is required for the service area and any additional areas where a municipal water supplier wants to expand its water right's place of use.

For **small water system management programs**, a consistency review is only required for areas where a municipal water supplier wants to expand its water right's place-of-use. If no water right place-of-use expansion is requested, a consistency review is not required.

For **engineering documents,** a consistency review is required for areas where a municipal water supplier wants to expand its water right's place-of-use (water system plan amendment is required). For noncommunity water systems, a consistency review is required when requesting a place-of-use expansion. All engineering documents must be submitted with a service area map (WAC 246-290-110(4)(b)(ii)).

A) Documenting Consistency: The planning or engineering document must include the following when applicable.

a) A copy of the adopted **land use/zoning** map corresponding to the service area. The uses provided in the WSP should be consistent with the adopted land use/zoning map. Include any other portions of comprehensive plans or development regulations that relate to water supply planning.

b) A copy of the **growth projections** that correspond to the service area. If the local population growth projections are not used, explain in detail why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.

c) Include water service area policies and show that they are consistent with the **utility service extension ordinances** within the city or town boundaries. *This applies to cities and towns only.*

d) All **service area policies** for how new water service will be provided to new customers.

e) **Other relevant elements** the Department of Health determines are related to water supply planning. See Local Government Consistency – Other Relevant Elements, Policy B.07, September 2009.

B) Documenting an Inconsistency: Please document the inconsistency, include the citation from the comprehensive plan or development regulation, and explain how to resolve the inconsistency.

C) Documenting a Lack of Local Review for Consistency: Where the local government with jurisdiction did not provide a consistency review, document efforts made and the amount of time provided to the local government for review. Please include: name of contact, date, and efforts made (letters, phone calls, and emails). To self-certify, please contact the DOH Planner.

7.
CITY OF GRANDVIEW FIRE DEPARTMENT LETTER

HLA
Engineering and Land Surveying, Inc.

GRANDVIEW FIRE DEPARTMENT

207 West Second Street • Grandview, WA 98930 • Telephone (509) 882-9280 • Fax: (509) 882-6546

January 26, 2015

City of Grandview
207 W. Second Street
Grandview, WA 98930

Attn: Cus Arteaga, Public Works Director/City Administrator

Re: City of Grandview
Water System Fire Suppression Storage Volume Requirements

Dear Cus:

The City of Grandview Fire Department has adopted the International Fire Code (IFC) as a basis for determining fire flow and fire suppression storage volume requirements. Per the IFC regulations, the required minimum fire flow and fire suppression storage volume for the City of Grandview is 8,000 gallons per minute (GPM) for a four-hour duration, and 1,920,000 gallons. However, the water demand and duration required for fire flow and/or fire suppression storage is ultimately determined by the local fire control authority per WAC 246-290-221.

Based upon the City of Grandview water system having approximately 2,000 GPM of its total 4,340 GPM well source capacity available with on-site backup power equipment, the Grandview Fire Department will allow the total fire suppression storage volume be reduced to 1,440,000 gallons, which provides 6,000 GPM for a four-hour duration. The combined total maximum fire flow rate for the system shall remain at 8,000 GPM, which is adequate for the City's largest fire suppression demand. The Grandview Fire Department understands the required fire suppression storage volume accounts for a large percentage of the total water system's storage, therefore it also approves nesting standby storage within the fire suppression storage volume.

Very truly yours,

Pat Mason

Pat Mason
Fire Chief

8.
CITY OF GRANDVIEW MUNICIPAL CODE, ORDINANCES, AND RESOLUTIONS

HLA
Engineering and Land Surveying, Inc.

Title 13
PUBLIC SERVICES

Chapters:

Chapter 13.04
GENERAL PROVISIONS

Sections:

13.04.010 Definitions.

Unless the context specifically indicates otherwise, the meaning of terms used in this title shall be as set forth in this section.

A. "Accidental discharges" means the inadvertent and unavoidable discharge of any waters or wastes which contain the substances or possess characteristics as determined by the city to be detrimental to the sewer system or treatment facilities, including slug discharges.

B. "Apartment" means any single dwelling unit designed for occupancy in the same building with other units and having separate kitchen facilities in each said unit, and includes multiple residence units having such facilities.

C. "BOD" (denoting "biochemical oxygen demand") means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory and sampling procedures in five days at 20 degrees centigrade, expressed in milligrams per liter.

D. “Building drain” means that part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer, beginning five feet outside the inner face of the building wall.

E. “Cabin” includes motel and one- and two-room living quarters designed primarily for transients, provided more than two such units are served by one meter or sewage connection.

F. “City” means the city of Grandview.

G. “Commercial, business and industrial user” means a commercial, business or industrial establishment excluding grocery stores, bakeries, restaurants and drive-ins discharging domestic wastes or industrial wastes in volumes less than 5,000 gallons per day on an average annual flow basis and not constituting a significant load on the sewage treatment works. Wastes from such a user do not pass through a monitoring station. For the purposes of determining sewer rates, waste from such a user is assumed to have a strength of 200 mg/l BOD and 200 mg/l TSS.

H. “Domestic water” or “domestic water system” means that water, and water system in which it is carried, which is for human consumption and normal household and business or industrial uses provided from the city’s supply.

I. “Multiple dwelling unit” means a building or arrangement of buildings or portions thereof, used or intended to be used as the home of two or more families or householders living independently of each other.

J. “Single-family dwelling unit” means a building arranged or designed to be occupied by not more than one family or householder.

K. “Garbage” means solid wastes from the preparation, cooking, and dispensing of food, and from the handling, storage, and sale of produce.

L. “Properly shredded garbage” means the wastes from the preparation, cooking and dispensing of food that has been shredded to such degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half inch (1.27 centimeters) in any dimension.

M. “Grocery stores, bakeries, restaurants and drive-ins” means a commercial or business establishment engaged in the commercial preparation and selling of foods, which typically discharge wastes with strengths greater than the waste discharged by a residential user. For the purposes of determining sewer rates, waste from such a user is assumed to have strength of 400 mg/l BOD and 400 mg/l TSS.

N. “Industrial user” means industrial facility that generates industrial wastes and discharges those wastes to the sewer.

O. “Industrial wastes” means the liquid wastes from industrial processes, as distinct from sanitary sewage.

P. “Large industrial or commercial user” means an industry or commercial establishment discharging sewage or industrial wastes in excess of 5,000 gallons per day on an average annual flow basis, or as determined by the city to be discharging water, sewage, wastewater, or industrial waste with BOD, chemical oxygen demand, suspended solids, or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment works. These users are required by the city to install a monitoring station, unless the discharge, even in excess of 5,000 gallons per day average flow, does not create a significant load on the sewage treatment works due to low BOD and TSS loads less than 200 mg/l, to be reviewed annually.

Q. “Milligrams per liter” (abbreviated as mg/l) means the weight of any substance expressed in milligrams contained within one liter.

R. “Natural outlet” means any outlet into a watercourse, pond, ditch, lake or other body of surface water or ground water.

S. “Person” means any individual, firm, company, association, society, corporation, or group.

T. “pH” means the logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

U. “Public user” means school and government establishments. Correctional facilities are not considered to be a public user, but rather are considered a large industrial or commercial user. For purposes of determining sewer rate, waste from such a user is assumed to have a strength of 200 mg/l BOD and 200 mg/l TSS.

V. “Public works director” means the public works director of the city, or his authorized deputy, agent, or representative.

W. “Residential user” means single-family dwellings, multiresidential dwellings including multiplexes, apartments, condominiums, townhouses, manufactured housing parks and multi-unit residential complexes.

X. “Sanitary wastes” means waste generated by sanitation facilities such as toilets, water closets, urinals, lavatories, and sinks used by humans, or wastes with a high probability of carrying human pathogens. For purposes of determining sewer rates, waste from such a user is assumed to have a strength of 200 mg/l BOD and 200 mg/l TSS, and sewer rates cited throughout this chapter have been based upon this assumed average concentration for BOD and TSS.

Y. “Sewage” means a combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments, together with such ground waters, surface waters, and storm waters as may be present.

Z. “Sewage treatment plant” means any arrangement of devices and structures used for treating sewage.

AA. “Sewage works” means all facilities for collecting, pumping, treating, and disposing of sewage.

BB. “Sewer” means a pipe or conduit for carrying sewage.

CC. “Building sewer” means the extension from the building drain to the public sewer or other place of disposal.

DD. “Combined sewer” means a sewer receiving both surface runoff and sewage.

EE. “Private sewer” means the sewer line and disposal system owned, constructed, installed, operated and maintained by a person where connection with the public sewer system is not required, and is not regulated by this title.

FF. “Public sewer” means a sewer in which all owners of abutting properties have equal rights, and is controlled by public authority.

GG. “Sanitary sewer” means a sewer which carries sewage and industrial waste, and to which storm waters, surface waters, and ground waters are not intentionally admitted.

HH. Shall and May. The word “shall” is mandatory. The word “may” is permissive.

II. “Slug discharges” means any discharge of industrial wastes which in concentration of any given component or in quantity of flow is more than five times the average 24-hour concentration. Average 24-hour monitoring records from a similar period of operation shall be used to determine the average 24-hour concentration of flow under normal operations.

JJ. “Storm sewer” or “storm drain” means a sewer which carries storm waters, surface waters and drainage, but excludes sewage and industrial wastes.

KK. “Suspended solids” means solids that either float on the surface of, or are in suspension in, water, sewage, industrial wastes, or other liquids, which are removable by laboratory filtering, are determined by quantitative standard laboratory procedures, and are expressed in milligrams per liter.

LL. “TSS” (denoting “total suspended solids”) means solids that either float on the surface of, or are in suspension in, water, sewage, industrial wastes, or other liquids, which are removable by laboratory filtering and sampling procedures, and are expressed in milligrams per liter or in pounds.

MM. “Watercourse” means a channel in which a flow of water occurs either continuously or intermittently. (Ord. 1660 § 1, 2003; Ord. 1429 § 2, 1995).

13.04.020 Classification of premises as “cabin” or “apartment”.

Any owner desiring his premises to come within the definition of “cabin” or “apartment” may petition the council

for a determination of classification of use, and the council may by resolution classify said use within said definition. (Ord. 1429 § 2, 1995).

13.04.030 Water and sewer department established.

A water and sewer department of the city is established. The officers and other employees shall consist of a public works director and such other personnel as the city council may from time to time deem necessary for the efficient administration of the department. (Ord. 1429 § 2, 1995).

13.04.040 Appointment and compensation of public works director and other personnel.

The public works director of the water and sewer department, and such other personnel as the city council may from time to time authorize, shall be appointed by the mayor with the approval of the city council and shall hold such appointed position at the pleasure of the mayor with the approval of the city council. The public works director and such other personnel as may be authorized shall receive such salary as the mayor and city council may determine. (Ord. 1429 § 2, 1995).

13.04.050 Duties of public works director.

The duties of the public works director shall be to oversee and superintend the operation and maintenance of the sewer system and domestic water system, the making of repairs of all kinds, the construction of all extensions and additions, and all construction work of whatever nature whatsoever in connection with the present sewer and domestic water system and any new systems that may be established. The public works director shall at all times be subject to the direction and authority of the mayor and approval of the city council. (Ord. 1429 § 2, 1995).

13.04.060 Right of access for inspection.

In the event free access during proper hours to all buildings and premises served by the domestic water and sewage system is denied, the public works director or his employees shall obtain warrants for inspection of pipes, fixtures, and the manner in which domestic water is being used and the manner in which the provisions of this title are being complied with. (Ord. 1429 § 2, 1995).

13.04.070 Use of fire hydrants.

No person other than an authorized employee of the water and sewer department, the fire department, or street department, shall operate fire hydrants or interfere therewith in any way without first obtaining authority to do so from the public works director or his employees. (Ord. 1429 § 2, 1995).

13.04.080 Damaging water and sewer system.

No unauthorized person shall maliciously, willfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance or equipment which is a part of the domestic water system or the public sewer and sewage disposal system. No city water customer may turn on a water meter that has been shut off by the city for any purpose. (Ord. 1443 § 1, 1996; Ord. 1429 § 2, 1995).

13.04.085 Water usage for lawns, gardens and other irrigation purposes.

Repealed by Ord. 1601. (Ord. 1429 § 2, 1995).

13.04.090 Installation of private utilities in city streets.

All installations of underground power, light, telephone, natural gas or other private service or utility operating pursuant to franchise, and within the right-of-way of public ways on streets of the city, shall be installed and maintained at a depth of not less than four feet below the graded surface of said way or street, provided existing installations may be maintained at the present level until replaced. (Ord. 1429 § 2, 1995).

13.04.100 Liability for damage.

Any person who violates any of the provisions of this title shall become liable to the city for any expense, loss or damage occasioned by the city by reason of such violation. (Ord. 1429 § 2, 1995).

13.04.110 Violation – Penalty.

Any person who violates any of the provisions of this title shall be deemed guilty of a misdemeanor, and shall be punished by a fine not exceeding $500.00. (Ord. 1443 § 2, 1996; Ord. 1429 § 2, 1995).

Chapter 13.08
USE OF PUBLIC SEWERS – CONNECTIONS

Sections:

13.08.010 Unsanitary disposal of wastes prohibited.

It is unlawful for any person to place, deposit or permit to be deposited in an unsanitary manner upon public or private property within the city, or in any area under the jurisdiction of the city, any human or animal excrement, garbage, or other unsanitary or objectionable waste. (Ord. 1429 § 2, 1995).

13.08.020 Discharge of sewage into natural outlet.

It is unlawful to discharge to any natural outlet within the city, or in any area under the jurisdiction of the city, any sanitary sewage, industrial wastes, or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provisions of this title. (Ord. 1429 § 2, 1995).

13.08.030 Use of private sewage disposal facilities restricted.

Except as provided in Chapter 13.20 GMC, it is unlawful to construct or maintain any privy, privy vault, septic tank, cesspool, or other facility intended or used for the disposal of sewage. (Ord. 1429 § 2, 1995).

13.08.040 Connection to available public sewer required after notice – Maintenance.

The owner of each house, building, or property used for human occupancy, employment, recreation, commercial or industrial activity, or other purpose, situated within the city and abutting on any street, alley, or right-of-way in which there is now located or may in the future be located a public sanitary or combined sewer of the city, is required at his expense to install suitable toilet facilities therein, and to connect such facilities directly with the proper public sewer in accordance with the provisions of this title within 90 days after date of official notice to do so; provided, that said public sewer is within 200 feet of the property line. All such lines connecting the property owner's facilities to the city sewer line are the responsibility of the property owner and shall be maintained by the property owner. The city shall be responsible for and shall maintain the main sewer line. (Ord. 1573 § 1, 2000; Ord. 1429 § 2, 1995).

13.08.050 Connection made by city – Assessment of expense.

In the event the building sewer and connection are not made within the time provided for in GMC 13.08.040

following notice, the public works director is authorized and directed to cause the same to be made and to file a statement of the cost thereof with the city clerk, and thereupon a warrant shall be issued under the direction of the city council against the water and sewer revenue fund for the payment of such cost. Such amount, together with a penalty of 10 percent thereof, plus interest at the rate of eight percent per year upon the total amount of the cost and penalty, shall be assessed against the property upon which such building sewer and connection has not been placed as required and shall become a lien thereon as herein provided. Such total amount, when collected, shall be paid into the water and sewer revenue fund. (Ord. 1429 § 2, 1995).

Chapter 13.12
USE OF PUBLIC SEWERS – DISCHARGES

Sections:

13.12.010 Storm water, etc., prohibited in sanitary sewer.

No person shall discharge or cause to be discharged any storm water, surface water, ground water, roof runoff, subsurface drainage, or cooling water to any sanitary sewer. (Ord. 1429 § 2, 1995).

13.12.020 Storm water, etc., discharged to storm sewer, combined sewer or natural outlet.

Storm water and all other unpolluted drainage shall be discharged to such sewers as are specifically designated as combined sewers or storm sewers, or to a natural outlet approved by the public works director. Industrial cooling water or unpolluted process waters may be discharged, upon approval of the public works director, to a storm sewer, combined sewer or natural outlet. (Ord. 1429 § 2, 1995).

13.12.030 Harmful wastes prohibited in public sewer.

Except as provided in this chapter, no person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer:

A. Any liquid or vapor having a temperature higher than 150 degrees Fahrenheit;

B. Any water or waste containing fats, grease, or oils, whether emulsified or not, in excess of 100 milligrams per liter or containing substances which may solidify or become viscous at temperatures between 32 and 150 degrees Fahrenheit;

C. Any gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquid, solid or gas;

D. Any garbage that does not meet the definition of properly shredded garbage;

E. Any ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feather, tar, plastics, wood, paunch manure, or any other solid or viscous substance capable of causing obstruction to the flow in sewers or other interference with the proper operation of the sewage works;

F. Any waters or wastes having a pH lower than five or higher than 11 or having any other corrosive property capable of causing damage or hazard to structures, equipment and personnel of the sewage works;

G. Any waters or wastes containing toxic or poisonous substances in sufficient quantity, either single or by interaction with other wastes, to injure or interfere with any sewage treatment process or constitute a hazard to humans or animals, create a public nuisance, or create any hazard in the receiving waters of the sewage treatment plant, including but not limited to cyanides in excess of two milligrams per liter;

H. Any waters or wastes containing suspended solids of such character and quantity that unusual attention or expense is required to handle such material at the sewage treatment plant;

I. Any noxious or malodorous gas or substance capable of creating a public nuisance;

J. Any cleaning or disinfectant chemicals which destroy or retard the organisms which are essential to the efficient operation of the sewage works and sewage treatment plant; any such cleaning or disinfectant chemical proposed for use together with its chemical composition shall be submitted to the public works director for evaluation prior to usage;

K. Any septic tank waste;

L. Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not;

M. Any waters or wastes containing phenols or other taste or odor producing substances, in such concentrations exceeding limits which may be established by the public works director as necessary, after treatment of the composite sewage, to meet the requirements of the state, federal, or other public agencies of jurisdiction for

such discharge to the receiving waters;

N. Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the public works director in compliance with applicable state or federal regulations;

O. Any waters or wastes containing iron, chromium, copper, zinc, and similar objectionable or toxic substances; or wastes exerting an excessive chlorine requirement, to such degree that any such material received in the sewage at the sewage treatment plant exceeds the limits established by the public works director;

P. Materials which exert or cause:

1. Unusual concentrations of inert suspended solids (such as, but not limited to, Fullers earth, lime slurries and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate);

2. Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions);

3. BOD, chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment plant;

4. Unusual flow or concentration of wastes constituting “slugs” as defined herein;

Q. Waters or wastes containing substances which are not amenable to treatment by the sewage treatment plant, or are amenable to treatment only to such degree that the sewage treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.

In the event of the discharge or proposed discharge to the sewage works of any waters or wastes which contain the substances or possess the characteristics enumerated in this section, and which in the judgement of the public works director may have a deleterious effect upon the sewage works, sewage treatment plant, or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the public works director may:

1. Reject the wastes;

2. Require pretreatment to an acceptable condition for discharge to the public sewer;

3. Require control over the quantities and rates of discharge; and/or

4. Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges under the provisions of this title.

If the public works director permits the pretreatment or equalization of waste flows, the design and installation of the plant(s) and equipment shall be subject to the review and approval of the public works director, and subject

to the requirements of all applicable codes, ordinances and laws.

To adequately assess the impact to the sewage works, sewage treatment plant, or receiving waters, or the potential hazard to life, or the potential to constitute a public nuisance, written notification shall be given to the public works director. Written notification shall be provided for discharges or proposed discharges as follows:

1. Slug discharges without prior written notification and accidental discharges without subsequent written notification to the city shall be subject to a penalty of $1,000 per day per occurrence plus the cost of mitigating the impact of the discharge on the sewer system and treatment facilities;

2. Accidental discharges with oral notice to the public works director and written notification to the public works director shall be subject to a penalty equal to the cost of mitigating the impact of the discharge on the sewer system and treatment facilities; and

3. Planned slug discharges with prior written notification to and approval by the city shall be subject to a penalty equal to the cost of mitigating the impact of the discharge on the sewer system and treatment facilities. (Ord. 1429 § 2, 1995).

13.12.040 Grease, oil and sand interceptors required – Specifications.

A. Grease, oil, and sand interceptors shall be provided when, in the opinion of the public works director, they are necessary for the proper handling of liquid wastes containing grease in excessive amounts, or any flammable wastes, sand, and other harmful ingredients; except, that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of a type and capacity approved by the public works director, and shall be so located as to be readily and easily accessible for cleaning and inspection.

B. Grease and oil interceptors shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, watertight, and equipped with easily removable covers which, when bolted in place, shall be gastight and watertight. (Ord. 1429 § 2, 1995).

13.12.050 Maintenance of grease, oil and sand interceptors.

Where installed, all grease, oil and sand interceptors shall be maintained by the owner, at his expense, in continuously efficient operation at all times. (Ord. 1429 § 2, 1995).

13.12.060 Preliminary treatment required for certain wastes – Approval of facilities.

A. The admission into the public sewers of any water or wastes:

1. Having a five-day biochemical oxygen demand greater than 300 milligrams per liter, or

2. Containing more than 350 milligrams per liter of suspended solids, or

3. Containing any quantity of substances having the characteristics described in GMC 13.12.030, or

4. Having an average daily flow greater than two percent of the average daily sewage flow of the city; shall be subject to the review and approval of the city.

B. Where necessary in the opinion of the city, the owner shall provide, at his expense, such preliminary treatment as may be necessary to:

1. Reduce the biochemical oxygen demand to 300 milligrams per liter and the suspended solids to 350 milligrams per liter, or

2. Reduce objectionable characteristics or constituents to within the maximum limits provided for in GMC 13.12.030, or

3. Control the quantities and rates of discharge of such waters or wastes.

C. Plans, specifications, and any other pertinent information relating to proposed preliminary treatment facilities shall be submitted for the approval of the public works director and of the appropriate state regulatory agency if required, and no construction of such facilities shall be commenced until said approvals are obtained in writing. (Ord. 1429 § 2, 1995).

13.12.070 Maintenance of preliminary treatment facilities.

Where preliminary treatment or flow-equalizing facilities are provided for any waters or wastes, they shall be maintained continuously in satisfactory and effective operation, by the owner at his expense. (Ord. 1429 § 2, 1995).

13.12.080 Monitoring stations.

As determined by the city, large industrial or commercial users will be required to install monitoring stations no later than September 1, 1995. When monitoring stations are required, the city shall designate when, where, and how many stations shall be installed. Monitoring stations shall be constructed by, and at the expense of, the large industrial or commercial user, in accordance with plans, and a list of acceptable equipment provided by the city. Once installed, the city will own, operate and maintain all monitoring stations (except industrial or commercial user shall pay for electricity to operate the station). Upgrades in equipment needed to accommodate growth of the user, or replacement of damaged equipment resulting from negligence of the user, shall be at the expense of the large industrial or commercial user. Large industrial or commercial users shall provide unrestricted city access to all monitoring stations. The rates and charges for large industrial or commercial users utilizing monitoring stations shall be based upon the volume, strength and other characteristics of the discharges (as determined through monitoring, measurements, tests, and analyses) and costs associated with the operation and maintenance of the monitoring stations. (Ord. 1429 § 2, 1995).

13.12.090 Tests and analysis – Standards.

All measurements, tests and analyses of the volume, strength and characteristics of discharges, to which

reference is made in GMC 13.12.060(B) and 13.12.080, shall be determined in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association, and shall be determined through samples collected at, or measurements made at, the monitoring stations. In the event that no monitoring station has been required, the nearest downstream manhole shall be considered to be the point where sample collection or measurements are to be made. Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewage works and to determine the existence of hazards to life, limb and property. The particular analyses involved will determine whether a 24-hour composite or whether a grab sample should be taken. (Ord. 1429 § 2, 1995).

13.12.100 Industrial wastes – Special agreement for treatment.

No statement contained in this chapter shall be construed as preventing any special agreement or arrangement between the city and any industrial user whereby an industrial waste of unusual strength or character may be accepted by the city for treatment, subject to payment therefor by the industrial user. (Ord. 1429 § 2, 1995).

13.12.110 Industrial wastes – Screening of coarse solids.

Each and every industrial plant, and such other commercial user as the public works director may deem necessary, shall install, operate and maintain satisfactory screens or other devices, approved by the public works director, to screen coarse solids from industrial waste before water is discharged to sewers. (Ord. 1429 § 2, 1995).

13.12.120 Penalties for certain discharges.

The city of Grandview shall charge monetary penalties for slug and/or accidental discharges of wastes from large industrial or commercial users. Penalties for slug or accidental discharges of BOD and TSS, and any other waste containing constituents in excess of those allowed by this code, shall be as follows:

A. Slug discharges without prior written notification and accidental discharges without subsequent written notification to the city shall be subject to a penalty of $1,000 per day per occurrence plus the cost of mitigating the impact of the discharge on the sewer system and treatment facilities;

B. Accidental discharges with immediate oral and written notification to the city public works director, or, if unavailable, to the Grandview police department, shall be subject to a penalty equal to the cost of mitigating the impact of the discharge on the sewer system and treatment facilities; and planned slug discharges with prior written notification to and approval by the city shall be subject to a penalty equal to the cost of mitigating the impact of the discharge on the sewer system and treatment facilities; and

C. Any discharge of wastes from large industrial or commercial user having either:

1. A gravity discharge of wastewater to the sewer system for an average over a 15-minute period within a 60-minute duration; or

2. A pumped discharge of wastewater to the sewer system of 25 percent of the pumped volume within a 60-minute period or for 25 percent of the pumping period within a 60-minute period;

of wastewater with a pH lower than five or higher than 11 or having any other corrosive property capable of causing damage or hazard to structures, equipment and personnel of the sewage works after June 1, 1997 shall be subject to a penalty of $103.00 per hour for each hour said violation continues to occur. In addition, the city may charge the discharger for actual costs of mitigating the effects of the impact of the discharge on the sewer system and treatment facilities. The amount of said fine may be revised from time to time by resolution of the city council. (Ord. 1488 § 1, 1997; Ord. 1429 § 2, 1995).

13.12.130 Industrial discharge contracts required.

Beginning July 1, 1996, all large industrial or commercial users shall be required to enter into an industrial discharge contract with the city. The language and format of the contract shall be as determined and approved by the city. Included in the contract shall be the allocation of available industrial wastewater facility capacity to the user.

Any large industrial or commercial user that fails to enter into an industrial discharge contract with the city may not continue to discharge into the city wastewater system unless the city has excess industrial capacity that has not been allocated to the contracting industrial and commercial users. Said usage may be terminated without notice in the event the city has reached its industrial capacity either under the terms of its permits or by reason of lack of treatment capacity.

The discharges of a large industrial or commercial user may be restricted to the capacity allocated in the industrial discharge contract, or the State Waste Discharge Permit issued to the user by the Washington Department of Ecology, whichever results in the smaller capacity. If a large industrial or commercial user does not enter into an industrial discharge contract, then the limits of the State Waste Discharge Permit shall apply when the city agrees to provide sewer service of excess capacity.

Any large industrial user who is allowed to discharge to the city wastewater system, but has not entered into an industrial contract with the city, shall be subject to a surcharge on the normal wastewater rates charged to the user if said user had entered into an industrial discharge contract with the city. The following surcharges, expressed as a percentage of the normal wastewater rates, shall be added to the normal wastewater rates charged to large industrial or commercial users and included in the charges for providing wastewater service to the user without a contract.

Date	Surcharge
July 1, 2001	10 percent
July 1, 2002	25 percent
July 1, 2003	50 percent

July 1, 2004	75 percent
July 1, 2009	100 percent
July 1, 2014	125 percent
July 1, 2019	150 percent

The above surcharges shall double for those users who have neither an industrial discharge contract nor a State Waste Discharge Permit. The above surcharges shall also be doubled and apply to that portion of the wastewater or its constituents discharged in excess of the permit limits by those users without a contract, but who have a State Waste Discharge Permit and discharge wastewater and its constituents in excess of the limits stipulated in the said State Waste Discharge Permit.

Any new large industrial or commercial business shall have a one-year period of operation before any surcharges as provided herein shall apply. (Ord. 1749 § 1, 2006; Ord. 1603 § 1, 2001; Ord. 1539 § 1, 1999; Ord. 1484 § 1, 1996; Ord. 1456 § 1, 1996; Ord. 1440 § 1, 1995; Ord. 1430 § 1, 1995).

Chapter 13.14
STREET LIGHTING UTILITY[1]

(Repealed)

Prior legislation: Ord. 1511.

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[1] This chapter was removed from the code at the direction of the city, following the passage of Ord. 2009-7.

Chapter 13.16
BUILDING SEWERS AND CONNECTIONS

Sections:

13.16.010 Permit required to make connection to public sewer.

No unauthorized person shall uncover, make any connections with or opening into, use, alter, or disturb any public sewer or appurtenance thereof without first obtaining a written permit from the public works director. (Ord. 1429 § 2, 1995).

13.16.020 Classes of sewer permits – Application and fee.

A. There shall be two classes of building sewer permits:

1. For residential and commercial service; and

2. For service for establishments producing industrial wastes.

B. In either case, the owner or his agent shall make application on a special form furnished by the city. The permit application shall be supplemented by any plans, specifications, or other information considered pertinent in the judgment of the public works director. A permit and inspection fee of $20.00 for a residential or commercial building sewer permit and $20.00 for an industrial building sewer permit shall be paid to the city at the time the application is filed. (Ord. 1429 § 2, 1995).

13.16.030 Expense of connection borne by owner – Liability for damage.

All costs and expense incidental to the installation and connection of the building sewer shall be borne by the owner or applicant of the premises in question. The owner shall indemnify the city against any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer. (Ord. 1429 § 2, 1995).

13.16.040 Separate sewer for each building – Exception.

A separate and independent building sewer shall be provided for every building; except, that where one building stands at the rear of another on an interior lot and no private sewer is available or can be constructed to the rear building through an adjoining alley, court, yard, or driveway, the building sewer from the front building may be extended to the rear building and the whole considered as one building sewer. (Ord. 1429 § 2, 1995).

13.16.050 Use of old sewers.

Old building sewers may be used in connection with new buildings only when they are found, on examination and test by the public works director, to meet all requirements of this title. Said testing shall be at the expense of the owner. (Ord. 2009-7 § 2; Ord. 1429 § 2, 1995).

13.16.060 Specifications.

The size, slope, alignment, materials of construction of a side sewer and the methods to be used in excavating, placing of the pipe, jointing, testing and backfilling the trench, shall all conform to the requirements of the building and plumbing code or other applicable rules and regulations of the resolutions of the city. In the absence of code provisions or in amplification thereof, the materials and procedures set forth in appropriate specifications of the latest version of the Standard Specifications for Road, Bridge and Municipal Construction (developed by the Washington State Department of Transportation and the Washington State Chapter of the American Public Works Association), the American Society of Testing Materials, and the Water Environment Federation Manual of Practice No. 9 shall apply. (Ord. 1429 § 2, 1995).

13.16.070 Size and slope.

The size and slope of the building sewer shall be subject to the approval of the public works director, but in no event shall the diameter be less than is provided by the Uniform Plumbing Code described in this section. (Ord. 1429 § 2, 1995).

13.16.080 Elevation, location, depth, alignment and changes in direction.

Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. No building sewer shall be laid parallel to or within three feet of any bearing wall, which might thereby be weakened. The depth shall be sufficient to afford protection from frost. The building sewer shall be laid at uniform grade and in straight alignment in so far as possible. Changes in direction shall be made with properly curved pipe and fittings. (Ord. 1429 § 2, 1995).

13.16.090 Artificial means required where gravity flow not possible.

In all buildings in which any building drain is too low to permit gravity flow to the public sewer, sewage carried by such drain shall be lifted by approved artificial means and discharged to the building sewer. (Ord. 1429 § 2, 1995).

13.16.100 Excavation of trenches and backfill.

All excavation required for the installation of a building sewer shall be open trench work, unless otherwise approved by the public works director. Pipe laying and backfill shall all conform to the requirements of the building and plumbing code or other applicable rules and regulations of the resolutions of the city. In the absence of code provisions or in amplification thereof, the materials and procedures set forth in appropriate specifications of the latest version of the Standard Specifications for Road, Bridge and Municipal Construction (developed by the Washington State Department of Transportation and the Washington State Chapter of the American Public Works Association), the American Society of Testing Materials, and the Water Environment Federation Manual of Practice No. 9 shall apply; except, that no backfill shall be placed until the work has been inspected. (Ord. 1429 § 2, 1995).

13.16.110 Joints and connections.

A. All joints and connections shall be made gastight and watertight.

B. The connection of the side sewer into the public sewer shall conform to the requirements of the building and plumbing code or other applicable rules and regulations of the city of the procedures set forth in appropriate specifications of the American Society of Testing Materials and the Water Environment Federation Manual of Practice No. 9.

C. All joints in vitrified clay pipe, or other approved nonmetallic pipe or between such pipe and metals, shall be made in a manner approved by the public works director.

D. Other jointing materials and methods may be used only by approval of the public works director. (Ord. 1429 § 2, 1995).

13.16.120 Connection to public sewer – Construction specifications.

The connection of the building sewer into the public sewer shall be made at the Y branch, if such branch is available at a suitable location. If the public sewer is 12 inches in diameter or less, and no properly located Y branch is available, the owner shall at his expense install a Y branch in the public sewer at the location specified

by the public works director. Where the public sewer is greater than 12 inches in diameter, and no properly located Y branch is available, a neat hole may be cut into the public sewer, with entry in the downstream direction at an angle of about 45 degrees. A 45-degree ell may be used to make such connection, with the spigot end cut so as not to extend past the inner surface of the public sewer. The invert of the building sewer at the point of connection shall be at the same or at a higher elevation than the invert of the public sewer. A smooth, neat joint shall be made, and the connection made secure and watertight by encasement in concrete. Special fittings may be used for the connection only when approved by the public works director. (Ord. 1429 § 2, 1995).

13.16.130 Connection to public sewer – Notice of readiness and supervision.

The applicant for the building sewer permit shall notify the public works director when the building sewer is ready for inspection and connection to the public sewer. The connection shall be made under the supervision of the public works director or his representative. (Ord. 2009-7 § 3; Ord. 1429 § 2, 1995).

13.16.140 Barricades, lights and restoration – Indemnification of city.

A. All excavations for building sewer installation shall be guarded with barricades and lights and such other precautions as are reasonably adequate to protect the public from accident and injury. Streets, sidewalks, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the city.

B. A performance bond or deposit in an amount equal to 110 percent of the estimated cost of work performed within the public right-of-way or utility easements, as approved by the public works director, but in no event less than $500.00, shall be furnished and deposited with the city to indemnify the city against any loss, damage, or liability in connection with such sewer work. (Ord. 1429 § 2, 1995).

13.16.150 Inappropriate connections prohibited.

No person shall make connection of roof downspouts, exterior foundation drains, areaway drains, or other sources of surface runoff or ground water to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer. (Ord. 1429 § 2, 1995).

Chapter 13.18
CROSS-CONNECTION CONTROL

Sections:

13.18.005 Authority.

Pursuant to WAC 246-290-490, or as amended, it is the responsibility of the city of Grandview to protect its drinking water by instituting and enforcing a cross-connection control program. Now, therefore, the city of Grandview stipulates as follows in this chapter. (Ord. 1649 § 2, 2003).

13.18.010 Definitions.

Except where specifically designated herein, all words used in this document shall carry their customary meanings. Words used in the present tense include the future and plural words include the singular. The word "shall" is always mandatory, and the word "may" denotes a use of discretion in making a decision. Any definition not found in this section will take its meaning from Chapter 246-290 WAC, or as amended, or in the most recent edition of the "Manual of Cross Connection Control" published by the Foundation for Cross Connection Control and Hydraulic Research, University of Southern California.

A. "Air gap" means a physical separation between the free-flowing end of a potable water supply pipeline and the overflow rim of an open or nonpressure-receiving vessel. To be an "approved air gap," the separation must be at least twice the diameter of the inlet piping (supply pipe) measured vertically, and never be less than one inch.

B. "Approved backflow prevention assembly" or "backflow assembly" or "assembly" means an assembly to counteract backpressures or prevent backsiphonage. This assembly must appear on the list of approved assemblies issued by the Washington State Department of Health. The assembly must be purchased and

installed as a complete unit including two shut-off valves and test cocks.

C. “Auxiliary supply” means any water source or system other than the city of Grandview’s water.

D. “Backflow” means the flow of water or other liquids, gases or solids from any source back into the distribution system. The flow of water in the opposite direction of its intended flow.

E. “Backflow assembly tester” means a person holding a valid BAT certificate issued in accordance with WAC 246-290-490 and Chapters 18.27, 18.106, and 70.119 RCW.

F. “Backpressure” shall mean backflow due to water pressure on the downstream side of the meter which exceeds the operating pressure of the public potable water supply.

G. “Backsiphonage” shall mean backflow due to a negative or reduced pressure within the public potable water supply.

H. “Building inspector” shall mean the building inspector for the city of Grandview.

I. “City” shall mean the city of Grandview.

J. “Closed system” means any water system or portion of a water system in which water is closed to atmosphere.

K. “Contamination” means the entry into or presence in a public water supply system of any substance which may be harmful to health and/or quality of the water.

L. “Cross-connection” means any physical arrangement where a public water system is connected, directly or indirectly (actual or potential), with any other nondrinkable water system or auxiliary system, wells, sewer, drain conduit, swimming pool, storage reservoir, plumbing fixture, swamp coolers, or any other device which contains, or may contain, contaminated or polluted water, sewage, used water, or other liquid of unknown or unsafe quality which may be capable of imparting contamination or pollution to the public water system as a result of backflow. Bypass arrangements, jumper connections, removable sections, swivel or changeover devices, or other temporary or permanent devices through which, or because of which, backflow may occur are considered to be cross-connections.

M. “Cross-connection specialist” or “CCS” shall mean a person holding a valid CCS certificate issued in accordance with the Washington Administrative Code.

N. “Degree of hazard” means the low or high hazard classification that shall be attached to all actual or potential cross-connections.

O. “Director” shall mean the public works director or his/her designee.

P. “DOH” means Washington Department of Health.

Q. “Double check detector assembly” or “DCDA” means an assembly which consists of two independently operating check valves which are spring-loaded or weighted. The assembly comes complete with a shut-off valve on each side of the checks, as well as test cocks to test the checks for tightness. It shall also be provided with a factory bypass arrangement with a meter and a minimum of an approved double check assembly.

R. “Double check valve backflow prevention assembly” or “double check assembly” or “double check” or “DCVA” or “DC” means an assembly which consists of two independently operating check valves which are spring-loaded or weighted. The assembly comes complete with a shut-off valve on each side of the checks, as well as test cocks.

S. “Health hazard” means an actual or potential threat of contamination of a physical, toxic or biological nature that would be a danger to health.

T. “High hazard” means the classification assigned to an actual or potential cross-connection that potentially could allow a substance that may cause illness or death to backflow into the potable water supply.

U. “In-premises protection” means a method of protecting the health of consumers served by the customer’s plumbing system (i.e., located within the property lines of the customer’s premises) by the installation of an approved air gap, backflow prevention assembly or device at the point of hazard.

V. “Inspector,” “surveyor” or “specialist” shall mean a person holding a valid CCS certificate issued in accordance with the Washington Administrative Code, who meets the stipulations in this chapter and the most recent edition of the city’s standard operating procedures manual.

W. “Local administrative authority” means the local official, board, department or agency authorized to administer and enforce the provisions of the Uniform Plumbing Code and all other plumbing codes recognized by the state of Washington.

X. “Low hazard” means the classification assigned to an actual or potential cross-connection that could allow a substance that may be objectionable, but not hazardous to one’s health, to backflow into the potable water supply.

Y. “Mobile unit” shall mean units connecting to the water system through a hydrant, hose bibb, or other appurtenance of a permanent nature that is part of the city water system or a permanent water service to a premises. Examples can include but are not limited to the following: water trucks, pesticide applicator vehicles, chemical mixing units or tanks, waste or septage hauler trucks or units, sewer cleaning equipment, carpet or steam cleaning equipment, rock quarry or asphalt/concrete batch plants, or any other mobile equipment or

vessel. Uses that are excluded from this definition are recreational vehicles at assigned sites or parked in accordance with other city ordinances pertaining to recreational vehicles, and homeowner devices that are used by the property owner in accordance with other provisions of this, or other, city of Grandview ordinances pertaining to provision of water service to a premises.

Z. “Person” means a natural person (individual), corporation, company, association, partnership, firm, limited liability company, joint venture company or association, and other such entity.

AA. “Plumbing hazard” means an internal or plumbing-type cross-connection in a consumer’s potable water system that may be either a pollutional or a contamination-type hazard. This includes, but is not limited to, cross-connections to toilets, sinks, lavatories, wash trays, domestic washing machines and lawn sprinkling systems. Plumbing-type cross-connections can be located in all types of structures including but not limited to homes, manufactured homes, apartment houses, hotels and commercial or industrial establishments.

BB. “Point-of-use isolation” shall mean the same as “in-premises protection.”

CC. “Pollutional hazard” means an actual or potential threat to the physical properties of the water system or the potability of the public or the consumer’s potable water system but which would not constitute a health or system hazard, as defined. The maximum degree of intensity of pollution to which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable or could cause minor damage to the system or its appurtenances.

DD. “Potable water supply” means any system of water supply intended or used for human consumption or other domestic use and meets all requirements established by the Safe Drinking Water Act and the DOH regulations.

EE. “Premises” means any piece of property to which water is provided including, but not limited to, all improvements, mobile structures and structures located on it.

FF. “Premises isolation” means a method of protecting a public water system by installation of an approved air gap or approved backflow prevention assembly at the point of service (end of purveyor’s service pipe) to separate the customer’s plumbing system from the purveyor’s distribution system.

GG. “Reduced pressure detector assembly” or “RPDA” shall mean an approved assembly consisting of two approved reduced pressure backflow assemblies, set in parallel, equipped with a meter on the bypass line to detect small amounts of water leakage or use.

HH. “Reduced pressure principle backflow prevention assembly” or “reduced pressure principle assembly” or “RP assembly” shall mean an assembly containing two independently acting approved check valves together with a hydraulically operated, mechanically independent pressure differential relief valve located between the check valves. The assembly shall include properly located test cocks and tightly closing shut-off valves at each

end of the assembly.

II. “SOP” means the most recent edition of the city of Grandview’s standard operating procedures manual.

JJ. “Thermal expansion” means the pressure created by the expansion of heated water.

KK. “Used water” means any water supplied by the city to a customer’s property after it has passed through the service connection and is no longer under the control of the city.

LL. “WAC” means the most recent edition of the Washington Administrative Code. (Ord. 1649 § 2, 2003).

13.18.020 Purpose.

The purpose of this chapter is to protect the water system of the city of Grandview from contamination or pollution due to any existing or potential cross-connections as defined in WAC 246-290-010, or as amended, and this chapter. (Ord. 1649 § 2, 2003).

13.18.030 Cross-connections regulated.

A. No cross-connections shall be created, installed, used or maintained within the territory served by the city, except in accordance with this chapter.

B. The CCS for the city shall carry out or cause inspections to be carried out to determine if any actual or potential cross-connections exist. If found necessary, an assembly commensurate with the degree of hazard will be required to be installed at the service connection.

C. The owner, occupant or person in control of the property is responsible for all cross-connection control within the premises. (Ord. 1649 § 2, 2003).

13.18.040 Application and responsibilities.

This chapter applies throughout the city and to every premises and property served by the city water system. It applies to any premises, public or private, regardless of date of connection to the city water. Every owner, occupant and/or person in control of any concerned premises is responsible for compliance with the terms and provisions contained herein. (Ord. 1649 § 2, 2003).

13.18.050 Backflow prevention assembly requirements.

A CCS employed by or under contract with the city shall determine the type of backflow assembly to be installed within the area served by the city. All assemblies shall be installed at the service connection unless it is determined by the CCS to install the assembly at an alternate location for premises protection or at the point of use. The cross-connection shall be eliminated or an assembly shall be required to be installed in each of the following circumstances, but the CCS is in no way limited to the following circumstances:

A. The nature and extent of any activity on the premises, or the materials used in connection with any activity on

the premises, or materials stored on the premises, could contaminate or pollute the potable water supply.

B. Premises having any one or more cross-connections or potential cross-connections as that term is defined in this chapter and the WAC.

C. When a cross-connection survey report form is required by the city to be filled out and returned and it has not been received.

D. Internal cross-connections are present that are not correctable.

E. Intricate plumbing arrangements exist or plumbing subject to frequent changes are present that make it impractical to ascertain whether or not cross-connections exist.

F. There is a repeated history of cross-connections being established or re-established.

G. There is unduly restricted entry so that inspections for cross-connections cannot be made with sufficient frequency to assure that cross-connections do not exist.

H. Materials, chemicals or any substance or apparatus is being used that if backflow occurred contamination would result.

I. Installation of an approved backflow prevention assembly is deemed to be necessary in the judgement of the CCS to accomplish the purpose of these regulations.

J. Any premises having an auxiliary water supply which is not in compliance with WAC 248-54-30 and is not acceptable to the city.

K. In the event a point-of-use assembly has not been tested or repaired as required by WAC 246-290-490, or as amended, and this chapter.

L. If it is determined that additions or rearrangements have been made to the plumbing system without obtaining proper permits as required by the city code enforcement division.

M. All high health hazard premises which are defined in Table 9 of WAC 246-290-490, or as amended, are required to have premises isolation by installing a reduced pressure principle assembly in accordance with this chapter.

N. When a garden hose attachment is connected to the premises plumbing, including but not limited to fertilizer applicators, pesticide applicators and radiator flush kits.

O. Where reclaimed or reused water systems are installed.

P. Premises on which any substance is handled under pressure so as to permit entry into the public water system. (Ord. 1649 § 2, 2003).

13.18.060 Irrigation systems.

All irrigation systems shall be protected in accordance with the plumbing code regulations. In the event any system is equipped with an injector system, or has submerged heads, a reduced pressure principle assembly will be required. (Ord. 1649 § 2, 2003).

13.18.070 Fire systems.

An approved double check detector backflow prevention assembly shall be the minimum protection on all new fire sprinkler systems using piping material that is not approved for potable water use, and/or that does not provide for periodic flow-through. A reduced pressure principle detector backflow prevention assembly must be installed, if any solution other than the potable water can be introduced into the sprinkler system. Retrofitting on fire sprinkler systems will be required in each of the following circumstances:

A. Where improper maintenance has occurred;

B. On all high hazard systems;

C. Wherever a CCS deems necessary; and

D. Wherever required by the WAC. (Ord. 1649 § 2, 2003).

13.18.080 Temporary meters and hydrant valves.

Backflow protection will be required on temporary meters and all hydrant valves. The type of assembly will be commensurate with the degree of hazard and will be determined on a case-by-case basis by the city's CCS. (Ord. 1649 § 2, 2003).

13.18.090 Mobile units.

Any mobile unit or apparatus as defined in GMC 13.18.010 which uses the city's water from any premises or piping within the distribution system shall first obtain a permit from the city. The mobile unit will be inspected to assure appropriate backflow protection is installed in accordance with the city's most recent edition of the SOP manual. (Ord. 1649 § 2, 2003).

13.18.100 Right-of-way encroachment.

A. No person shall install or maintain a backflow prevention assembly upon or within any city right-of-way except as provided in this section.

B. The city reserves the right to have an assembly installed in the right-of-way.

C. A backflow prevention assembly required by the city may be installed upon or within any city right-of-way only

if the owner proves to the city that there is no other feasible location for installing the assembly, and installing it in the right-of-way will not interfere with traffic or utilities. The city retains the right to approve the location, height, depth, enclosure, and other requisites of the assembly prior to its installation.

D. All permits required by the city code to perform work in the right-of-way shall be obtained.

E. A property owner shall, at the request of the city and at the owner's expense, relocate a backflow prevention assembly which encroaches upon any city right-of-way, when such relocation is necessary for street or utility construction or repairs for purposes of public safety. (Ord. 1649 § 2, 2003).

13.18.110 Plumbing code.

As a condition of water service, customers shall install, maintain, and operate their piping and plumbing systems in accordance with all Washington State plumbing codes. (Ord. 1649 § 2, 2003).

13.18.120 Access to commercial industrial premises.

Authorized employees of the city, with proper identification, shall have access during the hours of 8:00 a.m. to 5:00 p.m. to all parts of commercial and industrial premises and within the buildings to which water is supplied. If access to the premises or to the interior of a structure during these hours are denied, a reduced pressure principle assembly shall be required to be installed at the service connection to that premises. (Ord. 1649 § 2, 2003).

13.18.130 Access to residential premises.

Permission to perform a cross-connection inspection at a residential property must be requested by the city at least 72 hours prior to the time of inspection. If permission is denied, the property owner shall contact a CCS to perform the inspection and provide a report to the city. The report must reach the city within 21 days of the request for permission from the city. Failure to comply may result in the city installing a RP assembly at the meter in compliance with this chapter. (Ord. 1649 § 2, 2003).

13.18.140 Testing and repairs.

Backflow prevention assemblies shall be tested and repaired in accordance with the requirements set out in the WAC, this chapter and the most recent edition of the city's SOP manual. (Ord. 1649 § 2, 2003).

13.18.150 Responsibilities of backflow prevention assembly testers.

All backflow assembly testers operating within the city shall be certified in accordance with all applicable regulations and shall comply with all stipulations in this chapter and the most recent edition of the city's SOP manual. (Ord. 1649 § 2, 2003).

13.18.160 Maintenance of assemblies.

Backflow prevention assemblies shall be maintained in accordance with the requirements set out in the WAC, or as amended, and the most recent edition of the city's SOP manual. (Ord. 1649 § 2, 2003).

13.18.170 Installation requirements and specifications.
Backflow prevention assemblies shall be installed in accordance with the requirements set out in the WAC and the most recent edition of the city's SOP manual.

In the event the CCS allows a premises isolation assembly to be installed at an alternate location, there shall be no connections between the meter and the premises isolation assembly. (Ord. 1649 § 2, 2003).

13.18.180 Thermal expansion.
If a closed system has been created by the installation of a backflow prevention assembly, it is the responsibility of the property owner to eliminate the possibility of thermal expansion. (Ord. 1649 § 2, 2003).

13.18.190 Pressure loss.
Any reduction in water pressure caused by the installation of a backflow assembly is not the responsibility of the city. The city will give reasonable assistance to the owner regarding information on adequate sizing of assemblies and proper plumbing practices to provide for required pressure and flows for fire protection. (Ord. 1649 § 2, 2003).

13.18.200 Parallel installation.
Premises where noninterruption of water supply is critical shall have two assemblies of the same type installed in parallel. They shall be sized in such a manner that either assembly will provide the minimum water requirements while the two together will provide the maximum water requirements. (Ord. 1649 § 2, 2003).

13.18.210 New construction.
A. On all new nonresidential construction, an approved backflow assembly shall be installed at the service connection. The type of the assembly will be commensurate with the degree of hazard as determined by a CCS.

B. When a building is constructed on commercial premises, and the end use of the building is not determined or could change, a reduced pressure principle backflow prevention assembly shall be installed at the service connection to provide protection of the public water supply in the event of the most hazardous use of the building. (Ord. 1649 § 2, 2003).

13.18.220 Residential service connections.
Any residential property which has been determined to have an actual or potential cross-connection and/or has violated the plumbing code or this chapter in any way shall be required to install an approved backflow prevention assembly in accordance with this chapter. (Ord. 1649 § 2, 2003).

13.18.230 Rental properties.
The property owner is responsible for the installation, testing and repair of all backflow assemblies on their property. When the tenants change, or, if the plumbing is altered in any way, it is the responsibility of the owner to notify the city. (Ord. 1649 § 2, 2003).

13.18.240 Retrofitting.

Retrofitting shall be required on all service connections where an actual or potential cross-connection exists, and wherever else the city deems retrofitting necessary. (Ord. 1649 § 2, 2003).

13.18.250 Costs of compliance.

All costs associated with the purchase, installation, inspections, testing, replacement, maintenance, parts, and repairs of the backflow assembly are the financial responsibility of the property owner. All cost associated with any disconnect fees associated with the enforcement of this chapter are the sole responsibility of the water user and/or property owner.

On residential irrigation systems, the city may purchase, install, test, and maintain the backflow assemblies. The cost for these services will be passed on to the end user and/or property owner on their water bill and may be amortized over a period of time upon request. (Ord. 1649 § 2, 2003).

13.18.260 Recovery of costs.

Any water customer violating any of the provisions of this chapter and who causes damage to or impairs the city's water system, including, but not limited to, allowing contamination, pollution, any other solution or used water to enter the city's water system, shall be liable to the city for any expense, loss or damage caused by such violation. The city shall collect from the violator for the cost incurred by the city for any cleaning, purifying, repair or replacement work or any other expenses caused by the violation. Refusal to pay the assessed costs shall constitute a violation of this chapter and shall result in the termination of service. (Ord. 1649 § 2, 2003).

13.18.270 Emergency suspension of service.

The director or his/her designee may, without prior notice, suspend water service to any premises when such suspension is necessary to stop the eminent threat of any actual or potential cross-connection as defined in this chapter and the most recent edition of the city's SOP manual. (Ord. 1649 § 2, 2003).

13.18.280 Nonemergency suspension of service.

The director or his/her designee may suspend, with 24 hours' notice, the water supply to any premises where the conditions of this chapter or the most recent edition of the city's SOP manual have been violated. (Ord. 1649 § 2, 2003).

13.18.290 Violation – Enforcement – Penalties.

Violations of this chapter shall be enforced and penalties imposed in accordance with Chapter 15.72 GMC. (Ord. 2010-11 § 1; Ord. 1649 § 2, 2003).

13.18.300 Falsifying information.

Any person who knowingly makes any false statement, representation, record, report or other document filed or required to be maintained pursuant to this chapter, or who falsifies, tampers with, or knowingly renders inaccurate any backflow assembly, device or method required under this chapter shall (in addition to civil and/or

criminal penalties provided by state law) be guilty of a misdemeanor subject to the general penalty clause of the Grandview Municipal Code. (Ord. 1649 § 2, 2003).

Chapter 13.20
PRIVATE SEWAGE DISPOSAL SYSTEMS

Sections:

13.20.010 When permitted.

Where a public sanitary or combined sewer is not available under the provisions of GMC 13.08.040, the building sewer shall be connected to a private sewage disposal system complying with the provisions of this chapter. (Ord. 1429 § 2, 1995; 1964 code § 11.24.010).

13.20.020 Permit required – Application and fee.

A. Before commencement of construction of a private sewage disposal system, the owner shall first obtain a written permit signed by the public works director.

B. The application for such permit shall be made on a form furnished by the city, which the applicant shall supplement by any plans, specification, and other information deemed necessary by the public works director. A permit and inspection fee of $40.00 shall be paid to the city at the time the application is filed. (Ord. 1429 § 2, 1995; 1964 code § 11.24.020).

13.20.030 Inspection of installation.

A permit for a private sewage disposal system shall not become effective until the installation is completed to the satisfaction of the public works director. He shall be allowed to inspect the work at any stage of construction and, in any event, the applicant for the permit shall notify the public works director when the work is ready for final inspection and before any underground portions are covered. The inspection shall be made within 48 hours of the receipt of notice by the public works director, whenever possible. (Ord. 1429 § 2, 1995; 1964 code § 11.24.030).

13.20.040 Compliance with county standards – Field test and site survey – Discharge of effluent.

A. The type, capacities, location, and layout of a private sewage disposal system shall comply with all

recommendations of the county health district.

B. Field tests and a site survey shall be made before any permit is issued for any private sewage disposal system employing subsurface soil absorption facilities.

C. No septic tank or cesspool shall be permitted to discharge to any public sewer or natural outlet. (Ord. 1429 § 2, 1995; 1964 code § 11.24.040).

13.20.050 Abandonment and connection to public sewer.

At such time as a public sewer becomes available to a property served by a private disposal system, as provided in GMC 13.08.040, a direct connection shall be made to the public sewer in compliance with this title, and any septic tanks, cesspools, and similar private sewage disposal facilities shall be abandoned and filled with suitable material at the expense of the property owner. Abandonment of the private disposal system shall comply with all recommendations of the county health district. (Ord. 1429 § 2, 1995; 1964 code § 11.24.050).

13.20.060 Operation and maintenance.

The owner shall operate and maintain the private sewage disposal facilities in a sanitary manner at all times, at no expense to the city. (Ord. 1429 § 2, 1995; 1964 code § 11.24.060).

13.20.070 Additional requirements.

No statement contained in this chapter shall be construed to interfere with any additional requirements that may be imposed by the health officer. (Ord. 1429 § 2, 1995; 1964 code § 11.24.070).

Chapter 13.22
SEWAGE WORKS DESIGN CRITERIA

Sections:

13.22.010 Document adopted – Copies on file.

Chapters 1, 2, and 3 of the 1985 Edition of the Criteria for Sewage Works Design of the State Department of Ecology are hereby adopted in their entirety as the criteria to be used for city of Grandview sewage works design. A copy of said Chapters 1, 2, and 3 is on file with the city clerk. (Ord. 1429 § 2, 1995).

13.22.020 Amendments and additions.

All future amendments and additions to Chapters 1, 2, and 3 of the 1985 Edition of the criteria described in GMC 13.22.010, when printed, and a copy thereof has been filed with the city clerk, shall be considered and accepted as amendments and additions to this chapter. (Ord. 1429 § 2, 1995).

Chapter 13.24
WATER SERVICE REGULATIONS

Sections:

13.24.010 Application for service – Meter installation.

All applications for water service installations and for water services shall be made at the office of the public works director on forms furnished by the city, which the applicant shall supplement with such information as deemed necessary by the public works director. All applications shall be made by the owner of the property to be served or his authorized agent, and all accounts for installation shall be in the name of the owner of such property. No person shall make any connection with either the domestic system or add to an existing connection any additional unit without first obtaining a permit as herein required. No person shall make any connection to the city water system and no permit shall be issued for such connection unless the applicant is connected to the city sewer system or will connect to said system at the time of, or prior to, the connection of water service; provided, in the event an applicant's property is located in an area where the city sewer system is unavailable, the city council may permit an applicant a water connection, provided said applicant agrees to connect to the city sewer system at such time as the system is available within 200 feet of the applicant's property.

Water meters shall be installed by the city on all domestic water service lines, as ordered by the city council. (Ord. 2009-7 § 4; Ord. 1308 § 1, 1992; Ord. 1197 § 1, 1987; 1964 code § 11.28.010).

13.24.020 Separate service connection and meter required – Exceptions.

In making all connections with the domestic water system, each residence, residential unit, individual business,

business enterprise or business unit, or industrial enterprise or unit, shall be considered a separate consumer and shall be supplied through a separate service connection and meter; provided, that a landlord of a business, industrial or other property, may at his or its election assume and pay the water service charges of his or its tenants, in which event separate connections will not be required, provided the landlord shall pay the minimum charge fixed by this title for the type of occupancy of the tenant and any excess usage shall be charged to the landlord; and, further provided, the meter installation shall be of such size as the water superintendent determines will adequately serve the demand through such connection. (1964 code § 11.28.020).

13.24.021 Metering of water from non-city sources.

Where the user is supplied domestic water from non-city sources, upon demand by the public works director, the supply shall be metered at the owner's expense and the city shall have the right to access the meter. (Ord. 1503 § 1, 1997).

13.24.030 Relocation of meter and service pipes – Expense.

When it is necessary for the convenience of the city, or because of the installation of new water mains or for any other reason, to change an existing domestic water meter or domestic water service location, such new location shall be made at the cost and expense of the water and sewer department; except, that the property owner shall reinstall his domestic water service pipes to connect with the water meter as relocated at his own expense. (1964 code § 11.28.030).

13.24.040 Increasing size of meter – Expense.

Whenever it is necessary within the discretion of the public works director, and the same is approved by the council, to increase the size of a meter serving a water user and a new meter is installed, the cost of such new meter and the installation thereof shall be borne by the water user. (Ord. 2009-7 § 5; 1964 code § 11.28.040).

13.24.050 Depth of service pipes.

All new service pipes shall be placed not less than 30 inches below the surface of the ground. (1964 code § 11.28.050).

13.24.060 Responsibility for leaks or damage – Ownership of meters.

A. Owners of services are responsible for all leaks or damage on account of leaks from privately owned services. Privately owned services shall be deemed to include all domestic service lines between the water meter and consumer's property, and all domestic service lines lying in, on, or under the consumer's property.

B. All water meters shall be and remain the property of the city and the responsibility of the city. Such meters may be removed, replaced, or changed as to size and type by the water and sewer department whenever deemed necessary. (1964 code § 11.28.060).

13.24.080 Authority to shut off water for repairs – Expense.

A. The public works director is directed and authorized to immediately shut off all domestic lines whenever such

water lines develop leaks or their condition is such as to constitute a danger to the domestic water supplies of the city. Such water lines shall remain shut off until properly repaired or replaced.

B. In the event the leaks or defects exist on supply lines to consumers within the city limits or on any portion of the main lines or supply lines outside the city limits, such repairs and replacements as may be necessary shall be accomplished by and at the sole expense of the consumer or owner of the property to which the service is provided, subject to the supervision and final approval of the public works director. (Ord. 2009-7 § 6; 1964 code § 11.28.080).

13.24.090 Fire hydrant usage, deposit and rates.

A. All nongovernmental persons desiring to connect to city fire hydrants for temporary water supply must first apply for and receive permission from the city to do so. The application shall contain the information required by and shall be on a form provided by the city of Grandview.

B. All nongovernmental persons using city fire hydrants for temporary water supply must pay a $150.00 deposit for the rental of the fire hydrant meter. This deposit shall be applied to the temporary water supply account established at the time the temporary water supply account is closed. Any fees or charges not covered by the deposit must be paid within 30 days of the billing. The city shall use any remedies allowed by law to collect unpaid fees and charges on temporary water supply accounts.

C. All nongovernmental persons using city fire hydrants for temporary water supply shall pay a base fee plus the actual cost for all water obtained from city fire hydrants at the same rate as is charged by the city for domestic water.

D. In the event all city equipment is not promptly returned, or any equipment is returned in damaged condition, the user shall be liable to the city for the full replacement cost.

E. “Nongovernmental persons” for the purposes of this section shall be defined as all persons or entities other than the city of Grandview and those persons or entities that are providing services to the city under contract or agreement with the city.

F. Customers using temporary water supply as described in this section shall be billed for water and the appropriate monthly meter base rate in addition to gallons used. If no water is used during that billing period, no base rate will be charged. (Ord. 2009-7 § 7; Ord. 1678 § 1, 2004; Ord. 1229 § 2, 1988).

13.24.100 Standpipes usage and rates.

Agricultural and commercial users may use water at city standpipes upon application by the user to the city and upon the issuance of a key to said user by the city. Standpipes may be coin or token-operated at the city’s option. Rates for standpipe water usage shall be set from time to time by resolution of the city council. (Ord. 1229 § 3, 1988).

Chapter 13.28
RATES AND CHARGES

Sections:

13.28.010 Meter rates and service charges for domestic water consumed.

2018 meter rates and service charges for domestic water consumed, used, or delivered by or to customers of the water department shall be effective commencing December 15, 2017, and shall be according to the following schedules and classifications of use:

A. The monthly water meter service charge for the different size meters shall be as follows:

Meter Size	Rate
5/8 to 3/4 inch	$23.77
1 inch	$27.73
1 1/4 inch	$32.55
1 1/2 inch	$36.53
2 inch	$54.14
3 inch	$71.50
4 inch	$91.92
6 inch	$176.18
8 inch	$354.90

B. In addition to the service charge for each monthly billing period, water usage shall be charged in accordance with the following schedule:

Consumption in Gallons	Rate
1,000 to 3,000	$0.36
3,001 to 15,000	$2.19
15,001 to 30,000	$1.76
30,001 and above	$1.52

Provided, where more than one meter is used to measure the service, the meter service charge shall be the sum of the charges for the meters so used.

In addition to the charges, applicable Washington State utility tax shall be shown on the billing and collected in accordance with this chapter and GMC 13.28.120.

C. The city shall pay hydrant rental at the following rate per year:

Service Provided	Rate
Hydrant rental	$1,977.00

D. For all water services outside of city limits, the charge shall be 150 percent of the applicable rate within the city limits, including standby or fire protection service charges; except when property to be served is subject to pending annexation and Yakima County has given the city early transfer of authority as provided in Article G.6 of the Inter-local Agreement for Growth Management Act implementation in Yakima County, adopted by Resolution No. 99-14. In the event such property is not annexed at the next available annexation election date, or other procedure for annexation, said property shall pay at the rate of all other property outside the city limits.

E. Service Charge for Rereading Obstructed Meters. Whenever it is necessary for the meter reader to return to any meter to read the same because of the fact that the meter is covered with debris, dirt, or any other material making access to the meter difficult, a service charge shall be charged each time the meter reader must return to the premises, and the meter reader shall leave a notice with the occupant of the premises, and shall not return more often than each five days. The service charges shall be as follows:

Service Provided	Rate
Obstructed meter reread	$25.00

F. Service Charge to Turn On a Meter, Create a New Utility Account, Generate a Closing Bill or Generate and Deliver a 24-Hour Notice of Disconnection. A service charge shall be charged to turn on a meter, create a new utility account, generate a closing bill, or generate and deliver a 24-hour notice of disconnection as follows:

Service Provided	Rate
24-hour notice of disconnection fee	$5.00
Turn-on fee	$25.00
New account fee	$25.00
Closing bill fee	$25.00
After hours* nonemergency turn-on fee	$80.00

*After hours shall include Monday through Friday after 4:00 p.m. and before 8:00 a.m., weekends and holidays.

(Ord. 2017-12 § 1; Ord. 2014-16 § 1; Ord. 2013-24 § 1; Ord. 2012-21 § 1; Ord. 2011-22 § 1; Ord. 2010-29 § 1; Ord. 2009-11 § 1; Ord. 2009-7 § 8; Ord. 2008-18 § 1; Ord. 2007-28 § 1; Ord. 2007-3 § 3; Ord. 1777 § 1, 2006; Ord. 1207 § 1, 1987; Ord. 1180 § 2, 1987; Ord. 1135 § 2, 1985; Ord. 1126 § 1, 1985; Ord. 1093 § 1, 1983; Ord. 1077 § 1, 1982; Ord. 1042 § 1, 1981; Ord. 1006 § 1, 1981; 1964 code § 11.32.010).

13.28.015 Connection to domestic water system – Domestic water capital cost recovery fee.

There shall be a water capital cost recovery charge for each new water service connection, as required in GMC 13.24.020, in the sum of $110.00 per each unit of use. (Ord. 1492 § 1, 1997).

13.28.020 Meter installation charges.

Meter installation and domestic water charges shall be as follows: Before water service is installed and water supplied, the property owner shall pay to the city treasurer a ready-to-serve charge as follows:

A. The basic charge for each meter of various sizes as shall be determined by resolution of the council, passed not less often than once each year and reflecting the acquisition cost of meters and couplings to the city together with installation costs.

B. Additional charges based on cost to the city, plus 10 percent, shall be made where permanent street surfacing and sidewalks are disturbed or passed under by service lines, and where the meter is more than 40 feet from a water main in the street, nine feet from a water main in the alley, or more than five feet from the tap in the water main on private property. (1964 code § 11.32.020).

13.28.030 Charges based on current rates.

The charge for domestic water charges shall be made on the basis of the rate in effect at commencement of the month wherein water was consumed and may be based on the average usage. (Ord. 1093 § 5, 1983; 1964 code § 11.32.030).

13.28.035 Prorating water and sewer charges.

The monthly service charge for each monthly billing period shall be prorated on a weekly basis from the fifteenth day of the last billing cycle to the date the meter is turned off or read at the request of the property owner or occupant during the billing month. (Ord. 2009-7 § 9; Ord. 1180 § 1, 1987).

13.28.036 Water meter malfunctions and water leaks.

A. When a sewer rate or water rate is based on metered water consumption, and when a water meter fails or malfunctions and it is not possible to accurately determine the amount of water consumed, the amount to be charged for water and sewer for any month during which the meter failure or malfunction occurred shall be based on the metered consumption of water for the same period the year previous for the current water and sewer rate for that class of account being applicable. In the event that there is no record of water consumption for the same

period in the prior year, the amount of consumption shall be estimated by the city administrator.

B. In the event of a verified water leak which would result in an unusually large sewer billing due to such increased water usage, said sewer charges shall be based upon the metered consumption of water for the same period the previous year for the current water and sewer rate for that class of account being applicable. In the event that there is no record of water consumption for the same period in the prior year, the amount of consumption shall be estimated by the city administrator. (Ord. 2009-7 § 10; Ord. 1409 § 1, 1995; Ord. 1346 § 1, 1993; Ord. 1207 § 2, 1987).

13.28.040 Single billing for each connection – Responsibility for payment of utility accounts – Exceptions.
No more than one bill per meter or sewage connection shall be made, regardless of the number of users therein. All accounts shall be kept on the books of the city of Grandview in the name of the owners of the property to which the connection is made. The owners of the property shall be responsible for the payment of the bill whether or not the billing is made to their tenants as provided hereafter if the tenant fails to pay the bill or leaves the property without paying the final bill. All current accounts in the name of the tenant shall remain in the tenant's name (unless requested by the owner) until such time as the tenant notifies the city that service is no longer requested due to the tenants vacating the property, at which time said account and billing shall be transferred into the owner's name and billed to the owner of the property at the owner's address, or at the request of the owner, to the address of his new tenant. Billing currently in the tenant's name (unless requested by the owner of the manufactured home) shall continue in manufactured home parks where individual meters have been installed and where the manufactured homes located therein are not owned by the manufactured home park owner. In all cases, any unpaid bills by tenants are the responsibility of the owner of the manufactured home and shall become a lien on the manufactured home if unpaid. (Ord. 1627 § 2, 2002; Ord. 1582 § 1, 2000; Ord. 1067 § 3, 1982; 1964 code § 11.32.040).

13.28.050 Sewer rates.
2020 rates set forth herein shall become effective on December 15, 2019, excluding subsection B of this section, Rates for Large Industrial Users within the City, which shall become effective on January 1, 2020.

A. Definitions. Unless the context specifically indicates otherwise, the meaning of the terms used in this section shall be as defined in GMC 13.04.010.

B. Rates for Large Industrial Commercial Users within the City. Sewer rates for large industrial or commercial accounts required to install monitoring stations, to be charged by the city of Grandview for sewer service, are, until further ordinance by the city council, as follows:

Sewer rates shall be based upon the volume and strength of the wastewater discharged as follows:

Parameter	Rate
Flow per 1,000 gallons	$3.2978

BOD per pound	$0.1009
TSS per pound	$0.3183

Quantities of flow, BOD and TSS shall be as determined by the city using data and results obtained by the city from the monitoring stations installed by each large industrial or commercial user. The minimum monthly charge for large industrial and commercial users shall be as follows:

Service Description	Rate
Minimum monthly charge	$705.50

The minimum monthly charge for separate sanitary waste, as discussed below, shall be included in this minimum amount. The city of Grandview shall charge for sanitary waste flows that do not pass through the industrial monitoring stations for the large industrial or commercial accounts. Such sanitary waste flows shall be determined based on the number of “full-time equivalent” employees employed by the large industrial or commercial user.

“Full-time equivalent” refers to the calculation made to determine the number of employees, both part- and full-time, employed in the city of Grandview, by a particular business. The quarterly Department of Labor and Industries report should be used to determine the number of employee equivalents by dividing the total hours of all classes of workers employed by 520 hours and adding the number of owners, partners, and officers employed in the business and not included above. If the quarterly Department of Labor and Industries report does not accurately reflect the number of employees employed within the city of Grandview, then equivalent quarterly information may be used to determine the number of employee equivalents by dividing the total hours of all classes of workers employed by 520 hours and adding the number of owners, partners and officers employed in the business and not included in the worker hours.

For example: If an industry reported 10,400 hours for the first quarter, the calculation would be:

Monthly number of equivalent employees = 10,400/520 = 20

A copy of the report or form used to determine worker hours and “full-time equivalent” employees shall be provided to the city each quarter.

The sanitary waste water flows for a three-month period shall be based on the number of hours reported for the previous quarter and shall be calculated using 300 gallons per employee per day as follows:

Monthly flow volume in gallons = monthly number of equivalent employees times 300 gallons per equivalent employee.

For example: Using the 20 monthly number of equivalent employees calculated above for the first quarter, the

flow volume used for sewer rates for each month of the second quarter would be:

Monthly flow volume in gallons = 20 x 300 = 6,000 gallons

Charges by the city of Grandview for such sanitary waste sewer services are, until further ordinance by the city council, as follows:

Sewer rates shall be based upon a minimum monthly charge plus a per unit rate for each 1,000 gallons of water delivered in excess of the first 5,000 gallons per month as follows:

Minimum Monthly Charge	Rate
Minimum for 5,000 gallons	$41.80
Plus for each 1,000 gallons after 5,000 gallons	$5.19

C. Rates for Residential and Public Users within the City. Sewer rates for all accounts within the corporate city limits, except industrial, business and commercial accounts, to be charged by the city of Grandview for sewer services are, until further ordinance by the city council, as follows. Sewer rates shall be based upon a minimum monthly charge plus a per unit rate for each 1,000 gallons of water delivered in excess of the first 5,000 gallons per month as follows:

Minimum Monthly Charge	Rate
Minimum for 5,000 gallons	$35.32
Plus for each 1,000 gallons after 5,000 gallons	$5.59

Provided, during the irrigation season (March 15th to October 15th – Resolution No. 2004-20) the sewer rate use charge shall be fixed and based upon the average monthly water usage during the non-irrigation season (October 15th to March 15th). During the non-irrigation season, the sewer rate use charge shall be fixed and based upon actual water use.

D. Rates for Commercial, Business, and Industrial Users within the City. Sewer rates for commercial, business, and industrial sewer services within the corporate city limits not required to install monitoring stations, with the exception of grocery stores, bakeries, restaurants, and drive-ins, to be charged by the city of Grandview for sewer services are, until further ordinance by the city Council, as follows:

Sewer rates shall be based upon a minimum monthly charge plus a per unit rate for each 1,000 gallons of water delivered in excess of the first 5,000 gallons per month as follows:

Minimum Monthly Charge	Rate

Minimum for 5,000 gallons	$35.32
Plus for each 1,000 gallons after 5,000 gallons	$4.39

Commercial, business, and industrial sewer services within the corporate city limits not required to install monitoring stations who lose volume of water through evaporation, irrigation, or in the product may request a reduction in their monthly sewer charge only if the difference between water consumed and wastewater discharged to the city is documented through the use of water meters. In such situations, the monthly sewer charges will be based upon the volume of wastewater discharged to the city at the rates specified.

Sewer rates for grocery stores, bakeries, restaurants, and drive-ins to be charged by the city of Grandview for sewer services are, until further ordinance by the city council, as follows. Sewer rates shall be based upon a minimum monthly charge plus a per unit rate for each 1,000 gallons of water delivered in excess of the first 5,000 gallons per month as follows:

Minimum Monthly Charge	**Rate**
Minimum for 5,000 gallons	$35.32
Plus for each 1,000 gallons after 5,000 gallons	$5.14

E. Rates outside City. Sewer rates for all accounts outside the corporate city limits, to be charged by the city of Grandview for sewer services are, until further ordinance by the city council, 150 percent of the corresponding rate charged for a similar facility located within the corporate city limits; except when property to be served is subject to pending annexation and Yakima County has given the city early transfer of authority as provided in Article G.6 of the Interlocal Agreement for Growth Management Act implementation in Yakima County, adopted by Resolution No. 99-14. In the event such property is not annexed at the next available annexation election date, said property shall pay at the rate of all other property outside the city limits. Where user is supplied by water from non-city sources, upon demand of the city council, the supply shall be metered at the owner's expense and the city shall have the right of access to the meter.

F. In addition to all sewer charges, applicable Washington State and local utility taxes shall be shown on the billing and collected in accordance with this chapter and GMC 13.28.120.

G. Penalty. The city of Grandview shall charge monetary penalties for slug or accidental discharges of wastes from large industrial or commercial users in accordance with GMC 13.12.120 and, until further ordinance of the City Council, penalties for violation of pH limits in accordance with the following schedule:

Any discharge of wastes from a large industrial or commercial user with a pH lower than five or higher than 11, for an average over a 15-minute period within a 60-minute duration, or having any other corrosive property

capable of causing damage or hazard to structures, equipment and personnel of the sewage works, shall be subject to a penalty as follows per hour for each hour said violation continues to occur. In addition, the city may charge the discharger for actual costs of mitigating the effects of the impact of the discharge on the sewer system and treatment facilities:

Penalty Description	Rate
Slug/accidental discharge	$339.50 per hour

(Ord. 2019-18 § 1; Ord. 2018-16 § 1; Ord. 2017-11 § 1; Ord. 2014-17 § 1; Ord. 2013-25 § 1; Ord. 2012-22 § 1; Ord. 2011-23 § 1; Ord. 2010-30 § 1; Ord. 2009-12 § 1; Ord. 2009-7 § 11; Ord. 2008-19 § 1; Ord. 2007-29 § 1; Ord. 2007-15 § 1; Ord. 1773 § 1, 2006; Ord. 1207 § 3, 1987; Ord. 1135 § 3, 1985; Ord. 1078 § 1, 1982; Ord. 1067 § 3, 1982; Ord. 1043 § 1, 1981; Ord. 1005 § 1, 1981; 1964 code § 11.32.050).

13.28.060 Irrigation water service – Rates and method of billing – Setting rates – Shut off valves required – Turn-off/turn-on fees.

A. Irrigation water service shall be charged for each county assessor's parcel within the city irrigation water system, regardless of water delivery, except as provided in subsection C of this section. Assessments shall be equal to the total parcel area multiplied by the applicable service rate.

B. 2021 irrigation rates shall become effective commencing January 1, 2021, as follows:

1. For land serviced by pressure irrigation, the service rate shall be $0.018734 per square foot and the minimum charge per property shall be the sum of $112.50 per year.

2. For land served by gravity flow where the city is responsible for maintenance, the service rate shall be $0.004260 per square foot or $185.52 per acre, and the minimum charge per property shall be the sum of $74.50 per year.

3. For lands served by gravity flow, where the city is not responsible for maintenance or where no water is delivered, the service rate shall be $0.002168 per square foot or $94.36 per acre per year or $39.44 minimum charge per year per property owner.

C. Condominium units shall be assessed as though such condominium unit were one county assessor's parcel.

D. 1. Every customer receiving irrigation water shall be required to install an approved shut-off valve on their irrigation water line no later than March 31, 1994. Each customer may either install their own valve, contract with a private installer or may request the public works department to install the valve at a charge of $40.00 including the valve and labor. The charge may be increased or decreased by resolution of the city council.

2. In the event the city is called out to shut off the irrigation system by a customer who has not installed or

had installed a shut-off valve after March 31, 1994, there shall be a valve installed by the city at a cost of $80.00.

3. If a shut-off valve is installed, and the city is requested to shut off the irrigation system to repair a malfunctioning valve, there shall be a normal water turn-off/turn-on fee of $25.00. In the event the city is requested to shut off the irrigation system due to the negligence of the customer, a fee of $80.00 shall be assessed and billed to the customer. (Ord. 2020-13 § 1; Ord. 2019-19 § 1; Ord. 2018-18 § 1; Ord. 2017-14 § 1; Ord. 2016-21 § 1; Ord. 2015-17 § 1; Ord. 2014-18 § 1; Ord. 2010-31 § 1; Ord. 2009-13 § 1; Ord. 2009-7 § 12; Ord. 2008-20 § 1; Ord. 2008-6 § 1; Ord. 2007-30 § 1; Ord. 1774 § 1, 2006; Ord. 1368 § 1, 1993; Ord. 1220 § 1, 1988; Ord. 1088 § 1, 1983; 1964 code § 11.32.060).

13.28.070 Irrigation water service – Due date and delinquency of charges.

Repealed by Ord. 1502. (Ord. 1088 § 2, 1983; 1964 code § 11.32.070).

13.28.080 Additional charge for cutting pavement, etc.

Whenever in the installation of water and sewer connections to users, the installation requires the cutting of sidewalks, curbs or permanent street surfacing, the water or sewer user requiring the connection shall pay, in addition to the usual connection charge, 110 percent of the cost to the city of the installation, including the restoration of the sidewalk, curb and street. (1964 code § 11.32.080).

13.28.085 Garbage rates.

2021 rates for solid waste set forth herein shall become effective on December 15, 2020, as follows:

A. The monthly solid waste charge for the different-sized containers picked up one time per week shall be as follows:

90-Gallon Containers	
1 can	$14.23
2 cans	$28.46
3 cans	$42.69
4 cans	$56.92
300-Gallon Containers	
1 can	$46.87
2 cans	$93.75
3 cans	$140.62
4 cans	$187.50

B. All users sharing one-third of a 300-gallon container shall be charged at the rate of $14.23 per monthly billing period for one pick-up per week.

C. Multiple-family residences using 300-gallon containers shall be charged at the rate of $14.23 per billing period per dwelling unit.

D. All users who have multiple pick-ups per week shall be charged per month by multiplying the number of pick-ups per week by the number of containers picked up.

E. Other service charges are as follows:

Return call-out, all size containers, per container	$29.84
Overfilled container charge	$3.73
Replace damaged/destroyed container	$149.39
Dumpster drop-off at public works shop per pickup size load	$8.98

(Ord. 2020-12 § 1; Ord. 2018-17 § 1; Ord. 2017-13 § 1; Ord. 2016-22 § 1; Ord. 2015-18 § 1; Ord. 2008-21 § 1; Ord. 2007-31 § 1; Ord. 1775 § 1, 2006).

13.28.090 Vacant premises.

No vacancy credit shall be allowed any owner and/or occupant of a residential premises that has an active city water utility serving the property. If water service is not discontinued during a vacancy period, sanitation fees will be continued as if the residential property is occupied.

The city clerk or his or her designee(s) may allow a vacancy credit for nonresidential premises during periods of vacancy for which the owner of the premises has notified the city in writing that waste disposal pickup is not needed. No credit shall be allowed for any period in which such premises are occupied, or for any period of vacancy during which waste disposal service is provided by the city. (Ord. 2009-7 § 13; 1964 code § 11.32.090).

13.28.100 Connection to public sewer system – Fee.

There shall be a charge of $700.00, including inspection fee, for each new connection to the public sewer system per residential unit (said fees shall not include the cost of labor or material in making such connection), except as follows:

A. When connection is made to a sewer trunk line constructed by a local improvement district established after January 1, 1965, for the disposition of sewage, the following schedule shall apply:

1. When such connection is made to service property within the original boundaries of a local improvement district and the assessments for payment of cost of the local improvement were based on a per-connection and not a front-foot or square-foot charge, then the charge for each additional connection shall be equal to the original per-connection assessment, plus an inspection fee of $20.00.

2. When such connection is made to serve property within the boundaries of a local improvement district to serve property which was assessed for payment of costs of the local improvement on a per-front-foot or square-foot basis, the charge shall be an inspection fee of $20.00.

3. When such connection is made to serve property outside the boundaries of such a local improvement district, through trunk sewer lines of said district, the charge shall be computed on the same basis as was used to establish the assessments within the district for payment of the cost of the local improvement, plus an inspection fee of $20.00.

B. If the property owner is required to construct at his own expense a trunk sewer line to serve not less than two users, to make the connection, the charge for each service connection to said trunk sewer line shall be $700.00, including the inspection fee. (Ord. 1491 § 1, 1997; Ord. 1183 § 1, 1987; 1964 code § 11.32.100).

13.28.110 Connection to public system – Installation costs additional.

The connection fee shall not include the costs of a sewer connection saddle, which saddle shall comply with the requirements of the director of public works of the city. (1964 code § 11.32.101).

13.28.120 Due and delinquency dates for domestic water, sewer, irrigation water and garbage charges.

A. All charges for domestic water, sewer, irrigation water (except irrigation water only) and garbage service shall be due on or before the twentieth day of the month in which the bill is rendered, provided that if the twentieth day of the month in which the bill is rendered falls on a Saturday, a Sunday or legal holiday, payment may be submitted the next day which is neither a Saturday, a Sunday nor a legal holiday. Legal holidays are prescribed in RCW 1.16.050. A charge not submitted in accordance with this provision shall be delinquent. Domestic water, sewer, irrigation water and garbage bills cover periods of one month, and shall be issued upon a single statement where feasible. All payments and collections for domestic water and sewer services shall be paid into the water and sewer revenue fund. All payments and collections for irrigation services shall be paid into the irrigation fund. All payments and collections for garbage service shall be paid into the garbage revenue fund.

B. All charges for irrigation water only service shall be due and payable on the date of billing, at the office of the city treasurer, and shall become delinquent on the first day of May of the same year in which the original billing was rendered. Irrigation water only bills cover periods of one year, and shall be issued upon a single statement where feasible. All payments and collections for irrigation services shall be paid into the irrigation fund. (Ord. 2013-26 § 1; Ord. 1651 § 1, 2003; Ord. 1502 § 2, 1997; Ord. 1093 § 2, 1983; 1964 code § 11.32.110).

13.28.130 Lien for unpaid charges.

All charges for water and sewer connections and service, irrigation assessments and connections, and all service charges, provided in this chapter, or as may be hereafter amended, together with penalties and interest thereon, shall be a lien upon the property with which such connections are made or to which such sewerage service, domestic water service, or irrigation service is rendered, superior to all other liens and encumbrances whatsoever, except for general taxes and local special assessments. Enforcement of such lien or liens shall be in the manner provided by law. (Ord. 1502 § 3, 1997; 1964 code § 11.32.120).

13.28.140 Imposition of delinquency charge – Shutoff as method of enforcement.

A. Domestic water, sewer charges, irrigation assessments (except irrigation water only assessments), and garbage charges shall be collectible monthly and the charges and assessments shall be delinquent if unpaid at the close of the regular business day preceding the twenty-first day of the month following the billing date. Upon delinquency, the customer shall be assessed a penalty in the sum of 10 percent of the amount due and owing as disclosed by the billing for that month.

B. Irrigation water only assessments shall be collectible yearly and the assessments shall be delinquent if unpaid at the close of the regular business day preceding the first day of May of the same year in which the original billing was rendered. Upon delinquency, the irrigation water only customer shall be assessed a penalty in the sum of 10 percent of the amount due and owing as disclosed by the billing for that year.

C. As an additional and concurrent method of enforcing the lien of the city for irrigation assessments, domestic water, sewer, and garbage charges, the city shall impose a 24-hour notice of disconnection fee on all accounts that remain delinquent and require notice of disconnection at the close of business on the fourteenth day of the calendar month following the date of delinquency. The city will disconnect the water service from the premises where services are provided unless the delinquent balance (including the 24-hour notice of disconnection fee) is below $20.00 on the close of business on the date stated on the notice of disconnection.

D. In the event the account balance exceeds $20.00 on the close of business on the due date stated on the notice of disconnection, the public works director is authorized and directed, on the following regular business day, to disconnect the water services from the premises where services are provided. Disconnection will be by removing or locking the water meter until all charges, plus penalties as stated in subsections A and C of this section, together with the turn-on fee for reconnecting the domestic water, are paid. Upon payment in full, reconnection will occur between 1:00 p.m. and 4:00 p.m. on the date of disconnection.

E. In the event the customer protests his or her billing statement to the city clerk within the 14-day period, an additional three-day period from the date of protest shall be granted during which time the validity or invalidity of such protest shall be determined by the city clerk. During that period if the city determines that such billing is valid and remains unpaid, the city shall turn off the customer's domestic water as provided for in this section. (Ord. 2014-3 § 1; Ord. 2009-7 § 14; Ord. 2007-6 § 1; Ord. 2007-3 §§ 1, 2; Ord. 1742 § 1, 2005; Ord. 1651 § 2, 2003; Ord. 1535 § 1, 1999; Ord. 1502 § 4, 1997; Ord. 1489 § 1, 1997; Ord. 1455 § 1, 1996; Ord. 1093 §§ 3, 4,

1983; Ord. 1017 § 1, 1981; Ord. 1008 § 1, 1981; 1964 code § 11.32.130).

13.28.150 Connections by premises outside city – Cash payment and agreement.

A. The director of public works is authorized to issue permits for connections to the sewer system or water system upon application from the legal owner or owners of property outside the city limits when, in his judgment, the connections will not overload or impair the efficiency of the system. No such permit, however, will be authorized until the applicant therefor has paid into the treasury, in cash, a sum equivalent, as near as may be, to the average amounts paid in assessments and taxes by property within the city of the same size and value for the construction and maintenance of the sewer system, and/or water system and enters into an agreement with the director not to permit property other than described in the application to make use of the connection unless an agreement has been entered into as provided in GMC 13.28.160, and to comply with the laws and ordinances of the city pertaining to sewer or water and plumbing service.

B. The agreement shall be recorded with the county auditor and shall constitute a covenant running with the land and binding upon the applicant and all persons or parties subsequently acquiring right, title or interest in or to the property. In the event any such owner violates the agreement, the director shall immediately disconnect and block the sewer connection from the sewer system or cut off the water supply and shall notify the county health authorities of his action. All sums originally paid for the connection shall then be forfeited to the city. (Ord. 1194 § 1, 1987; 1964 code § 11.32.140).

13.28.160 Extension of water mains/sewer lines.

When an applicant requests water and sewer service to property lying within the city limits or within 10 miles of the city limits, but which previously has no water main or sewer line in the adjacent street or alley, a water main and/or sewer collection line may be constructed and approved in accordance with the current city resolution or ordinance setting forth utility line standards of materials, installation, construction, connection, inspection and other related requirements. Such installation shall be made as follows:

A. The owner(s) of the property to be served shall bear the expense of the utility line extension, except, in the event the city desires to oversize the line to be installed, the city shall pay the difference in cost of the pipe and fittings required above the standard size required. If the utility line is to be installed in the city right-of-way or easement by city personnel, or under contract let by the city, the owner(s) shall first submit detailed plans prepared by a professional engineer, for approval by the city. The city's director of public works shall estimate the expense of labor, equipment, materials, inspection, record drawings and overhead, and the total of such estimated cost shall be paid to the city treasurer prior to the commencement of the utility line extension and installation. If the estimated cost does not cover the cost of such installation, the deficit shall be paid to the city treasurer within 60 days of the completion of the project. The deficit shall become a lien on the property of the applicant. Any excess funds over those required to complete the project shall be returned to the owner(s).

B. The mayor, with the approval of the city council, is authorized to contract with the owner(s) of the property to

be improved to provide a means for recovering a portion of the cost of the utility line extension by means of a latecomer charge to the owner(s) of property abutting upon the utility line extension who did not share the cost of construction and installation, but who may wish to connect with such utility line extension service within 15 years following the date of completion of the utility line extension. The contract shall be recorded in the office of the Yakima County Auditor, and such contract shall set forth the legal description of the abutting properties and the amount of the latecomer charges for such property.

C. The contracted latecomer charges shall be based upon the following formula:

1. The total cost of the line extension, less oversizing costs borne by the city, shall be divided by the square footage of the entire area capable of being served. Latecomer charges shall be based upon the square footage to be serviced which rate would be reduced one-fifteenth each year to compensate the latecomer for the life of the line. Any latecomer charges are in addition to connection fees and costs.

2. In no event shall the owner/developer be reimbursed through latecomer charges in excess of the initial cost less his pro rata share of the area owned by his property being serviced.

D. Any portion of a proposed utility line extension, which is located upon private property, shall be installed strictly in accordance with city specifications by a competent contractor at the expense of the owner(s). In addition, the owner(s) shall pay to the city all costs of an inspection designated by the city for the performance of all utility line installation inspections which are deemed necessary by the director of public works and such as are required under applicable ordinances and resolutions of the city.

For any utility line constructed on private property, the city shall require that an easement for access to the utility line extension be granted and conveyed to the city prior to commencement of construction and installation. The width of such easement shall be minimum of 15 feet, seven and one-half feet on each side of the centerline of the utility line, or such additional width as the city may require to provide proper separation of sewer and water lines, and to provide sufficient width in the case of unusual requirements caused by geographical terrain or installation depth features. The easement shall provide that the grantor shall not construct any building or structures within the easement without first obtaining the written approval of the city's director of public works.

E. The owner(s) of the property who desire an extension of the city water main and/or sewer lines may choose to have the installation made by the formation of a local improvement district (LID) as prescribed by law when applicable.

F. The city shall own and maintain all utility line extensions located upon city property, rights-of-way and easements and the owner shall, concurrently with the execution of a latecomer agreement, conveying free and clear of all encumbrances to the city the water or sewer system, along with rights-of-way or easements along with access to maintain the same.

G. Owner shall by agreement, either correct defective work, or if rejected by the city, remove and replace it with nondefective work for a period of one year from the date of said latecomer agreement. (Ord. 1194 § 2, 1987; Ord. 1129 § 1, 1985).

13.28.170 Line extension/latecomer provisions.

If a current and valid agreement for partial reimbursement by any latecomer charges exists as provided for in GMC 13.28.160, the city shall pay collected latecomer charges to the parties entitled to payment as the same are collected in accordance with the agreement. In all other cases collected latecomer charges shall be retained by the city. (Ord. 1129 § 2, 1985).

13.28.180 Utilities capital improvement fund established.

A fund of the city to be known as “utilities capital improvement fund” is created and established. All latecomer charges and fees which the city is entitled to make, receive, and retain pursuant to the ordinance codified herein shall be deposited in the fund. Expenditures therefrom shall be made solely for the purposes of construction and installation of capital improvements, extensions and additions to the water distribution and/or sewage collection systems of the city.

All receipts and expenditures shall be provided for in the annual budget estimates of the city and expenditures from the fund shall be made solely for the purposes herein provided and as authorized and approved by the city council. (Ord. 1129 § 3, 1985).

13.28.190 City improvements to existing systems.

Nothing in the ordinance codified herein shall be construed to prohibit the city from expending public funds to maintain or improve its existing water and/or sewage collection systems. Nor shall the city be prohibited from expending public funds to maintain or improve its existing utility systems or from such extensions and additions thereto as may be deemed necessary for improvements thereof. (Ord. 1129 § 4, 1985).

13.28.200 Certain rates and charges authorized by resolution.

All rates and charges set forth in GMC 13.28.010, 13.28.020, 13.28.050, and 13.28.100 shall be set by resolution of the city council from time to time, and said rates shall be on file at the office of the city clerk. (Ord. 1167 § 1, 1986).

Chapter 13.30
LOW-INCOME SENIOR CITIZENS AND LOW-INCOME DISABLED PERSONS UTILITY RATES

Sections:

13.30.010 Purpose and findings.

The city council of the city of Grandview finds that it is appropriate for the city to establish reduced rates for utilities provided by the city to low-income senior and low-income disabled residents of the city as allowed under RCW 74.38.070. (Ord. 2007-33 § 1).

13.30.020 Definitions.

A. “Senior citizen” means a person who:

1. Resides within the city limits of the city of Grandview;

2. Is 62 years or older;

3. Receives utility services from the city of Grandview;

4. Is the head of a household.

B. “Disabled citizen” means a person who:

1. Resides within the city limits of the city of Grandview;

2. Is the head of a household;

3. Qualifies for special parking privileges under RCW 46.16.381(1)(a) through (f), or a blind person as defined in RCW 74.18.020, or a person who qualifies for supplemental Social Security benefits due to a disability.

C. “Low income” is defined as follows:

1. Every single person whose combined disposable income as defined in RCW 84.36.383(4) and (5), as it

now exists or is hereafter amended, is less than the qualifying amount set forth in RCW 84.36.381(5)(b)(ii), as it now exists or is hereafter amended.

2. Every married couple, constituting a marital community, whose combined disposable income as defined in RCW 84.36.383(4) and (5), as it now exists or is hereafter amended, is less than the qualifying amount set forth in RCW 84.36.381(5)(a), as it now exists or is hereafter amended. (Ord. 2007-33 § 1).

13.30.030 Rate reduction – Applicable utilities.

A. Notwithstanding the rates provided in Chapter 13.28 GMC, a utility rate reduction shall be applied to the residential monthly utility bills of qualified low-income senior citizens and low-income disabled citizens, in accordance with the terms of this chapter.

B. The utility rate reduction for city water, sewer, garbage and irrigation water for qualified individuals under this chapter shall be a 20 percent reduction in the individual's monthly billing. This rate may be changed by the city council at any time by ordinance. (Ord. 2007-33 § 1).

13.30.040 Application for reduced rate.

A. Applications for utility reduced rates under this section shall be obtained from and filed with the city clerk, or his or her designee. The application shall be on the form prescribed by the city clerk, and shall contain information necessary to evaluate the applicant's qualification for reduced rates. In order to verify income, the applicant shall provide income tax returns, Social Security statements or other financial information as required by the city clerk.

B. Submission of an application for a utility discount shall constitute a verification by the applicant that all information provided in such application is true and correct to the best of the applicant's knowledge.

C. Once the application is approved, the reduced rates shall become effective on the next billing cycle following 30 days after approval of the application.

D. Each application shall be effective for 12 months, commencing the first month the reduced rate becomes effective for the applicant. It shall be the sole responsibility of the applicant to re-apply for successive 12 monthly periods of eligibility for reduced utility rates.

E. It shall be the duty and responsibility of the person receiving a reduced rate to report any changes in their financial status or disability status that would affect their ineligibility for the reduced rates. (Ord. 2007-33 § 1).

13.30.050 Penalty for false information.

Any individual willfully providing false information to the city in an application for reduced utility rates shall forfeit the low-income senior or disabled citizen's eligibility for rate reductions in utility rates and shall be guilty of a misdemeanor punishable by a fine of not more than $1,000 and by imprisonment for not more than 90 days or by both such fine and imprisonment. Additionally, the low-income senior or disabled citizen making such a false

statement to obtain benefits under this chapter shall be required to repay the amount of any utility discount received based upon such false information, together with interest at the rate of 12 percent per annum until repaid in full. (Ord. 2007-33 § 1).

Chapter 13.32
CROSS-CONNECTIONS TO WATER SYSTEM

(Repealed by Ord. 1649)

Chapter 13.36
WATER USE

Sections:

13.36.010 Purpose.

It is the purpose of this chapter to provide for the conservation of water in nonemergency as well as emergency situations. (Ord. 1335 § 1, 1992).

13.36.020 Rules and regulations – City council promulgation authority.

A. The city council shall meet from time to time as is required and may promulgate rules and regulations for the use, distribution and rationing of water, both irrigation and domestic, within the city, and to the users of said system.

B. They shall have authority to set rules of usage and to terminate any use not found necessary for the citizens of the city. (Ord. 2009-7 § 15; Ord. 1335 § 1, 1992).

13.36.030 Water usage for lawns, gardens and other irrigation purposes.

A. In the event the city council determines that an emergency exists, the council shall make its recommendation to the mayor, who will declare by proclamation that an emergency exists, if in fact an emergency does exist, and setting forth the rule that domestic and irrigation water shall be used for lawn irrigation purposes on an odd/even or other basis based upon the street address of the water users of the city.

B. Said proclamation may become effective immediately, if so indicated by the mayor; provided, that 20 citizens and water users of the city may petition the council for a review of the rules and regulations and the matter will be then heard at the next regular meeting of the city council, at which time the council may modify, change or revoke the proclamation; and, further provided, that the rules shall not be abated during the waiting period for the council to act. (Ord. 1601 § 2, 2001; Ord. 1527 § 1, 1998; Ord. 1335 § 1, 1992).

13.36.040 Enforcement authority.

The officers and employees of the city shall enforce said rules and regulations and rationing as set forth in the proclamation of the mayor. (Ord. 1335 § 1, 1992).

13.36.050 Violation – Penalty.

Any person found guilty of violating any emergency proclamation, or rules or regulations issued pursuant thereto, shall be fined not more than $50.00 for each offense on each day said offense continues, but not more than $500.00. (Ord. 1335 § 1, 1992).

Chapter 13.40
CAPITAL FACILITIES PLAN FOR PUBLIC WORKS FACILITIES

Sections:

13.40.010 Adoption of capital facilities plan for public works facilities.

The 2002 capital facilities plan for public works facilities, as prepared by Huibregtse, Louman Associates, Inc., is hereby adopted as the capital facilities plan for the city. (Ord. 1629 § 2, 2002).

13.40.020 Amendments and additions.

All future amendments and additions to the capital facilities plan for public works facilities described in GMC 13.40.010, when printed, and a copy thereof has been filed with the city clerk, shall be considered and accepted as amendments and additions to this chapter. (Ord. 1629 § 2, 2002).

Chapter 13.44
RECOMMENDED STANDARDS FOR WATER WORKS

Sections:

13.44.010 Document adopted – Standards for city water projects.

The 2002 Edition of the Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction is hereby adopted in its entirety as the standards to be used for city of Grandview water projects. (Ord. 1628 § 1, 2002; Ord. 1152 § 1, 1986).

13.44.020 Amendments and additions.

All future amendments and additions to the Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction described in GMC 13.44.010, when printed, and a copy thereof has been filed with the city clerk, shall be considered and accepted as amendments and additions to this chapter. (Ord. 1628 § 2, 2002; Ord. 1152 § 2, 1986).

CITY OF GRANDVIEW

9.
EXTENSION BY DEVELOPERS POLICY

HLA
Engineering and Land Surveying, Inc.

EXTENSION BY DEVELOPERS

If a developer, or other person desires to extend the water system, they must do so at their own expense, provided they comply with the standards and other requirements of the City.

1. At the time that the preliminary proposal is submitted to the City, a letter requesting the availability of water should be submitted to the City for approval. A map showing the area to be served, the number of units, and the type of units should accompany this request.

2. If the area to be served is inside the service area but outside the City Limits, and Outside Utility Service Agreement must be executed.

3. Prior to the installation of water mains, an application to extend the water system must be submitted by the Developer for approval by the City. At this time, the Developer should authorize his consulting engineer to proceed with design and furnish the City three copies of the preliminary drawings. After review and approval by all applicable agencies, the Developer's consulting engineer must provide four copies of the final water system extension design to the City.

4. After the plans are completed and approved, the developer may call for bids for the work described herein. It is required that the Developer secure a Performance Bond guaranteeing the completion of this work and payment of bills and guarantee the materials and workmanship for one year. It is required that licensed and bonded contractors be employed by the Developer.

5. After the award of the Contract and before proceeding with any work on the job, the City must be notified at least five working days in advance of start of work. Any work that is performed without proper notification of the City may be summarily rejected.

6. During the progress of the work, the City shall be kept informed and inspection requested and completed prior to covering pipe and other major phases of construction.

7. After completion of construction, the standard pressure test must be performed.

8. After the pressure test, lines must be tested and approved for purity. The procedure used for disinfection shall conform to the most current edition of the Standard Specifications for Road, Bridge, and Municipal Construction or other standards acceptable to the Washington State Department of Health. In cases of new construction, drinking water shall not be furnished to the consumer until satisfactory bacteriological samples have been analyzed by a laboratory certified by the State.

9. All fees must be paid prior to ordering meters. This includes cut-in fees, engineering fees, and connection charges that might be applicable to this development. The Developer and the Contractor shall ask for a final inspection and acceptance of the mains. This inspection must be performed by the City, Contractor, and the Developer.

10. The Developer must furnish the City with a copy of the construction contract showing the total cost of construction for this development.

11. The Developer must furnish the City permanent easements that might be necessary or applicable to this installation.

12. The Developer must furnish to the City a satisfactory Maintenance Bond guaranteeing materials and workmanship for a period of one year. This Bond can be a part of the Performance Bond.

13. The Developer may order meters. Any areas where pressure exists in excess of 90 pounds per square inch, the Developer is responsible for the installation of pressure reducing valves.

14. After acceptance of the water mains by the City, the Developer must sign a Bill of Sale deeding these mains to the City.

CITY OF GRANDVIEW

10.
PROPERTY DEEDS

HLA
Engineering and Land Surveying, Inc.

2172776 714 AUG 19 1968

WARRANTY DEED

Know All Men By These Presents:

That the Grantors ELZA W. HEARD and NELLIE B. HEARD, husband and wife, and who have been husband and wife at all times since acquiring the premises hereinafter described, for and in consideration of TEN DOLLARS ($10.00) and other sufficient consideration Dollars, lawful money of the United States of America, to them in hand paid, the receipt whereof is hereby acknowledged, do by these presents

CONVEY AND WARRANT

unto ELMER P. BREITLING, a single man,

the grantee , his heirs and assigns, the following described real estate, situate in the County of Yakima , State of Washington, to-wit:

96 The West 209 feet of the North 209 feet of Tract 86, of GRANDVIEW ORCHARD TRACTS, according to the official plat thereof recorded in Volume "B" of Plats, page 14, records of Yakima County, Washington. 16

SUBJECT to easements, rights of way, restrictive covenants and reservations appearing in the chain of title, contracts and proceedings relative to water, water rights and drainage, and to taxes, assessments and charges falling due against the premises subsequent to the date hereof.

COUNTY EXCISE TAX
DATE 10-5-61
PAID $ 85.00
REC. NO.
BY FRED C. REDMON, Yakima County Treasurer DEP.

together with and included herein all and singular the water rights, rights, privileges, improvements, tenements, hereditaments, and appurtenances thereto belonging, or in any way incident or appertaining to the premises hereby conveyed.

Dated this 29th day of September , 1961.

YAKIMA COUNTY, WASH.
FILED BY E. P. BREITLING
AUG 19 9 57 AM '68
EUGENE NAFF
AUDITOR

Elza W. Heard

Nellie B. Heard

STATE OF WASHINGTON, } ss.
County of Yakima }

I, the undersigned, a Notary Public in and for the State of Washington, hereby certify that on this 4th day of October, 1961 personally appeared before me ELZA W. HEARD and NELLIE B. HEARD, husband and wife, to me known to be the individuals described in and who executed the foregoing instrument, and acknowledged that they signed and sealed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal the day and year last above written.

James P. Salinas

Notary Public in and for the State of Washington residing at Sunnyside therein.

JAMES P. SALINAS NOTARY PUBLIC NOV. 1, 1961 STATE OF WASHINGTON

Transamerica
Title Services

VOL 1184 JUN 3 1986

YAKIMA COUNTY, WASH
FILED BY
JUN 3 11 32 AM '86
BETTIE [illegible]
AUDITOR

THIS SPACE PROVIDED FOR RECORDER'S USE:

2765649

FILED FOR RECORD AT REQUEST OF

5.00

WHEN RECORDED RETURN TO

Name BLECHSCHMIDT & MAXWELL, P.S., INC.

Address P.O. Box 489

City, State, Zip Grandview, WA. 98930

2765649

Quit Claim Deed

THE GRANTOR EDWIN L. MCDONALD and JACKIE F. MCDONALD, husband and wife

for and in consideration of In Lieu of Forfeiture

conveys and quit claims to CITY OF GRANDVIEW, a municipal corporation

the following described real estate, situated in the County of YAKIMA State of Washington, together with all after acquired title of the grantor(s) therein:

Lot D of Short Plat file in Book "O" of Short Plats, Page 55, under Auditor's File Number 2509339, records of Yakima County, Washington.

Assessor's Parcel No. 230922032497-9

Reserving unto the Grantor an easement over and under said property for an existing single service sewer line from Lot D of Short Plat filed in Book "O" of Short Plats, page 55, under Auditor's File No. 2509339, records of Yakima County, Washington to a sewer main line located on said Lot D described herein above.

COUNTY EXCISE TAX
DATE 6-2-86
PAID $ None
REC. NO. 218740
By [signature] DEP.
HALF A. GRAY, Yakima County Treasurer

Dated May 27, 1986

Edwin L. McDonald
(Individual)

Jackie F. McDonald
(Individual)

By ..... (President)

By ..... (Secretary)

STATE OF WASHINGTON
COUNTY OF YAKIMA } ss.

On this day personally appeared before me EDWIN L. MCDONALD & JACKIE F. MCDONALD to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 27 day of May, 1986.

[signature]
Notary Public in and for the State of Washington, residing at Grandview.
My commission expires 12-15-87.

STATE OF WASHINGTON
COUNTY OF ..... } ss.

On this ..... day of ....., 19....., before me, the undersigned, a Notary Public in and for the State of Washington, duly commisioned and sworn, personally appeared .....

and .....

to me known to be the ..... President and ..... Secretary, respectively, of ..... the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that ..... authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

Witness my hand and official seal hereto affixed the day and year first above written.

Notary Public in and for the State of Washington, residing at .....

OFFICIAL RECORDS VOL 1184 1723 Form No. W-748

LAND CONTRACT

PROPERTY

From

To

ated ____________________, 19____

STATE OF WASHINGTON
OUNTY OF ____________ } ss.

eceived for record this ____________ day
____________, 19____
o'clock ______ M., and recorded at request of
____

Book ______ Page ______
cords of said County.

____________ County Auditor.

____________ Deputy.

Blechschmidt, Dingman & Maxwell, P.S., Inc.
ATTORNEYS AT LAW
Post Office Box [illegible]
Grandview, Washington 93930

Consideration $____________

First Payment $____________

Balance Unpaid $____________

PAYMENTS MADE

DATE	PAID ON INTEREST	PAID ON PRINCIPAL	RECEIVED BY	BALANCE

PAYMENTS MADE

DATE	PAID ON INTEREST	PAID ON PRINCIPAL	RECEIVED BY	BALANCE

In the event that purchaser abandons the property while in default, seller may take immediate possession of the property for the purpose of protecting and preserving the property and may mitigate damages by renting or operating this property during the period of enforcement of seller's rights under this contract, without prejudicing seller's remedies under this contract.

Any extension of time in payments or acceptance of part thereof, or failure of seller to enforce promptly any other breach of this contract by purchaser shall not be construed as a waiver on the part of seller of the strict performance of all of the covenants and conditions herein, and shall not prejudice any of seller's remedies.

18. ATTORNEY'S FEES AND VENUE — In the event of any lawsuit between the parties to this contract to settle issues arising hereunder, the prevailing party shall recover judgment against the other party for a reasonable attorney's fee. At seller's option, venue shall lie in the County of Yakima.

19. BINDING EFFECT — This agreement shall be binding upon and shall inure to the benefit of the legal representatives and proper assigns and successors of the parties.

20. to the extent of the value of the remaining portion of their right of tenancy, provide that the proceeds of any such insurance will be paid to the Sellers, with the remainder of the proceeds to be paid to the Purchasers herein. In the event the residence located on the above premises should be destroyed beyond repair, then the right of tenancy reserved herein will terminate.

CITY OF GRANDVIEW, WASHINGTON, A Municipal Corporation

Gussie Meyer
George Meyers
Seller

BY: [signature] Mayor

ATTEST: Carolie Overdorf Clerk

Purchaser

207 W. 2nd S.T., Grandview, Wa.
Address of Purchaser

STATE OF WASHINGTON } ss.
County of YAKIMA }

PERSONAL ACKNOWLEDGMENT

This is to certify that on this day personally appeared before me GEORGE MEYER and GUSSIE MEYER, husband and wife to me known to be the individual S described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal this 27 day of October 1977

[signature]

Notary Public in and for the State of Washington residing at Grandview.

STATE OF WASHINGTON } ss.
County of }

CORPORATION ACKNOWLEDGMENT

This is to certify that on this _____ day of _____, 19____, personally appeared before me _____ and _____ to me known to be the _____ and _____ respectively of the corporation that executed the within instrument and acknowledged the said instrument to be the free and voluntary act and deed of said corporation for the uses and purposes therein mentioned and on oath stated that they were authorized to execute the same and that the seal affixed is the corporate seal of the said corporation.

Given under my hand and official seal on the date above stated.

Notary Public in and for the State of _____

residing at _____

My commission expires on the _____ day of _____, 19____

YAKIMA COUNTY, WASH.
FILED BY SCHREINER TITLE CO.
Nov 10 4 11 PM '77
C.W. HATFIELD
AUDITOR

OFFICIAL RECORDS VOL 1013 1972

3. POSSESSION — Purchaser shall be entitled to possession of the property ~~xx~~ immediately.

4. PERSONAL PROPERTY — Title to personal property described above shall remain in seller until purchaser has fully performed this contract. Purchaser's rights to the property shall be subject to all applicable terms and conditions of this contract. Personal property shall be maintained in good condition and not disposed of by purchaser without written consent of seller and, excepting vehicles or equipment the intended use of which requires temporary removal, shall be kept on the property herein sold.

5. ASSESSMENTS AND TAXES — Purchaser shall pay before delinquency all taxes, assessments, water rents or water assessments, utility charges, and operation or construction charges not now delinquent, and all levied or assessed against the property and hereafter falling due; except that real estate taxes for year 1977 and personal property taxes for year ------- shall be prorated. In the event any taxes, assessments, rents, or charges to be paid by purchaser are paid by seller, purchaser shall promptly reimburse seller. Upon failure of purchaser to pay any taxes, assessments, rents or charges to be paid by purchaser, seller may, at his option, declare a forfeiture of this contract or pay and discharge any such tax, assessment, rent or charge and any amount so paid shall be added to and be secured in the same manner as the unpaid purchase price, bear interest at the rate of 10% per annum, and be due immediately.

6. IMPROVEMENTS — All improvements now or hereafter made to or placed on the property shall become a part thereof and shall not be removed.

7. LIENS, CHARGES AND ENCUMBRANCES — Purchaser shall pay, before delinquency of any debts secured thereby, all liens, charges or encumbrances hereafter lawfully imposed on the property, assumed by purchaser in this contract or subject to which this purchase and sale is made; and shall not allow any part of the property to become subject to liens, charges or encumbrances having priority over the rights of seller in the property. Notwithstanding anything to the contrary provided above in this paragraph seven, purchaser shall not be responsible for any liens or encumbrances (or payment of the obligations secured thereby) imposed upon said property subsequent to the date of this contract by or through seller unless such liens, encumbrances or obligations are expressly assumed by purchaser.

8. EXISTING MORTGAGE OR SECURED OBLIGATION — Unless it is otherwise provided herein, in the event that there is now a mortgage or other secured obligation upon the property seller shall save purchaser harmless with regard thereto and timely pay all installments falling due. In the event that seller fails to make any such payment when due, then purchaser may make payment and receive a credit for the amount thereof against payments next falling due under this contract.

9. CONDITION OF PREMISES, UPKEEP AND CROPS — Purchaser shall maintain the property and all improvements now or later placed on the property in a good state of repair, shall not make any material alterations without the written consent of seller and shall not allow or commit any waste. Purchaser shall farm all farm and orchard land in a good husbandlike manner, according to the customary standards of such farming in the area in which the property is situated, without unnecessary interruptions or delays and shall furnish all labor, machinery, supplies, equipment and everything else necessary to such farming operations. Breach of this provision shall entitle seller, upon the giving of three (3) days written notice, to go upon the property and perform such services and acts as are necessary to comply with this provision. The necessary costs and expenses of these services and acts shall be considered an indebtedness immediately payable to seller, and which seller have the right to collect, or at seller's option shall be considered an obligation under the contract, shall be added to the principal of the contract, and shall bear interest at the contract rate from date that the indebtedness was incurred. The methods of giving notice as herein provided shall be as is set forth in Paragraph 17(1) of this contract, with the privilege of purchaser to correct any deficiencies during the three day period.

10. USE OF PROPERTY — Purchaser shall not make nor allow any unlawful use of the property.

11. INSURANCE — Purchaser shall insure with companies satisfactory to seller the buildings now or hereafter placed on the property and any personal property conditionally sold in the sum of not less than its full insurable value, with loss thereunder payable first to any mortgagee who is such at the time of the execution hereof, then to seller, then to purchaser, as their respective interests may appear. The policy shall be held by seller or mortgagee.

In the event of destruction of or damage to any of said buildings or personal property and the collection of insurance during the life of this contract, the money received on said insurance may, at the option of purchaser, be used in the restoration of said improvements; provided, that purchaser is not at the time in default under the provisions of this contract, and subject to the terms of any mortgage on the property. If purchaser fails to procure insurance, seller is authorized to do so, and the cost may be added to the balance due hereunder and shall bear interest at 10% per annum, and shall become due immediately, or seller may, at his option, forfeit this contract for the failure of purchaser to procure insurance.

12. CONDEMNATION — If the property or any part shall be taken and condemned, such taking shall not be a ground for rescission of this contract. The award made for the taking shall be deemed to be the property of purchaser, but shall be paid to seller to apply upon the purchase price, not exceeding any amounts then unpaid hereunder.

13. ASSIGNMENT OR TRANSFER — The purchaser shall not assign this contract without the written consent of the seller. The seller shall not unreasonably withhold such consent; and, once given, such consent shall not waive the requirements of this paragraph as to any subsequent assignment of this contract.

14. DESTRUCTION OF PROPERTY — In the event of damage to or destruction of any buildings or improvements upon the property, such damage as between the parties shall be the loss of purchaser and shall not be a ground for rescission of this contract or abatement of purchase price.

15. DEED — When purchaser has fully performed this contract seller shall execute and deliver to purchaser a statutory warranty deed conveying the property free and clear of all encumbrances except any encumbrances agreed to by purchaser. Warranties of seller are limited to the date of this contract except for affirmative acts of seller thereafter.

16. TITLE — Seller shall obtain a standard purchaser's form policy of title insurance showing insurable title in seller as of the date of this contract, excepting matters herein expressly agreed to by purchaser or herein expressly provided to be satisfied hereafter by seller, and insuring purchaser for the amount of the purchase price of the real property to be sold.

17. REMEDIES — Time is of the essence of this contract, and in the event that purchaser fails to make any payment or perform any covenant or condition under this contract, seller shall have the right, at his option, to:

(1) Serve notice of forfeiture by delivering said notice to purchaser or by mailing it by certified or registered mail to his last known address, to the address below given, or to the address of said property. The notice shall specify the matters wherein purchaser is in default. In the further event purchaser shall fail to cure the default in performance or make payment of any sums due or of seller's attorney fee for services rendered incident to any default and seller's expenses of serving the same within 30 days from delivery or mailing of the notice, then, without further notice to purchaser or declaration of forfeiture, the notice shall become absolute and this contract shall become null and void, and purchaser shall immediately and peacefully surrender possession of the property and all rights of purchaser under this contract and to the property shall immediately cease and title to the property, together with all improvements (whether or not made by purchaser) and all growing crops shall be vested in seller without any right of purchaser to reclamation or compensation for money paid, improvements or growing crops; and all money previously paid under this contract shall be forfeited without process of law and shall be retained by and belong to seller as the reasonable rental for said property from this date to the date of forfeiture and as liquidated damages; or

(2) Declare all amounts unpaid under this contract due and institute suit to collect such amounts together with reasonable attorney fees; provided that if within thirty days after the commencement of the action purchaser performs all alleged breaches of covenant or conditions of this contract and has performed all covenants subsequent to the commencement of the action together with payment to seller of seller's actual attorney fees and taxable costs, this contract shall be reinstated.

FILED AT REQUEST OF
Schreiner Title Company
30 NORTH 2ND STREET
YAKIMA, WASHINGTON 98901

11-10-77

REAL ESTATE CONTRACT

169032

DALE A. GRAY, Yakima County Treasurer

Dated 10/28/77

#13 Purchase Cemetery Will

2482548

1. Seller, GEORGE MEYER and GUSSIE MEYER, husband and wife agrees to sell to Purchaser, CITY OF GRANDVIEW, A Municipal Corporation and Purchaser agrees to buy from Seller, the following property in Yakima County, Washington:

The West 1/2 of the Northeast 1/4 of the Southwest 1/4 of Section 13, Township 9 North, Range 23, E.W.M., EXCEPT the West 20 feet thereof for Road and EXCEPT that portion conveyed to the State of Washington for highway purposes by deed recorded under Auditor's File No. 2438102, TOGETHER WITH all appurtenances thereunto appertaining;

SUBJECT TO water rights, rights of way, easements and contracts of record or appearing upon the premises; ALSO taxes and assessments levied and becoming due upon the premises from and after the date hereof, including assessments in Drainage District No. 9 Sub E and in the Grandview Irrigation District;

ALSO SUBJECT TO easements for irrigation waterways granted to the United States of America, by instruments recorded in Volume 162 of Deeds, Auditor's File Nos. 87261 and 87265;

ALSO SUBJECT TO easement for flume for carrying waste water granted to Agnes M. Stuart, et al, by instrument recorded in Volume 193, Auditor's File No. 170255;

ALSO SUBJECT TO easement for covered drain granted to Yakima County Drainage Irrigation District No. 9-E, by instrument recorded in Volume 184 of Deeds, Auditor's File No. 218417;

ALSO SUBJECT TO easement for oil and gas pipelines granted to Pacific Northwest Pipeline Corpoation, by instrument recorded November 28, 1955, under Auditor's File No. 1596123.

2. PURCHASE PRICE – The purchase price is $ SIXTY THOUSAND and no/100 ($60,000.00) of which $ 1,000.00 has been paid, receipt being acknowledged. Purchaser agrees to pay the balance of the purchase price together with interest on deferred balances at the rate of *7* % per annum from 10/28/77 as follows:

The balance of $59,000.00 shall be due and payable as follows:

$16,400.00, plus interest computed on the unpaid balance at the rate of 7% per annum, shall be due and payable on January 10, 1978;

The balance of $42,600.00 shall be due and payable in ten (10) equal annual installments of $4,260.00 each, plus interest computed on the unpaid declining balances at the rate of 7% per annum; said payments to commence on the 14 day of JANUARY, 1979, and continue yearly thereafter on the 14 day of JANUARY of each year, until the entire balance of principal and interest has been paid in full.

It is mutually understood and agreed that the farm land is presently leased to Phil Grant Enterprises, Inc., at a rental of $3,500.00 per year, and the parties agree that the Purchaser herein, will receive said said rentals after the rental for the year 1977.

The Sellers herein, or the survivor of them, reserve the right to live in the residence on the premises for a period of ten (10) years from the date hereof. Should the sellers, or the survivor of them, remove from the house, or should they go to a nursing home for a period in excess of two (2) months, then this reservation will terminate. In the event the Sellers, or the survivor of them, are still living at the end of said ten (10) year period, they may, by mutual agreement between themselves and the purchaser, lease the residence for an additional term.

Sellers herein agree that they will insure the residence on the premises, during their occupancy of same, against loss by fire, and said policy shall, "see page 3, item 20"

All payments shall be made at the place designated by the Seller.

Washington 03028

4—1014
(July 1952)

Expires 1984

VOL 597 PAGE 468

Provided, that, for a period of twenty-five years from date hereof, if the patentee or its successor attempts to transfer title to or control over the lands to another or the lands are devoted to a use other than that for which the lands were conveyed, without the consent of the Secretary of the Interior or his delegate, or prohibits or restricts, directly or indirectly, or permits its agents, employees, contractors, or subcontractors (including without limitation, lessees, sublessees and permittees), to prohibit or restrict, directly or indirectly, the use of any part of the patented lands or any of the facilities thereon by any person because of such person's race, creed, color, or national origin, title shall revert to the United States. All restrictions, limitations, and conditions, contained in this patent, concerning the use of the land, the transfer of title thereto, the control thereover, and nondiscrimination of the users of the land and facilities thereon, shall cease to be in effect upon the expiration of twenty-five years from the date of this patent.

IN TESTIMONY WHEREOF, the undersigned officer of the Bureau of Land Management, in accordance with section 1 of the act of June 17, 1948 (62 Stat., 476, 43 U. S. C. sec. 15), has, in the name of the United States, caused these letters to be made Patent, and the Seal of the Bureau to be hereunto affixed.

GIVEN under my hand, in the District of Columbia, the TWENTY-SEVENTH day of MAY in the year of our Lord one thousand nine hundred and FIFTY-NINE and of the Independence of the United States the one hundred and EIGHTY-THIRD.

(SEAL)

For the Director, Bureau of Land Management.

By [signature]
Chief, Patents Section.

Filed for Record JUL 15 1959 2:23 P. M.
Request of SCHREINER TITLE CO.
HAROLD PURDIN, County Auditor

Washington 03028 4—1043

1783057 sewage and solid waste

The United States of America,

To all to whom these presents shall come, Greeting: VOL 597 PAGE 407

WHEREAS, a Certificate of the Land Office at Spokane, Washington, is now deposited in the Bureau of Land Management, whereby it appears that full payment has been made by the City of Grandview, Washington, according to the provisions of the Act of Congress of June 14, 1926 (44 Stat. 741; 43 U.S.C. 869), as amended by the Act of June 4, 1954 (68 Stat. 173), for the following described land:

Willamette Meridian, Washington.

T. 8 N., R. 23 E.,

Sec. 2, Lot 4, $S\frac{1}{2}NW\frac{1}{4}$, $N\frac{1}{2}SE\frac{1}{4}$, $SW\frac{1}{4}$.

The area described contains 357.69 acres, according to the Official Plat of the Survey of the said Land, on file in the Bureau of Land Management:

NOW KNOW YE, That the UNITED STATES OF AMERICA, in consideration of the premises, and in conformity with the said Acts of Congress, HAS GIVEN AND GRANTED and by these presents DOES GIVE AND GRANT unto the said City of Grandview, Washington, the tract of Land above described, for industrial sewage site purposes only; TO HAVE AND TO HOLD the same, together with all the rights, privileges, immunities, and appurtenances, of whatsoever nature, thereunto belonging, unto the said City of Grandview, Washington, and to its successors forever, subject, however, to the following reservations, conditions and limitations:

Subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes, and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by the local customs, laws, and decisions of courts; and there is reserved from the lands hereby granted, a right-of-way thereon for ditches or canals constructed by the authority of the United States.

There is, also, reserved to the United States, all mineral deposits in the land above described, together with the right to mine and remove the same, under applicable laws and regulations to be established by the Secretary of the Interior.

ent Number 1195919

U. S. GOVERNMENT PRINTING OFFICE 16—57247-2

VOL 663 PAGE 410 PUGET SOUND TITLE INSURANCE COMPANY

THIS SPACE RESERVED FOR RECORDER'S USE

FILED BY PUGET SOUND TITLE INSURANCE COMPANY
APR 9 3 48 PM 1965
EUGENE [illegible] AUDITOR
RECORDED IN VOL 663

Filed for Record at Request of

Name.....

Address.....

City and State.....

2035813

1/2035813

Form 467- 1-REV

Statutory Warranty Deed

THE GRANTOR, GEORGE SELLE, Individually and as Executor of the Will of AUGUST SELLE, deceased,

for and in consideration of Ten Dollars and other valuable consideration,

in hand paid, conveys and warrants to CITY OF GRANDVIEW, a municipal corporation of the third class of the State of Washington,
the following described real estate, situated in the County of YAKIMA, State of Washington:

Lots 2, 3 and 5, and the Southwest 1/4 of the Northeast 1/4 of Section 2, Township 8 North, Range 23, E.W.M., Except roads;
TOGETHER WITH all appurtenances thereunto appertaining;
SUBJECT TO: Water rights, rights of way, easements and contracts of record or appearing upon the premises;
ALSO SUBJECT TO: RESERVATION BY THE GRANTOR of a life estate in that portion of the premises lying North of the rock cliff and South of the Yakima River; PROVIDING, should the Grantor abandon the premises (by abandonment is meant for one year or more), then his life estate in the premises is thereby terminated; AND PROVIDING FURTHER, that the City shall have the right at all times to enter the land to install any and all facilities in connection with the sewage disposal plant, and shall have the right to fence the entire premises and provide the Grantor with a key to the gate of said fence.

Dated this 8th day of April, 1965

George W Selle (SEAL)
Individually

George Selle (SEAL)
Executor of the Will of
AUGUST SELLE, deceased

STATE OF WASHINGTON,
County of Yakima } ss.

On this day personally appeared before me GEORGE SELLE, Individually and as Executor of the Will of AUGUST SELLE, deceased,
to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 8th day of April, 1965.

Notary Public in and for the State of Washington,
residing at Grandview therein

Well #11

YAKIMA COUNTY, WASH — PUGET SOUND TITLE INSURANCE COMPANY

FILED BY
SCHR

SEP 9 3 33 PM 1959

HAROLD FURCIN, AUDITOR
DEPUTY

RECORDED IN VOL 599

VOL 599 PAGE 201

CLAIM DEED

HSCHMIDT & Mc KENZIE, ATT'Y
GRANDVIEW WASHINGTON

VOL 620 PAGE 334

PUGET SOUND TITLE INSURANCE COMPANY

THIS SPACE RESERVED FOR RECORDER'S USE.
YAKIMA COUNTY, WASH

FILED BY

SEP 29 3 50 PM 1961

EUGENE HAFF, AUDITOR
DEPUTY

RECORDED IN VOL 620

Filed for Record at Request of

Name City of Grandview

Address City Hall

City and State Grandview, Washington

1880155

1880155 Statutory Warranty Deed

THE GRANTOR JOHN MAC LEAY - an unmarried man,

for and in consideration of Ten and No/100 Dollars and other valuable consideration;

in hand paid, conveys and warrants to City of Grandview a municipal corporation of the third class of the State of Washington

the following described real estate, situated in the County of YAKIMA, State of Washington:

The East Half of Section 3, Township 8 North, Range 23, E.W.M., Except the west Half of the Southest Quarter of the Northeast Quarter thereof, and except roads;

Lots 6 and 8, and the Southwest Quarter of Southwest Quarter of Section 1, Township 8 North, Range 23 E.W.M., Except roads;

Lot 2 in Section 12, Township 8 North, Range 23, E.W.M., Except roads;

Lots 5, 6 and 7 in Section 35, Township 9 North, Range 23, E.W.M. except roads;

TOGETHER WITH ALL appurtenances thereunto appertaining; SUBJECT TO water rights , rights of way, easements and contracts of record or appearing upon the premises;

AND SUBJECT TO: RESERVATION BY THE SELLER of a life estate in the premises upon which are situated the corrals, buildings, lambing sheds and residence; PROVIDED, HOWEVER, that the Purchaser shall have the right to fence the entire premises and provide the Seller with a key to the gate to said fence;

This deed is given in fulfillment of that certain real estate contract between the parties hereto, dated June 7th , 19 61 , and conditioned for the conveyance of the above described property, and the convenants of warranty herein contained shall not apply to any title, interest or encumbrance arising by, through or under the purchaser in said contract, and shall not apply to any taxes, assessments or other charges levied, assessed or becoming due subsequent to the date of said contract.

Subject to all easements, restrictions and reservations of record, if any.

Dated this 22 day of Sept. , 1961

John MacLeay (SEAL)

Transamerica Title Services

Transamerica Title Insurance Company

Highland Well (Well #10)

THIS SPACE PROVIDED FOR RECORDER'S USE:

YAKIMA COUNTY WASH
FILED BY SCHREINER TITLE CO
JAN 13 3 15 PM '83
C.W. HATFIELD AUDITOR

COPY

FILED FOR RECORD AT REQUEST OF

WHEN RECORDED RETURN TO

Name Blechschmidt & Maxwell, P.S., Inc.
Address ATTORNEYS AT LAW Post Office Box 489
City, State, Zip Grandview, Washington 98930

Highland Well #10

2665215

2665215

Quit Claim Deed

THE GRANTORS, CLIFTON VINING and BETTY VINING, husband and wife, now and at all times since acquiring any interest in the below-described premises

for and in consideration of ONE DOLLAR AND OTHER VALUABLE CONSIDERATION

conveys and quit claims to THE CITY OF GRANDVIEW, a municipal corporation

the following described real estate, situated in the County of YAKIMA State of Washington, together with all after acquired title of the grantor(s) therein:

Commencing at a point on the north line of the northwest quarter of the southwest quarter 611 feet east of the northwest corner thereof; thence south 70 feet; thence east 50 feet; thence north 70 feet; thence west 50 feet to the point of beginning of Section 24, Township 9 North, Range 23, E.W.M.

SUBJECT TO: Water rights, rights of way, easements and contracts of record or appearing upon the premises; ALSO taxes and assessments levied and becoming due upon the premises from and after the date hereof.

This deed is given to correct the description contained in a deed recorded in Volume 866 of Deeds, Page 577, Document No. 2307252 in the Office of Yakima County Auditor.

COUNTY EXCISE TAX
DATE 1-13-83
PAID $ None
REC. NO 19663
BY Betty Reeder DEP.
DALE A. GRAY, Yakima County Treasurer

Dated Jan 11, 1983

Clifton B Vining (Individual)

Betty Lou Vining (Individual)

By ..... (President)

By ..... (Secretary)

STATE OF WASHINGTON
COUNTY OF YAKIMA } ss.

On this day personally appeared before me CLIFTON VINING and BETTY VINING, husband and wife to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 11 day of Jan 1983

Notary Public in and for the State of Washington, residing at Grandview

STATE OF WASHINGTON
COUNTY OF ..... } ss.

On this ..... day of ....., 19....., before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared .....

and .....

to me known to be the ..... President and ..... Secretary, respectively, of ..... the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that ..... authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

Witness my hand and official seal hereto affixed the day and year first above written.

Notary Public in and for the State of Washington, residing at .....

PUGET SOUND TITLE INSURANCE COMPANY

VOL 661 PAGE 150

Filed for Record at Request of

Name GORDON BLECHSCHMIDT, ATTY

Address BOX 706

City and State GRANDVIEW, WASHINGTON

THIS SPACE RESERVED FOR RECORDER'S USE

YAKIMA COUNTY, WASH.

FILED BY SCHREINER TITLE CO.

FEB 3 4 11 PM 1965

EUGENE NASH, AUDITOR

DEPUTY

RECORDED IN VOL 661

Cohu Well #9

2026949

2026949

Form 467- 1-REV

Statutory Warranty Deed

THE GRANTORS, W. M. COHU and ZORADA A. COHU, husband and wife, now and at all times since acquiring any interest in the below described property for and in consideration of Ten Dollars and other valuable consideration in hand paid, conveys and warrants to CITY OF GRANDVIEW, A Municipal corporation the following described real estate, situated in the County of Yakima, State of Washington:

That portion of Tract 93 of GRANDVIEW ORCHARD TRACTS, according to the official Plat thereof recorded in Volume "B" of Plats, Page 14, records of Yakima County, Washington, described as follows:

Beginning at a point on the West line of said Tract 93, 1238 feet South and 20 feet East of the West 1/4 corner of Section 22, Township 9 North, Range 23, E.W.M.; thence East 50 feet at right angles to last described line; thence South 50 feet parallel to the said West line of Tract 93; thence West to a point on the said West line of Tract 93, 50 feet South of the point of beginning; thence North to the point of beginning, together with all appurtenances thereunto appertaining;

SUBJECT TO water rights, rights of way, easements, and contracts of record or appearing upon the premises; also taxes and assessments levied and becoming due upon the premises from and after the date hereof;

Dated this 3rd day of Feb, 19

W M Cohu (SEAL)

Zorada A. Cohu (SEAL)

STATE OF WASHINGTON, County of YAKIMA } ss.

On this day personally appeared before me W. M. COHU and ZORADA A. COHU, husband and wife to me known to be the individual s described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 3rd day of Feb, 19

Notary Public in and for the State of Washington, residing at Grandview

2405995 +

Transamerica Title Insurance Co

A Service of Transamerica Corporation

THIS SPACE PROVIDED FOR RECORDER'S USE:

YAKIMA COUNTY, WASH.
FILED BY Grandview City
DEC 15 1 31 PM '75
C.W. HATFIELD
AUDITOR

2405995

Filed for Record at Request of

Name City Treasurer

Address Grandview, Wn

City and State

Wall Number 12

2.00

Quit Claim Deed

THE GRANTOR T. R. ADAMS and ISA LEE ADAMS, husband and wife

for and in consideration of One Dollars and other valuable consideration

conveys and quit claims to CITY OF GRANDVIEW, A Municipality of the third class

the following described real estate, situated in the County of Yakima State of Washington, together with all after acquired title of the grantor(s) therein:

The North 100 feet (measured along the East line) of the East 50 feet of Tract 25, GRANDVIEW ORCHARD TRACTS, according to Plat thereof recorded in Volume "B" of Plats, Page 14, records of Yakima County, Washington,

TOGETHER WITH the grantors agreement that no septic tank or other sanitary disposal system or any activity which might contaminate the well will be placed within one hundred (100) feet of the above described premises.

NOT SUBJECT TO COUNTY EXCISE TAX

DEPUTY TREASURER

Dated December 2, 1975

T. R. Adams
(Individual)

Isa Lee Adams
(Individual)

By ..... (President)

By ..... (Secretary)

STATE OF WASHINGTON } ss.
COUNTY OF Yakima }

On this day personally appeared before me T.R. ADAMS and ISA LEE ADAMS to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 2 day of December, 1975.

Notary Public in and for the State of Washington, residing at Grandview

STATE OF WASHINGTON } ss.
COUNTY OF ..... }

On this ..... day of ..... 19 ....., before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared .....

and .....

to me known to be the ..... President and ..... Secretary, respectively, of ..... the corporation that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that ..... authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

Witness my hand and official seal hereto affixed the day and year first above written.

Notary Public in and for the State of Washington, residing at .....

OFFICIAL RECORD VOL 979 PAGE 150

STATE OF WASHINGTON }
County of Yakima } ss

I, the undersigned, a notary public in and for the state of Washington, hereby certify that on this 12th day of November, 1942, personally appeared before me O. R. Ulrey and Grace A. Ulrey, husband and wife, to me known to be the individuals described in and who executed the foregoing instrument, and acknowledged that they signed and sealed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal the day and year last above written.

Notary Public in and for the State of Washington residing at Sunnyside

STATE OF WASHINGTON }
County of Yakima } ss

On this 12th day of November, 1942, before me personally appeared R. W. Duncan and Harry F. Ehmer, to me known to be the mayor and clerk of the corporation that exeduted the within and foregoing instrument and acknowledged said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that they were authorized to executed said instrument and that the seal affixed is the corporate seal of said corporation. Given under my hand and official seal the day and year last above written.

Notary Public in and for the State of Washington residing at Grandview

it will upon request fence said road and will maintain a gate or gates in order that no trespassers shall come upon said premises along said road.

Dated this 12th day of November, 1942.

O. R. Tilrey

Grace A Ulrey

TOWN OF GRANDVIEW

L. W. Duncan
Mayor.

Attest:

Harry F. Elmer
Clerk.

TAX ON CONVEYANCES — TAX COMMISSION OF THE STATE OF WASHINGTON — CH. 180, LAWS OF 1935 — FIFTY CENTS

Welhaed Verden #5

DOCUMENTARY 50 CENTS 50 — DOCUMENTARY 5 CENTS 5

W A R R A N T Y   D E E D

THIS INDENTURE, made the 12th day of November, 1942, between O. R. Ulrey and Grace A. Ulrey, husband and wife, grantors, and The Town Of Grandview, a municipal corporation, of the State of Washington, grantee, WITNESSETH:

That the said grantors, for and in consideration of the sum of Two Hundred and Fifty and no/100ths ($250.00) Dollars, to them in hand paid, the receipt of which is hereby acknowledged, do by these presents, convey and warrant unto the said grantee and to its assigns the following real estate, situated in the County of Yakima, State of Washington.

> Beginning at a point in Lot 124, Grandview Orchard Tracts, which point is 414.3 ft. south and 559.4 ft. west of the Northeast corner of the said Tract 124: thence west 100 ft.; thence North, 100 ft.: thence East 100 ft.: thence South 100 ft. to the place of beginning.

Together with a right of way for road 18 ft. in width running due north from the center of the 100 ft. square tract above described to the north line of tract 124.

And together with an easement for a pipe line over and across the said Tract 124 in a northeasterly direction from the center of the 100 square foot tract above described.

It is agreed that the grantee shall have the right to lay, maintain, operate and remove at any time any pipe for the transportation of water with the right of ingress and egress to and from the same, on, over and through the said Tract 124. The grantors and heirs and assigns shall have the right to fully use and enjoy the premises, except for said easement and the grantee covenants to bury any pipe so that the same will not interfere with the cultivation of said premises. The grantee further covenants that all damage to crops, fences and premises for and because of the laying of any pipe shall be paid for as soon as the amount of said damage can be ascertained.

The grantee further covenants that it will, at all times, maintain the road, right of way for which has herein been granted, that

STATE OF WASHINGTON, }
COUNTY OF YAKIMA. } ss

On this day personally appeared before me J. PAUL MILLER and VELMA L. MILLER to me known to be the individuals described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 15 day of July, 1947.

John E. O'Leary
Notary Public in and for the State of Washington, residing at Grandview

STATE OF WASHINGTON, }
COUNTY OF YAKIMA. } ss.

This is to certify that on this 15 day of July, 1947, personally appeared before me R.E. POWELL and HARRY F. EHMER to me known to be the Mayor and City Clerk respectively of the City of Grandview, the corporation that executed the within instrument and acknowledged the said instrument to be the free and voluntary act and deed of said corporation for the uses and purposes therein mentioned and on oath stated that they were authorized to execute the same and that the seal affixed is the corporate seal of said corporation.

Given under my hand and seal on the date above stated.

John E. O'Leary
Notary Public in and for the State of Washiggton, residing at Grandview

THIRD: It is understood and agreed that in the event second parties shall fail to commence said drilling operations within said period or in the event said well shall prove to be unsuitable or insufficient for the purposes of second party, then in that event this agreement shall become null and void.

FOURTH: It is understood and agreed that in the event said well shall prove to be suitable for the purposes of second party, first parties agree to execute to second party a deed to the premises last above described, together with a strip of land 50 feet in width running from said premises to the road running North and South along the West line of said Southwest Quarter of the Northeast Quarter of the Southeast Quarter of said Section 22, Township 9 North, Range 23 E.W.M.; in consideration whereof second party agrees to construct a roadway 50 feet in width running around the outside diameter of said circular tract of land to be conveyed to second party, and to construct a roadway over and along said 50 foot strip of land running westerly from said well cite to the county road running North and South above referred to. It is understood and agreed by second party that said roadways shall be graveled and treated to at least one application of oil and that said roadways shall be dedicated to the public after their construction.

IN WITNESS WHEREOF the parties hereto have executed this instrument this 15th day of July, 1947.

J. Paul Miller

Velma L. Miller

CITY OF GRANDVIEW

By R. E. Powell
Mayor

Attest:

Harry F. Ehmen
City Clerk

File City of G

Hillcrest Well #4

A G R E E M E N T

THIS AGREEMENT, made and entered into this 15th day of July, 1947, by and between J. PAUL MILLER and VELMA L. MILLER, husband and wife, of Grandview, Washington, hereinafter designated as first parties, and CITY OF GRANDVIEW, a municipal corporation, of the state of Washington, hereinafter designated as second party,

WITNESSETH: Whereas, first parties are the owners of the following described real property situate in Yakima County, Washington, to wit:

> The Southwest Quarter of the Northeast Quarter of the Southeast Quarter of Section 22, Township 9 North, Range 23, East W. M.;

and are desirous of conveying a portion of said premises, hereinafter described, to second party for the purpose of drilling and constructing thereon a municipal well with all appurtenances; and

WHEREAS, second party is desirous of acquiring said site for the purpose of drilling thereon a municipal well, to become a part of the waterworks system of second party if said site shall prove to be suitable for such purpose;

NOW, THEREFORE, for and in consideration of the foregoing recitals, and the covenants and agreements hereinafter set forth, the parties do hereby covenant and agree with one another as follows:

First: First parties do hereby grant, sell and convey to second party the right and privilege to enter upon the premises hereinafter described, and to drill thereon a municipal waterworks well, said premises being described as follows, to wit:

> A circular tract of land situate in the exact center of the Southwest Quarter of the Northeast Quarter of the Southeast Quarter of Section 22, Township 9 North, Range 23, E. W. M., said tract having a radius of exactly 100 feet;
>
> Together with the right of ingress to and egress from said tract, over and across the remaining portion of said subdivision owned by first parties.

Second: It is understood and agreed that said drilling operations shall be commenced within a period of five months from this date.

1530935

QUIT CLAIM DEED

Schreiner et ux

to

City of Grandview

PUGET SOUND TITLE INSURANCE COMPANY

FILED BY

SCHREINER TITLE CO.

SEP 8 3 23 PM 1954

HAROLD PURDIN AUDITOR

DEPUTY

RECORDED IN VOL 536

VOL 536 PAGE 605

Mail to BLECHSCHMIDT & Mc KENZIE, ATTYS GRANDVIEW WASHINGTON

Send Tax Statement to

Form 468-1-Rev.

Quit Claim Deed

THE GRANTORS, JACK SCHREINER and EMILY JANE SCHREINER, husband and wife, now and at all times since acquiring any interest in the property hereinafter described for and in consideration of the total sum of SIXTEEN and 82/100 - - ($16.82) DOLLARS

convey and quit claim to the CITY OF GRANDVIEW, a Municipal Corporation of the Third Class, State of Washington, the following described real estate, situated in the County of Yakima

State of Washington:

All of the Portion of the Northeast quarter of the Northwest quarter of Section 13, Township 9 North, Range 23 E. W. M. lying West and below gravity flow of the Sunnyside Valley Irrigation District Main Canal;
Together with all appurtenances thereunto appertaining.

COUNTY EXCISE TAX
PAID Exempt DATE 9/9/54
RECEIPT No. 20454
YAKIMA COUNTY TREASURER
BY [signature]
DEPUTY TREASURER

Dated this 2nd day of ~~August~~ Sept, 1954.

Jack Schreiner (SEAL)

Emily Jane Schreiner (SEAL)

STATE OF WASHINGTON, } ss.
County of Yakima

On this day personally appeared before me JACK SCHREINER and EMILY JANE SCHREINER, to me known to be the individual s described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 2nd day of ~~August~~ Sept, 1954.

Yvonne Schreiner

Notary Public in and for the State of Washington, residing at

Statutory Warranty Deed,
Wonn, Braicks & Sams to City of Grandview.

and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 29th day of April 1954.

Gertrude Glad
Notary Public in and for the State of Washington, residing at Seattle

STATE OF WASHINGTON)
ss.
COUNTY OF)

On this day personally appeared before me W. BRAICKS, a Trustee, to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 29th day of April 1954.

Gertrude Glad
Notary Public in and for the State of Washington, residing at Seattle

STATE OF WASHINGTON)
ss.
County of)

On this day personally appeared before me J. C. SAMS, a Trustee, to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 29th day of April 1954.

Gertrude Glad
Notary Public in and for the State of Washington, residing at Seattle

Filed for Record JUL 21 1954 4:48 P.M.
Request of SCHREINER TITLE CO.
HAROLD PURDIN, County Auditor

FILED AT REQUEST OF:
SHREINER TITLE COMPANY
30 No. 2ND ST.
YAKIMA, WASHINGTON

STATUTORY WARRANTY DEED

1524668 VOL 535 PAGE 115

THE GRANTORS, F. W. WONN, W. BRAICKS, and J. C. SAMS, Trustees, for and in consideration of TEN DOLLARS ($10.00) and other valuable consideration, in hand paid, conveys and warrants to CITY OF GRANDVIEW, WASHINGTON, a municipal corporation of the third class, the following described real estate, situate in the County of Yakima, State of Washington, to-wit:

That portion of the Southwest ¼ of the Southwest ¼ of Section 12, Township 9 North, Range 23, E.W.M., lying South and West of the right of way of the Sunnyside Canal, and that portion of the Northwest ¼ of the Northwest ¼ of Section 13, Township 9 North, Range 23, E.W.M., lying below gravity flow from the Sunnyside Canal, EXCEPTING THEREFROM the following: Beginning at the Southwest corner of Section 12, Township 9 North, Range 23, E.W.M., thence North along the West line of Section 12, 259.2 feet; thence South 53 deg. 46 min. East 297.5 feet; thence South 26 deg. 40 min. West 220.8 feet, more or less, to the right of way of the Sunnyside Canal; thence North 66 deg. 49 min. West 135 feet along the North line of said canal right of way to the West line of Section 13, Township 9 North, Range 23, E.W.M., thence North 33 feet to the point of beginning, EXCEPT road right of way.

SUBJECT TO: (1) Easements of record and rights of way for roads, ditches, laterals, drains, flumes, pipelines, and other servitudes over and across said premises if, in fact, any portion thereof is burdened thereby;

(2) Grantees installing the necessary drainage and sewage disposal facilities for the two houses owned by the above-named Trustees contiguous to and south and west of the above-conveyed premises, said installation to be satisfactory to the Grantors and to conform with the regulations of the State Health Department, said facilities to be of sufficient size to permit use jointly by the two residences owned by the Grantors;

(3) Use by the Grantors of the water right upon said premises until such time as the Grantees are able to supply the Grantors with a domestic water supply for the use of said residences of the Grantors; that the Grantees agree to connect the Grantors to Grantees' domestic water supply without charge and the Grantors agree to pay the regular rates for the water consumed at said residences as are or may be hereafter in effect for a similar class of service according to the ordinances of the Grantees;

(4) The Grantees conforming with all weed control regulations now or hereafter placed in effect in the district.

Dated this 29th day of April 1954.

TAX ON CONVEYANCES — TAX COMMISSION OF THE STATE OF WASHINGTON — CH. 180, LAWS OF 1935 — FIVE DOLLARS

TAX ON CONVEYANCES — TAX COMMISSION OF THE STATE OF WASHINGTON — CH. 180, LAWS OF 1935 — ONE DOLLAR

TAX ON CONVEYANCES — TAX COMMISSION OF THE STATE OF WASHINGTON — CH. 180, LAWS OF 1935 — TWO DOLLARS

TAX ON CONVEYANCES — TAX COMMISSION OF THE STATE OF WASHINGTON — CH. 180, LAWS OF 1935 — FIFTY CENTS

W. Braicks (SEAL)
Trustee

F. W. Wonn (SEAL)
Trustee

J. C. Sams (SEAL)
Trustee

DOCUMENTARY

STATE OF WASHINGTON)
ss.
County of King)

On this day personally appeared before me F. W. WONN, a Trustee, to me known to be the individual described in and who executed the within and foregoing instrument,

DOCUMENTARY

11.
DECLARATION OF COVENANTS

HLA
Engineering and Land Surveying, Inc.

7632623 5

FILE# 7632623
YAKIMA COUNTY, WA
11/04/2008 03:30:43PM
COVENANT
PAGES: 5
Recording Fee: 46.00
CITY OF GRANDVIEW

AFTER RECORDING RETURN TO:

City of Grandview
207 W. 2nd St
Grandview, WA 98948

NOT SUBJECT TO
REAL ESTATE EXCISE TAX
Julia Sysa NOV 4 2008
DEPUTY TREASURER

DECLARATION OF RESTRICTIVE COVENANTS

(FOR WELL PROTECTION AREA, WELL 1)

Grantor: CITY OF GRANDVIEW

Grantee: CITY OF GRANDVIEW

Abbreviated Legal Description: Park, Plat of Grandview, B-6

Complete legal descriptions are on pages 3 and 4 of this document.

Assessor's Tax Parcel ID No: 230923-21441

DATED: Nov. 3, 2008

DECLARANT/OWNER: CITY OF GRANDVIEW
207 W. 2ND St.
GRANDVIEW, WA 98930

SUBJECT PROPERTY (BURDENED PROPERTY). The real property subject to this Declaration of Restrictive Covenants is situated in Yakima County, State of Washington and is described on attached Exhibit A.

INTRODUCTION. The Declarant owns the Subject Property and has

constructed or intends to construct a well and waterworks to furnish water for public consumption on the Property. Declarant is required to keep the water supplied from the well free from impurities which might be injurious to the public health. Accordingly, the Declarant desires to set forth covenants, conditions, reservations and restrictions on the Covenant Area described in paragraph 1 below, which prevent certain uses of the property that have the potential to pollute or contaminate the groundwater. The covenants, conditions, reservations and restrictions set forth in this instrument are imposed upon the Subject Property and shall be considered as restrictive covenants running with the title to the Property.

RESTRICTIVE COVENANT

Subject to the terms and conditions set forth below, the Declarant hereby declares and creates the following use restrictions on the Covenant Area described in paragraph 1 below:

1. ***Covenant Area***. Declarant hereby declares and creates restrictions on the Covenant Area described below which prevent improvements from being constructed upon or the use of the Covenant Area for any purposes which have the potential to pollute or contaminate the groundwater within the Covenant Area, including but not limited to septic systems, drain fields, spray fields, confined animal feeding operations of any kind, the above or underground storage of hazardous substances of any kind or description, disposal or release of hazardous substances or the housing and enclosing of livestock or animals;

COVENANT AREA – SEE DESCRIPTION ATTACHED HERETO AS EXHIBIT B.

The owner of the Subject Property shall have the right to use the surface of the ground within the Covenant Area for any purpose which is not prohibited and which will not have the potential to pollute or contaminate the groundwater within the Covenant Area.

2. **Binding Effect**. This Declaration shall be binding upon and inure to the benefit of the owner of the Subject Property or the water system located thereon, its successors and assigns, and shall constitute a covenant running with the land.

IN WITNESS WHEREOF, the undersigned have set their hands on the day and year first above written.

OWNER/DECLARANT:

CITY OF GRANDVIEW

By: _____
MAYOR NORM CHILDRESS

STATE OF WASHINGTON)
) ss.
County of Yakima)

I certify that I know or have satisfactory evidence that NORM CHILDRESS is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the MAYOR of the City of Grandview, to be the free and voluntary act of such party for the uses and purposes therein described.

Dated this 3 day of November 2008.

Notary Public
State of Washington
ANITA G. PALACIOS
MY COMMISSION EXPIRES
November 15, 2012

_____
ANITA G. PALACIOS
(*print name*)
NOTARY PUBLIC in and for the state of Washington, residing at GRANDVIEW
My appointment expires 11/15/08

Exhibit "A"

That parcel labeled as depot park, lying between blocks 4, 5, and 15, and south of the railway as shown on the plat of Grandview Washington according to the Plat thereof recorded in Volume "B" of Plats, Page 6, records of Yakima County, Washington.

EXHIBIT "B" COVENANT AREA

A 100 foot radius well control zone, the center of said radius being described as follows:

Commencing at the North Quarter corner of Section 22, Township 9 North, Range 23 East, W.M.
Thence South 89°23'30" West along the north line of the Northwest Quarter of said Section 60.16 feet;
Thence South 00°36'30" East 814.39 feet to the Center of said radius.

7632621 6

FILE# 7632621
YAKIMA COUNTY, WA
11/04/2008 03:30:41PM
COVENANT
PAGES: 6
Recording Fee: 47.00
CITY OF GRANDVIEW

AFTER RECORDING RETURN TO:

City of Grandview
207 W. 2nd St
Grandview, WA 98948

NOT SUBJECT TO
REAL ESTATE EXCISE TAX
Sara Sayer NOV 4 2008
DEPUTY TREASURER

DECLARATION OF RESTRICTIVE COVENANTS

(FOR WELL PROTECTION AREA)

Grantor: CITY OF GRANDVIEW

Grantee: CITY OF GRANDVIEW

Abbreviated Legal Description: Block 5, Grandview Hillcreat Addition, N-26

Complete legal descriptions are on pages 3 and 4 of this document.

Assessor's Tax Parcel ID No: 230922-41550

DATED: Nov 3, 2008

DECLARANT/OWNER: CITY OF GRANDVIEW
207 W. 2ND St.
GRANDVIEW, WA 98930

SUBJECT PROPERTY (BURDENED PROPERTY). The real property subject to this Declaration of Restrictive Covenants is situated in Yakima County, State of Washington and is described on attached Exhibit A.

INTRODUCTION. The Declarant owns the Subject Property and has

constructed or intends to construct a well and waterworks to furnish water for public consumption on the Property. Declarant is required to keep the water supplied from the well free from impurities which might be injurious to the public health. Accordingly, the Declarant desires to set forth covenants, conditions, reservations and restrictions on the Covenant Area described in paragraph 1 below, which prevent certain uses of the property that have the potential to pollute or contaminate the groundwater. The covenants, conditions, reservations and restrictions set forth in this instrument are imposed upon the Subject Property and shall be considered as restrictive covenants running with the title to the Property.

RESTRICTIVE COVENANT

Subject to the terms and conditions set forth below, the Declarant hereby declares and creates the following use restrictions on the Covenant Area described in paragraph 1 below:

1. ***Covenant Area***. Declarant hereby declares and creates restrictions on the Covenant Area described below which prevent improvements from being constructed upon or the use of the Covenant Area for any purposes which have the potential to pollute or contaminate the groundwater within the Covenant Area, including but not limited to septic systems, drain fields, spray fields, confined animal feeding operations of any kind, the above or underground storage of hazardous substances of any kind or description, disposal or release of hazardous substances or the housing and enclosing of livestock or animals;

COVENANT AREA – SEE DESCRIPTION ATTACHED HERETO AS EXHIBIT B.

The owner of the Subject Property shall have the right to use the surface of the ground within the Covenant Area for any purpose which is not prohibited and which will not have the potential to pollute or contaminate the groundwater within the Covenant Area.

2. **Binding Effect**. This Declaration shall be binding upon and inure to the benefit of the owner of the Subject Property or the water system located thereon, its successors and assigns, and shall constitute a covenant running with the land.

IN WITNESS WHEREOF, the undersigned have set their hands on the day and year first above written.

OWNER/DECLARANT:

CITY OF GRANDVIEW

By: _____
MAYOR NORM CHILDRESS

STATE OF WASHINGTON)
) ss.
County of Yakima)

I certify that I know or have satisfactory evidence that NORM CHILDRESS is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the MAYOR of the City of Grandview, to be the free and voluntary act of such party for the uses and purposes therein described.

Dated this 3 day of November, 2008.

Notary Public
State of Washington
ANITA G. PALACIOS
MY COMMISSION EXPIRES
November 15, 2012

ANITA G. PALACIOS
(*print name*)
NOTARY PUBLIC in and for the state of Washington, residing at GRANDVIEW
My appointment expires 11/15/08

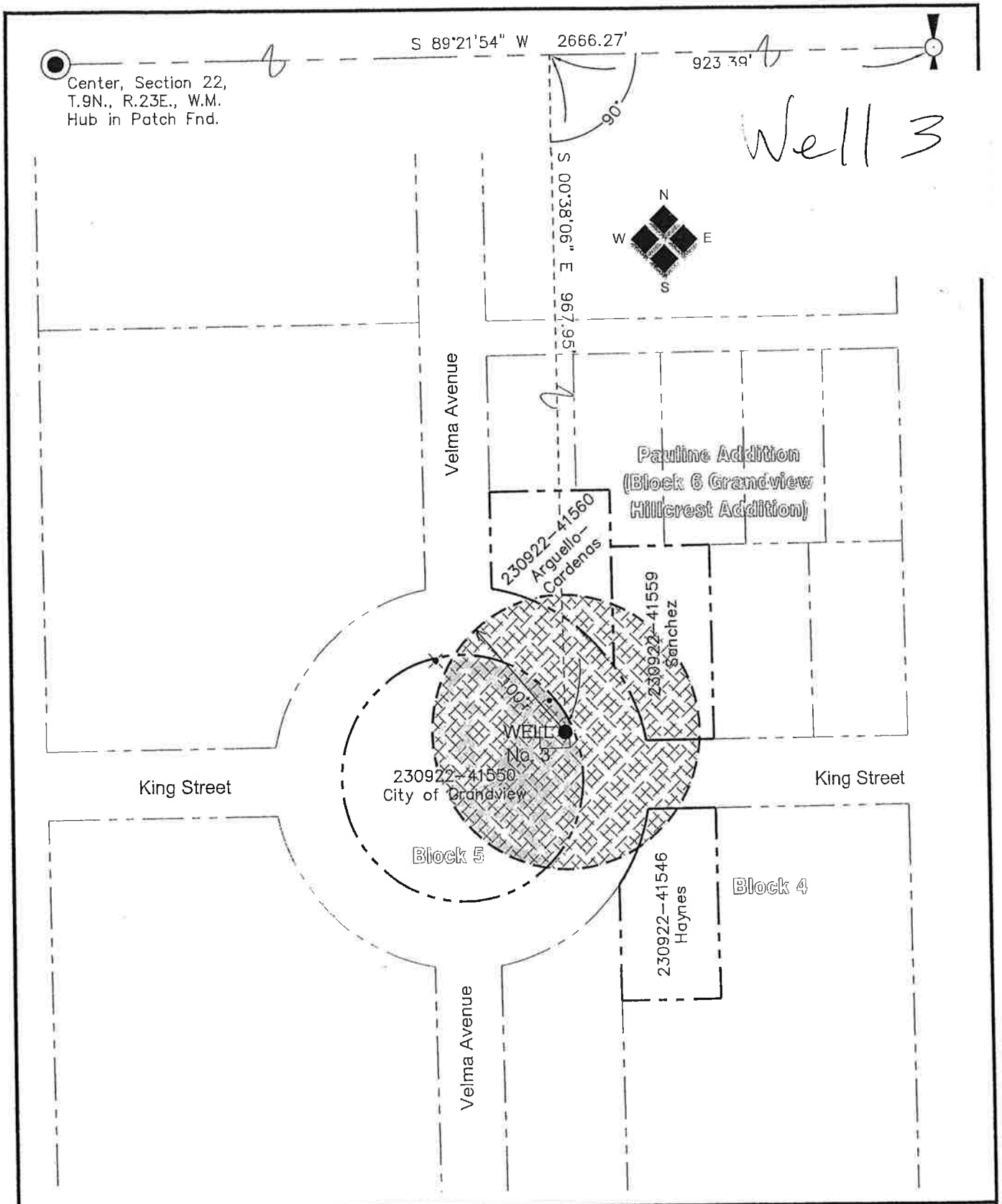
Exhibit "A"

All of Block 5, Grandview Hillcrest Addition according to the Plat thereof recorded in Volume "N" of Plats, Page 26, records of Yakima County, Washington.

EXHIBIT "B" COVENANT AREA

A 100 foot radius well control zone, the center of said radius being described as follows:

Commencing at the East Quarter corner of Section 22, Township 9 North, Range 23 East, W.M.
Thence South 89°21'54" West along the north line of the Southeast Quarter of said Section 923.39 feet;
Thence South 00°38'06" East 967.95 feet to the Center of said radius.



Huibregtse, Louman Associates, Inc.
CIVIL ENGINEERING · LAND SURVEYING · PLANNING
801 North 39th Avenue ⋄ Yakima, WA 98902
(509) 966-7000 ⋄ FAX (509) 965-3800

Well Exhibit
for, The City of Grandview
Well No. 3

P:Projects/2008/08007/Wells/08007Wells.dwg (3-20-08)

RETURN TO:
GRANDVIEW CITY CLERK
207 WEST SECOND STREET
GRANDVIEW, WA 98930

DOCUMENT TITLE: DECLARATION OF COVENANT

GRANTOR: CITY OF GRANDVIEW

GRANTEE: CITY OF GRANDVIEW

ABBREVIATED LEGAL DESCRIPTION:

PORTION OF THE SOUTHWEST QUARTER, SECTION 12, TOWNSHIP 9 NORTH, RANGE 23 EAST, W.M.

ASSESSOR'S TAX/PARCEL NUMBER(S):

PORTION OF PARCEL 230912-33002

G:\Janis\Legaldes03\03012A-1C.wpd

7411136
Page: 1 of 3
07/21/2004 02:06P
Yakima Co, WA
ERIC HERZOG COV $21.00

DECLARATION OF COVENANT

I (we) the undersigned, City of Grandview a Municipal Corporation, owner(s) in fee simple of the land described herein, hereby declare this covenant and place same on record.

I (we) the grantor(s) herein, am (are) the owner(s) in fee simple of the following described real estate situated in Yakima County, State of Washington; to wit:

That portion of the Southwest Quarter of the Southwest Quarter of Section 12, Township 9 North, Range 23 East, W.M. lying southwesterly and southerly of the Sunnyside Valley Irrigation District Canal;
Except the west 20.00 feet of County road.
And Except Beginning at the southwest corner of said Southwest Quarter;
Thence North 259.2 feet;
Thence South 53°46' East 297.5 feet;
Thence South 26°40'00" West to the south line of said Southwest Quarter;
Thence West to the Point of Beginning.

on which the grantor(s) owns and operates a well and waterworks supplying water for public use located on said real estate, at:

Commencing at the southwest corner of said Southwest Quarter;
Thence North 00°25'13" West along the west line thereof 366.23 feet;
Thence North 89°34'47" East 379.00 feet to the center of said well

and grantor(s) is (are) required to keep the water supplied from said well free from impurities which might be injurious to the public health.

It is the purpose of these grants and covenants to prevent certain practices hereinafter enumerated in the use of said grantor(s) water supply.

NOW, THEREFORE, the grantor(s) agree(s) and covenant(s) that said grantor(s), his (her) (their) heirs, successors and assigns will not construct, maintain, or suffer to be constructed or maintained upon the said land of the grantor(s) and within 100 (One Hundred) feet of the well herein described, so long as the same is operated to furnish water for public consumption, any potential source of contamination, such as septic tanks and drainfields, sewer lines, underground storage tanks, new roads, railroad tracks, vehicles, structures, barns, feed stations, grazing animals, enclosures for maintaining fowl or animal manure, liquid or dry chemical storage, herbicides, insecticides, hazardous waste, or garbage of any kind or description.

7411136
Page: 2 of 3
07/21/2004 02:06P
Yakima Co, WA
ERIC HERZOG COV $21.00

These covenants shall run with the land and shall be binding to all parties having or acquiring any right, title, or interest in the land described herein or any part thereof, and shall inure to the benefit of each owner thereof.

WITNESS _____ hand _____ this 14th day of July, 2004.

_____ (Seal)

_____ (Seal)

Grantor(s)

State of Washington }
} ss
County of Yakima }

I, the undersigned, a Notary Public in and for the above named County and State, do hereby certify that on this 14 day of July, 2004, personally appeared before me Mike Bren and Anita Palacios to me known to be the individual described in and who executed the within instrument, and acknowledge that he (they) signed and sealed the same as free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official ~~seal the day~~ and year last above written.

RITA RODRIGUEZ
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
JANUARY 14, 2008

_____

Notary Public in and for the State of Washington, residing at Cityhall

My Commission Expires:
01/14/08

G:\Janis\Legaldes03\03012A-1C.wpd

ERIC HERZOG COV $21.00

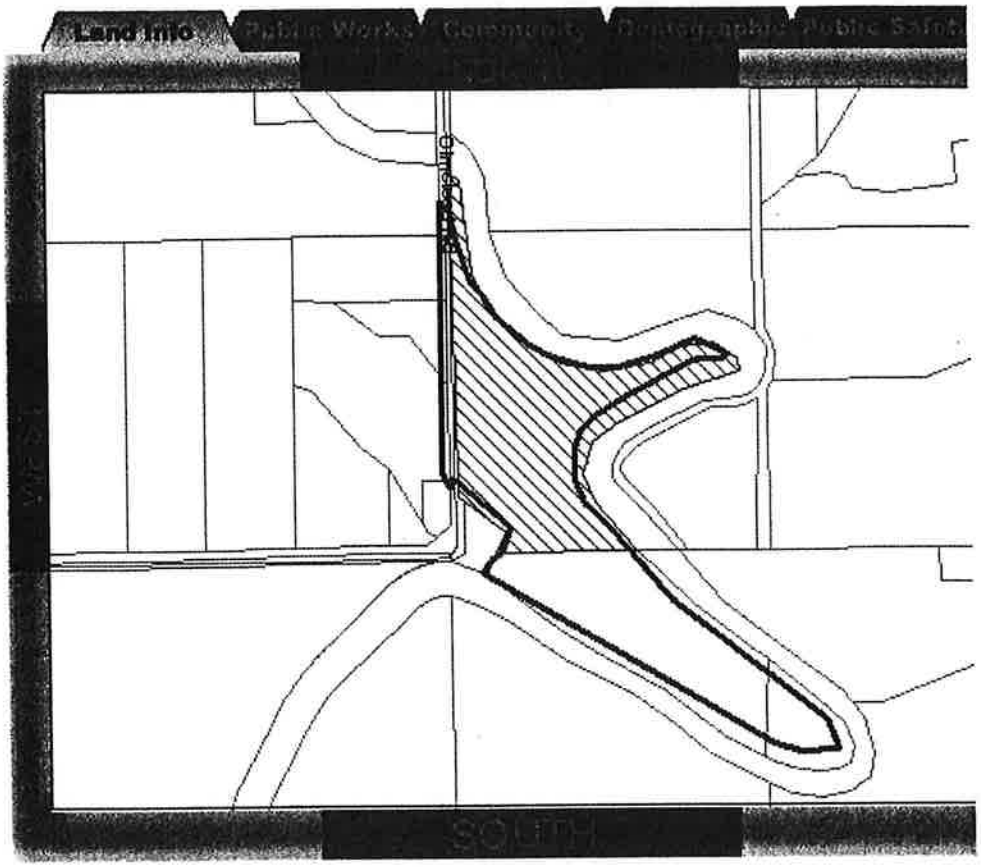
7411136
Page: 3 of 3
07/21/2004 02:06P
Yakima Co, WA

YAKIMA, WA Map Themes

- [x] City Limits
- [ ] Contours
- [ ] Critical Areas
- [ ] Floodplains
- [ ] Parcel Text
- [ ] Plan 2015
- [x] Relief Map
- [ ] Urban Areas
- [ ] Zoning

None

Refresh



Choose Location to:

Zoom in Zoom Out Pan Identify

Grandview Granger Harrah Moxee Naches Selah Sunnyside Tieton Toppenish UnionGap Wapato Yakima Zillah

Parcel Number: 23091233002
Situs Address: Olmstad Rd E Of
Owner Name: Grandview City
Misc Codes: 440-TCA/Levy
Assessed Values: 0-improvement value 18650-land
Parcel Size: 12.21 Acre(s)
Zoning: -
Plan 2015: Urban (City Limits)
Urban Growth Area: Urban Growth Area Plan
Jurisdiction: Grandview
Floodplain: Floodplain data not available
Critical Areas:
Stream Type:
Contour Elevation: No contour lines within 10 feet of click

* 7 6 3 2 6 2 2 6 *

FILE# 7632622
YAKIMA COUNTY, WA
11/04/2008 03:30:42PM
COVENANT
PAGES: 6
Recording Fee: 47.00
CITY OF GRANDVIEW

AFTER RECORDING RETURN TO:

City of Grandview
207 W. 2nd St
Grandview, WA 98948

NOT SUBJECT TO
REAL ESTATE EXCISE TAX
NOV 4 2008
DEPUTY TREASURER

DECLARATION OF RESTRICTIVE COVENANTS

(FOR WELL PROTECTION AREA, WELL 8)

Grantor: **CITY OF GRANDVIEW**

Grantee: **CITY OF GRANDVIEW**

Abbreviated Legal Description: portion of Tract 93, Plat of Grandview Orchard Tracts, **R-14**

Complete legal descriptions are on pages 3 and 4 of this document.

Assessor's Tax Parcel ID No: 230922-32448

DATED: Nov 3, 2008

DECLARANT/OWNER: **CITY OF GRANDVIEW**
207 W. 2ND St.
GRANDVIEW, WA 98930

SUBJECT PROPERTY (BURDENED PROPERTY). The real property subject to this Declaration of Restrictive Covenants is situated in Yakima County, State of Washington and is described on attached Exhibit A.

INTRODUCTION. The Declarant owns the Subject Property and has constructed or intends to construct a well and waterworks to furnish water for public consumption on the Property. Declarant is required to keep the water supplied from the well free from impurities which might be injurious to the public health. Accordingly, the Declarant desires to set forth covenants, conditions, reservations and restrictions on the Covenant Area described in paragraph 1 below, which prevent certain uses of the property that have the potential to pollute or contaminate the groundwater. The covenants, conditions, reservations and restrictions set forth in this instrument are imposed upon the Subject Property and shall be considered as restrictive covenants running with the title to the Property.

RESTRICTIVE COVENANT

Subject to the terms and conditions set forth below, the Declarant hereby declares and creates the following use restrictions on the Covenant Area described in paragraph 1 below:

1. ***Covenant Area***. Declarant hereby declares and creates restrictions on the Covenant Area described below which prevent improvements from being constructed upon or the use of the Covenant Area for any purposes which have the potential to pollute or contaminate the groundwater within the Covenant Area, including but not limited to septic systems, drain fields, spray fields, confined animal feeding operations of any kind, the above or underground storage of hazardous substances of any kind or description, disposal or release of hazardous substances or the housing and enclosing of livestock or animals;

COVENANT AREA – SEE DESCRIPTION ATTACHED HERETO AS EXHIBIT B.

The owner of the Subject Property shall have the right to use the surface of the ground within the Covenant Area for any purpose which is not prohibited and which will not have the potential to pollute or contaminate the groundwater within the Covenant Area.

2. **Binding Effect**. This Declaration shall be binding upon and inure to the benefit of the owner of the Subject Property or the water system located thereon, its successors and assigns, and shall constitute a covenant running with the land.

IN WITNESS WHEREOF, the undersigned have set their hands on the day and year first above written.

OWNER/DECLARANT:

CITY OF GRANDVIEW

By: _____
MAYOR NORM CHILDRESS

STATE OF WASHINGTON)
) ss.
County of Yakima)

I certify that I know or have satisfactory evidence that NORM CHILDRESS is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the MAYOR of the City of Grandview, to be the free and voluntary act of such party for the uses and purposes therein described.

Dated this 3 day of November, 2008.

Notary Public
State of Washington
ANITA G. PALACIOS
MY COMMISSION EXPIRES
November 15, 2012

_____
ANITA G. PALACIOS
(*print name*)
NOTARY PUBLIC in and for the state of Washington, residing at GRANDVIEW
My appointment expires 11/15/08

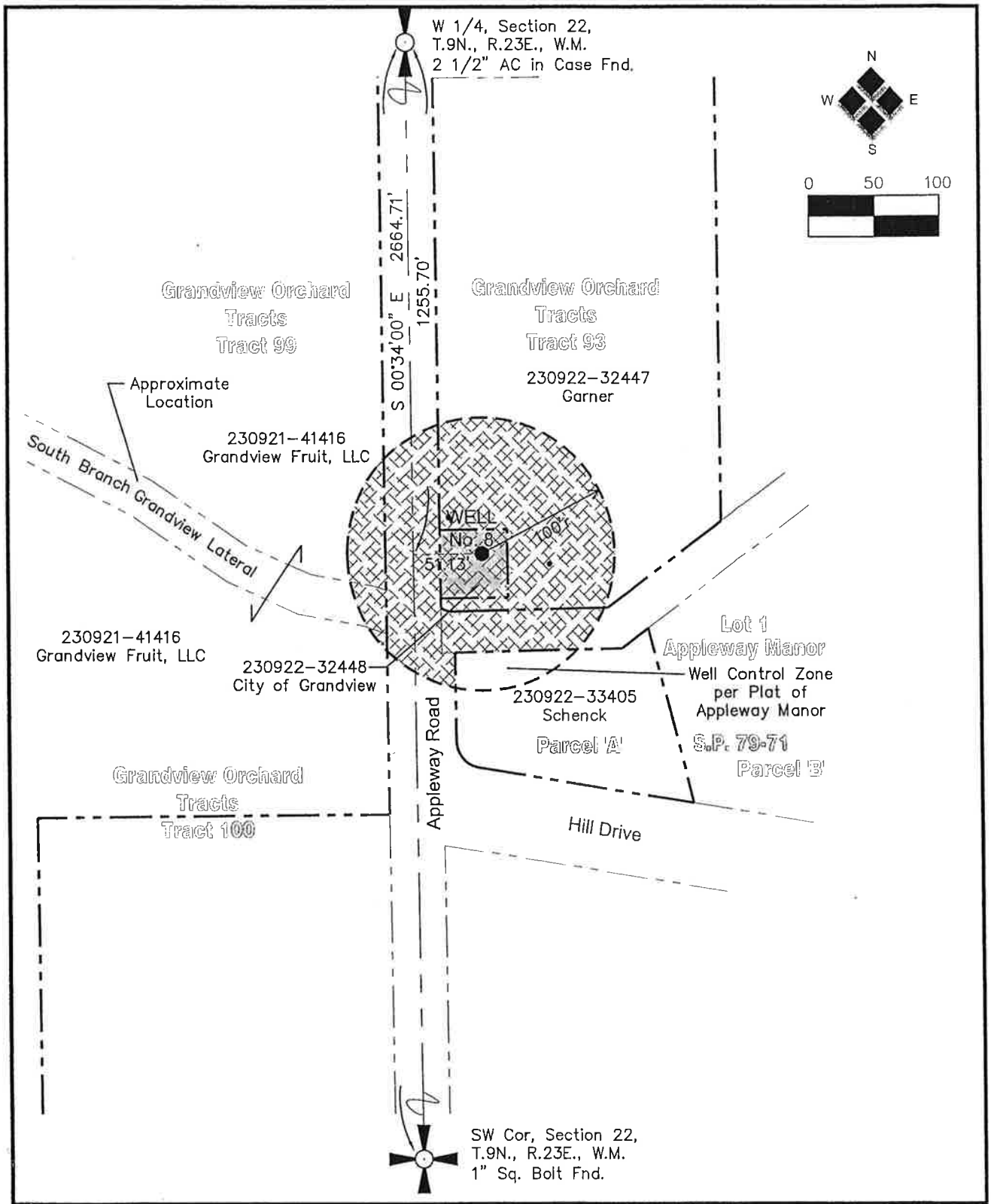
Exhibit "A"

That portion of Tract 93, Plat of Grandview Orchard Tracts, recorded in Volume "R" of Plats, Page 14, Records of Yakima County, Washington, described as follows:
Beginning 1238 feet south and 20 feet East of the West Quarter corner of Section 22, Township 9 North, Range 23 East, W.M.\Thence East 50 feet at right angles to last described line;
Thence South 50 feet parallel to said West line of Tract 93;
Thence West to a point on said West line of Tract 93, 50 feet South of the Point of Beginning:
Thence North to the Point of Beginning.

EXHIBIT "B" COVENANT AREA

A 100 foot radius well control zone, the center of said radius being described as follows:

Commencing at the West Quarter corner of Section 22, Township 9 North, Range 23 East, W.M.
Thence South 00°34'00" East along the West line of the Southwest Quarter of said Section 1255.70 feet;
Thence North 89°26'00" East 51.13 feet to the Center of said radius.



Hulbregtse, Louman Associates, Inc.
CIVIL ENGINEERING · LAND SURVEYING · PLANNING
801 North 39th Avenue ◆ Yakima, WA 98902
(509) 966-7000 ◆ FAX (509) 965-3800

Well Exhibit
for, The City of Grandview
Well No. 8

P:Projects/2008/08007/Wells/08007Wells.dwg (3-20-08)

RETURN TO:

John E. Maxwell
P.O. Box 489
Grandview, WA 98930

RESTRICTIVE COVENANT

Grantors:	Miguel Gonzalez and Sophie Rangel Gonzalez, husband and wife, and Donald Cowles and Valerie Cowles, husband wife,
Grantee:	City of Grandview
Legal:	Ptn Tract 25 Grandview Orchard Tracts Vol B pg 14, Ptn Tract 81, Grandview Orchard Tract Vol B Pg 14
Parcel #:	23092722405 and 23092233400

GRANTORS, MIGUEL GONZALEZ and Sophie Rangel GONZALEZ, husband and wife, are the owners of the following described property:

> Tract 25, Grandview Orchard Tracts, as recorded in Volume "B" of Plats, page 14, records of Yakima County, Washington. EXCEPT commencing at the North corner of said tract; thence southwesterly along the northwest line of said tract a distance of 25 feet; thence southeasterly parallel with the northeast line of said Tract 25 a distance of 25 feet; thence northeasterly 25 feet to a point on the northeast line 25 feet southeast of the point of beginning; thence northwesterly on the northeast line to the point of beginning. And EXCEPT the north 100 feet (measured along the east line) of the east 50 feet of said Tract 25. Situate in Yakima County, Washington. Herein referred to as Parcel A.

GRANTORS, DONALD COWLES and VALERIE COWLES, husband and wife, are the owners of the following described property:

> Tract 81, Grandview Orchard Tracts, according to the official plat thereof recorded in Volume "B" of Plats, page 14, records of Yakima County, Washington. Situate in Yakima County, Washington. Herein referred to as Parcel B.

WHEREAS, the City of Grandview is installing a new well adjacent to both of the above-described properties, the center of said well being described as follows:

JOHN E MAXWELL COV $34.00
7505359
Page: 1 of 3
04/27/2006 04:14P
Yakima Co, WA

Commencing at the southwest corner of Section 22, Township 9 North, Range 23 E.W.M.; thence north 00 degrees 34'01" west along the west line of said Section 22 a distance of 716.20 feet; thence north 89 degrees 25'59" east 929.45 feet to the center of said well.

Which well and waterworks is adjacent to the land of the grantors, and said grantees are required to keep the water supplied from said well free from impurities which might be injurious to the public health.

It is the purpose and intent of the grantee and covenants to prevent certain practices herewith enumerated in the use of grantor's land which might contaminate said water supply.

NOW, THEREFORE, in consideration of $1.00 in hand paid, and other good and valuable consideration, the grantors agree and covenant with the grantee, its successors and assigns, that said covenants shall run with the land for the benefit of the use of the grantee, that said grantors, their heirs, successors and assigns, will not construct, maintain or suffer to be constructed or maintained upon said land of the grantors within one hundred (100) feet of the well of grantee, so long as the same is operated to furnish water for public consumption, any of the following:

Cesspools, sewers, privies, septic tanks, drain fields, manure piles, garbage of any kind or description, barns, chicken houses, rabbit hutches, pig pens or other enclosures or structures for the keeping or maintenance of fowls or animals, or storage of liquid or dry chemicals, herbicides or insecticides.

These covenants shall run with the land and shall be binding on all parties having or acquiring any rights, title or interest in the land or any part thereof, and shall inure to the benefit of each owner thereof.

Dated this 14th day of April, 2006.

MIGUEL GONZALEZ

DONALD COWLES

GONZALEZ

Sophia Rangel

VALERIE COWLES

RESTRICTIVE COVENANT

STATE OF WASHINGTON)
ss:
COUNTY OF YAKIMA)

On this day personally appeared before me, Miguel Gonzalez and Sophie Rangel Gonzalez, to me known to be the individuals described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 19th day of April, 2006.

Notary Public
State of Washington
ELIZABETH A. ALBA
MY COMMISSION EXPIRES
October 15, 2009

Elizabeth A. Alba
NOTARY PUBLIC in and for the State of Washington, residing at Yakima
My Appointment Expires: 10/15/09.

STATE OF WASHINGTON)
ss:
COUNTY OF YAKIMA)

On this day personally appeared before me, Donald Cowles and Valerie Cowles, to me known to be the individuals described in and who executed the within and foregoing instrument, and acknowledged that they signed the same as their free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this 19th day of April, 2006.

Notary Public
State of Washington
ELIZABETH A. ALBA
MY COMMISSION EXPIRES
October 15, 2009

Elizabeth A. Alba
NOTARY PUBLIC in and for the State of Washington, residing at Yakima
My Appointment Expires: 10/15/09.

RETURN TO:
GRANDVIEW CITY CLERK
207 WEST SECOND STREET
GRANDVIEW, WA 98930

DOCUMENT TITLE: DECLARATION OF COVENANT

GRANTOR: CITY OF GRANDVIEW

GRANTEE: CITY OF GRANDVIEW

ABBREVIATED LEGAL DESCRIPTION:

PORTION OF THE SOUTHWEST QUARTER, SECTION 21, TOWNSHIP 9 NORTH, RANGE 23 EAST, W.M.

ASSESSOR'S TAX/PARCEL NUMBER(S):

PORTION OF PARCEL 230921-42400

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7411135
Page: 1 of 3
07/21/2004 02:36P
ERIC HERZOG COV $21.00 Yakima Co. WA

DECLARATION OF COVENANT

I (we) the undersigned, City of Grandview a Municipal Corporation, owner(s) in fee simple of the land described herein, hereby declare this covenant and place same on record.

I (we) the grantor(s) herein, am (are) the owner(s) in fee simple of the following described real estate situated in Yakima County, State of Washington; to wit:

A portion of tract 124, Grandview Orchard Tracts, as recorded in Volume "B" of Plats, Page 14, records of Yakima County, Washington.

on which the grantor(s) owns and operates a well and waterworks supplying water for public use located on said real estate, at:

Commencing at the northeast corner of the southeast Quarter, of Section 21, Township 9 North, Range 23 East, W.M.;
Thence North 89°51'02" West along the north line thereof 1,444.80 feet;
Thence South 00°08'58" West 457.98 feet to the center of said well

and grantor(s) is (are) required to keep the water supplied from said well free from impurities which might be injurious to the public health.

It is the purpose of these grants and covenants to prevent certain practices hereinafter enumerated in the use of said grantor(s) water supply.

NOW, THEREFORE, the grantor(s) agree(s) and covenant(s) that said grantor(s), his (her) (their) heirs, successors and assigns will not construct, maintain, or suffer to be constructed or maintained upon the said land of the grantor(s) and within 100 (One Hundred) feet of the well herein described, so long as the same is operated to furnish water for public consumption, any potential source of contamination, such as septic tanks and drainfields, sewer lines, underground storage tanks, new roads, railroad tracks, vehicles, structures, barns, feed stations, grazing animals, enclosures for maintaining fowl or animal manure, liquid or dry chemical storage, herbicides, insecticides, hazardous waste, or garbage of any kind or description.

These covenants shall run with the land and shall be binding to all parties having or acquiring any right, title, or interest in the land described herein or any part thereof, and shall inure to the benefit of each owner thereof.

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Page: 2 of 3
07/21/2004 02:06P
Yakima Co, WA
ERIC HERZOG COV $21.00

WITNESS _____ hand _____ this 14th day of July, 2004.

Mike Bren (Seal)

Anita Palacios (Seal)

Grantor(s)

State of Washington }
} ss
County of Yakima }

I, the undersigned, a Notary Public in and for the above named County and State, do hereby certify that on this 14 day of July, 2004, personally appeared before me Mike Bren and Anita Palacios to me known to be the individual described in and who executed the within instrument, and acknowledge that he (they) signed and sealed the same as free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and ~~official seal the day~~ and year last above written.

RITA RODRIGUEZ NOTARY PUBLIC COMMISSION EXPIRES JANUARY 14, 2008 STATE OF WASHINGTON

Notary Public in and for the State of Washington, residing at City Hall
My Commission Expires:
01-14-08

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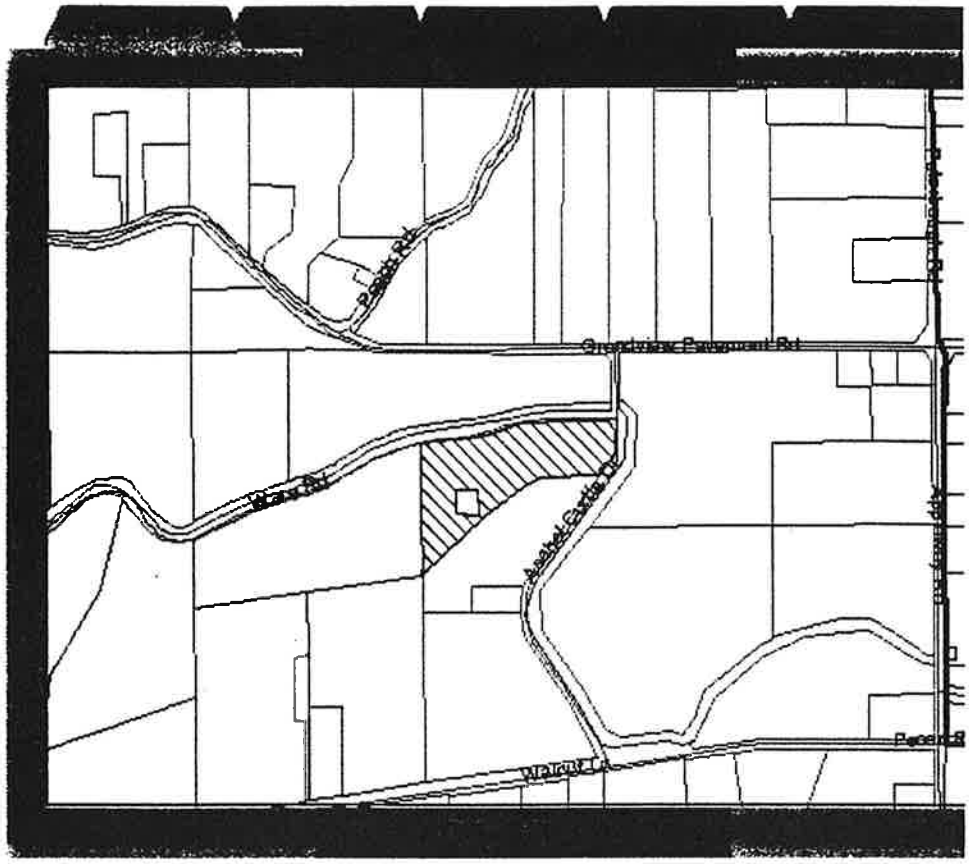
7411135
Page: 3 of 3
07/21/2004 02:06P
Yakima Co, WA
ERIC HERZOG COU $21.00



YAKIMA, WA Map Themes

- [x] City Limits
- [ ] Contours
- [ ] Critical Areas
- [ ] Floodplains
- [ ] Parcel Text
- [ ] Plan 2015
- [x] Relief Map
- [ ] Urban Areas
- [ ] Zoning

None

Refresh

Choose Location to:

Zoom in Zoom Out Pan Identify

Grandview Granger Harrah Moxee Naches Selah Sunnyside Tieton Toppenish UnionGap Wapato Yakima Zillah

Parcel Number: 23092142400
Situs Address: Ware Rd
Owner Name: Natividad & Rafael C Olivera
Misc Codes: 441-TCA/Levy
Assessed Values: 9100-improvement value 19350-land
Parcel Size: 4.47 Acre(s)
Yakima County Zoning: AG - Agriculture
Plan 2015: Agricultural Resource
Urban Growth Area: Outside of Urban Growth Area
Jurisdiction: County
Floodplain: Not within floodplain.
Critical Areas:
Stream Type:
Contour Elevation: 800

7644545 2

FILE# 7644545
YAKIMA COUNTY, WA
03/06/2009 09:13:17AM
COVENANT
PAGES: 2
Recording Fee: 43.00
JOHN MAXWELL

RETURN ADDRESS: City of Grandview
207 W. 2nd St.
Grandview, WA 98930

DOCUMENT TITLE: DECLARATION OF COVENANT

GRANTOR: City of Grandview

GRANTEE: City of Grandview

LEGAL DESCRIPTION: 1. Garage Land Lot 567, SW ¼, SW ¼, Section 35Township09N-Range 23E
2. Garage Land NE ¼, SE ¼ Section 03 Township 08N Range 23E

PARCEL NUMBER: 230935-33002 & 230803-11001

DECLARATION OF COVENANT

Know all men by these presents that I (we) the undersigned, owner(s) in fee simple of the land described herein, hereby declare this covenant and place same on record.

I (we), the grantor(s) herein, am (are) the owners in fee simple of (an interest in) the following described real estate situated in Yakima County, State of Washington, to wit:

Parcel number 230935-33002, Garage Land Lot 567 SW ¼ SW ¼ Section 35, Township 09N Range 23E
Parcel number 230803-11001 Garage Land NE ¼, SE ¼ Section 03 Township 08N Range 23E

on which the grantor(s) owns and operates a well and waterworks supplying water for public use located on said real estate, to wit:

Parcel number 230935-33002, Garage Land Lot 567 SW ¼ SW ¼ Section 35, Township 09N Range 23E
Parcel number 230803-11001 Garage Land NE ¼, SE ¼ Section 03 Township 08N Range 23E

It is the purpose of these grants and covenants to prevent certain practices hereinafter enumerated in the use of said grantor(s) land which might contaminate the water supply.

NOW, THEREFORE, the grantor(s) agree(s) and covenant(s) that said grantor(s) his (her) (their) heirs, successors and assigns will not construct, maintain, or suffer to be constructed or maintained upon the said land of the grantor(s) and within 100 feet of the well(s) herein described (see attached), so long as the same is operated to furnish water for public consumption, any potential source of contamination, such as septic tanks and drainfields, sewerlines, underground storage tanks, roads, railroad tracks, vehicles, structures, barns, feed stations, grazing animals, barns, enclosures for maintaining fowl or animal manure, liquid or dry chemical storage, herbicides, or insecticides, hazardous waste, or garbage of any kind or description.

These covenants shall run with the land and shall be binding on all parties having or acquiring any right, title, or interest in the land described herein or any part thereof, and shall inure to the benefit of each owner thereof.

WITNESS my **hand** on **this** 2nd **day of** March, **20**09.

City of Grandview

State of Washington)
County of Yakima)

BY: _____
Grantor (s) MAYOR

Notary Public
State of Washington
MARICELA PADILLA
MY COMMISSION EXPIRES
December 01, 2012

I, the undersigned, a Notary Public in and for the above named County and State, do hereby certify that on this 2nd **day of** March, **20**09, **personally appeared before me** Norm Childress **to me know to be the individual** that's **described in and who executed the within instrument, and acknowledge that** (he) **(they) signed and sealed the same as free and voluntary act and deed, for the uses and purposes therein mentioned.**

GIVEN under my hand and official seal the day and year last above written.

Maricela Padilla

Notary Public in and for the State of Washington
Residing at Grandview

7645896 2

FILE# 7645896
YAKIMA COUNTY, WA
03/17/2009 02:59:08PM
COVENANT
PAGES: 2
Recording Fee: 43.00
JOHN MAXWELL
JOHN E. MAXWELL

RETURN ADDRESS: City of Grandview
207 W. 2nd St.
Grandview, WA 98930

DOCUMENT TITLE: DECLARATION OF COVENANT

GRANTOR: City of Grandview

GRANTEE: City of Grandview

LEGAL DESCRIPTION: 1. Garage Land NE ¼ SE ¼ Section 3 Township 08 Range 23E

PARCEL NUMBER: 230803-11001

DECLARATION OF COVENANT

Know all men by these presents that I (we) the undersigned, owner(s) in fee simple of the land described herein, hereby declare this covenant and place same on record.

I (we), the grantor(s) herein, am (are) the owners in fee simple of (an interest in) the following described real estate situated in Yakima County, State of Washington, to wit:

Parcel number 230803-11001, Garage Land NE ¼ SE ¼ Section 3 Township 08 Range 23E

on which the grantor(s) owns and operates a well and waterworks supplying water for public use located on said real estate, to wit:

Parcel number 230803-11001, Garage Land NE ¼ SE ¼ Section 3 Township 08 Range 23E

It is the purpose of these grants and covenants to prevent certain practices hereinafter enumerated in the use of said grantor(s) land which might contaminate the water supply.

NOW, THEREFORE, the grantor(s) agree(s) and covenant(s) that said grantor(s) his (her) (their) heirs, successors and assigns will not construct, maintain, or suffer to be constructed or maintained upon the said land of the grantor(s) and within 100 feet of the well(s) herein described (see attached), so long as the same is operated to furnish water for public consumption, any potential source of contamination, such as septic tanks and drainfields, sewerlines, underground storage tanks, roads, railroad tracks, vehicles, structures, barns, feed stations, grazing animals, barns, enclosures for maintaining fowl or animal manure, liquid or dry chemical storage, herbicides, or insecticides, hazardous waste, or garbage of any kind or description.

These covenants shall run with the land and shall be binding on all parties having or acquiring any right, title, or interest in the land described herein or any part thereof, and shall inure to the benefit of each owner thereof.

WITNESS my **hand** on **this** 12th **day of** March, **20** 09.

State of Washington)
County of Yakima)

Norm Childress (Seal)
Grantor (s)

Notary Public
State of Washington
MARICELA PADILLA
MY COMMISSION EXPIRES
December 01, 2012

I, the undersigned, a Notary Public in and for the above named County and State, do hereby certify that on this 12th **day of** March, **20** 09, **personally appeared before me** Norm Childress **to me know to be the individual** that's **described in and who executed the within instrument, and acknowledge that** he **(they) signed and sealed the same as free and voluntary act and deed, for the uses and purposes therein mentioned.**

GIVEN under my hand and official seal the day and year last above written.

Maricela Padilla

Notary Public in and for the State of Washington
Residing at Grandview

12.
WELL LOGS

HLA
Engineering and Land Surveying, Inc.

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. G3 20384P
Permit No. G3-20384P

(1) OWNER: Name CITY OF GRANDVIEW Address 207 W. 2ND ST GRDV 12-27-76

(2) LOCATION OF WELL: County YAKIMA NE ¼ NW ¼ Sec. 23 T. 9 N. R. 23E W.M.
Bearing and distance from section or subdivision corner WELL #2

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 2
New well ☐ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☒ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 12X8 inches.
Drilled 247 ft. Depth of completed well 247 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 10" Diam. from +1 ft. to 212 ft.
Threaded ☐ 8" Diam. from 208 ft. to 247 ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☒ No ☐
Type of perforator used TORCH - HOLE
SIZE of perforations ¼ X 4 in. by in.
60 perforations from 162 ft. to 185 ft.
40 perforations from 222 ft. to 247 ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☐
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☐ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☐ No ☐ To what depth? ft.
Material used in seal
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name PEERLESS
Type: H.P. 60

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 42 ft. below top of well Date 4-26-77
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:
Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
RE WORK		

RECEIVED
OCT 04 1977
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started 4-4, 19 77 Completed 4-26, 19 77

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME CHARLES JUGMANN DRILLING CO.
(Person, firm, or corporation) (Type or print)

Address 145 537 S AVE W. KENNEWICK WASH.

[Signed] (Well Driller)

License No. 0226 Date 8-22, 1977

(USE ADDITIONAL SHEETS IF NECESSARY)

ORC

Form No. 7356—OS—(Rev. 4-71)
-070-28

Young, Ed Phase II Data Problem

From: Heironimus, Glenda
Sent Thursday, March 22, 2001 1 49 PM
To Young, Ed
Subject Well Log Image System Data Problem

Well Log ID 113474

Owner City of Grandview

Description of Data Problem
Please add Uniquie ID Tag # AEP517 Thank you

Done -
Marian Burner

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No
Permit No

(1) OWNER: Name City of Grandview Address 116 Ave. "A" Grandview, Wash.

(2) LOCATION OF WELL: County Yakima SE 1/4 NE 1/4 Sec 23 T 9 N., R 23 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 3
New well ☐ Method: Dug ☐ Bored ☒
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well inches
Drilled ft. Depth of completed well ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 12" Diam. from 0 ft. to 243 ft.
Threaded ☐ 10" Diam. from 245 ft. to 1150 ft.
Welded ☐ Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel
Gravel placed from ft. to ft.

Surface seal: Yes ☐ No ☐ To what depth? ft.
Material used in seal
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name Peerless
Type H.P. 100

(8) WATER LEVELS: Land-surface elevation above mean sea level 800 ft.
Static level 200 ft. below top of well Date 2/6/74
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Grant
Yield: gal./min. with 70 ft. drawdown after 10 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO

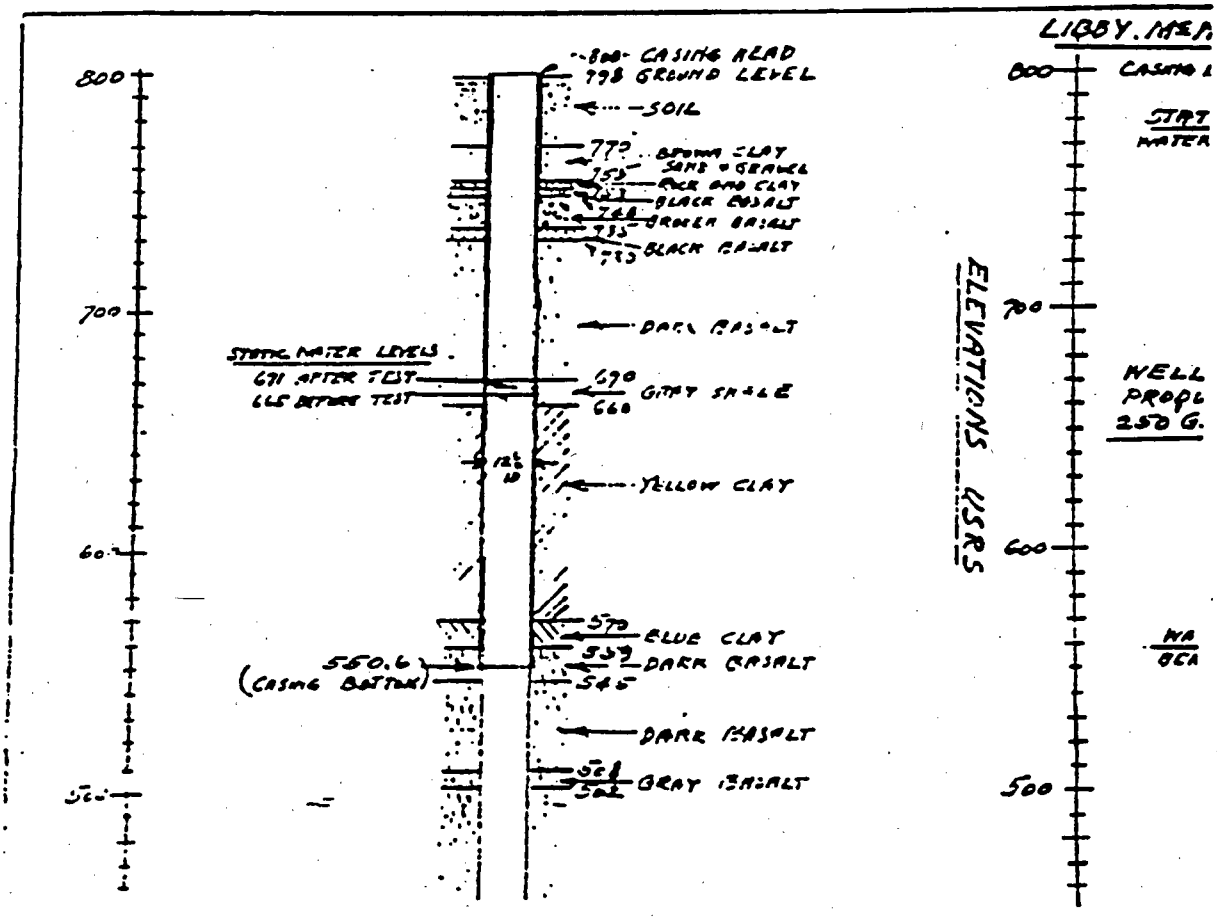
Work started 19 Completed 19

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME (Person, firm, or corporation) (Type or print)
Address
[Signed] (Well Driller)
License No. Date 19

(USE ADDITIONAL SHEETS IF NECESSARY)

ck/WRB



STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG

No. Appli. #603
Cert. #791A

Date December 1, 1948

Record by Paul A. Durand

Source Driller record

Location: State of WASHINGTON

County Yakima

Area

Map City of Grandview

¼ J ¼ sec. 22 T. 9 N., R. 23 E. W.

DIAGRAM OF SECTION

Drilling Co. A. A. Durand & Son

Address 115 Reese Ave.; Walla Walla

Method of Drilling Date 9-18- 1948

Owner City of Grandview, Wash.

Address

Land surface, datum ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)

(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)

See attached sheet

Pump test:
Dim: 1632' x 20x12x16"
SWL: 181'
D.D. 136'
Yield 566 g.p.m.
Casing: 12" dia. Ex. Hvy. Std. Well casing from 0 to 308.33'.
16" dia. Ex. Hvy. Std. Well casing from 615.33 to 750.00'.
Perforations: none

Turn up

Sheet ____ of ____ sheets

CITY OF GRANDVIEW
WELL NO. 4

LOG

MATERIAL				THICKNESS (Feet)	DEPTH TO BOTTOM (Feet)
Top soil				10	10
Quicksand				15	25
Gravel (Water bearing)	(Static Water Level 20')			10	35
Light yellow clay				59	94
Basalt rock	"	"	" 13' 7"	1	95
Dark basalt				40	135
Red rock	"	"	" 36'	10	145
Dark basalt	"	"	" 13' 8"	45	190
Gray sandy shale				10	200
Yellow clay				105	305
Dark broken basalt				3	308
Dark basalt	"	"	" 60'	2	310
Broken basalt				2	312
Dark basalt	"	"	" 80'	8	320
Gray basalt	"	"	" 23'	18	338
Dark basalt				12	350
Gray basalt				20	370
Dark basalt	"	"	" 16' 6"	32	402
Gray basalt	"	"	" " "	12	414
Dark basalt				18	432
Gray basalt	"	"	" 16' 1"	2	434
Dark basalt	"	"	" 26' 5"	4	438
Gray basalt	"	"	" 43'	38	476
Blue basalt				2	478
Dark basalt, clay soft	"	"	" 44'	4	482
Dark basalt				22	504
Dark gray basalt, firm				6	510
Gray basalt	"	"	" 82'	151	661
Gray basalt, dark some clay				5	666
Gray basalt, broken				5	671
Dark basalt, broken				2	673
Gray shale				3	676
Red shale and shells				5	681
Gray shale & shells				14	695
Green shale				53	748
Dark basalt				15	763
Dark gray basalt				2	765
Gray basalt, hard				5	770
Green shale				3	773
Dark basalt				24	797
Gray basalt, hard				4	801
Dark basalt				39	840
Gray basalt	"	"	" 93'	15	855
Dark basalt	"	"	" 95'	14	869
Gray basalt w/shale breaks				7	876
Broken gray basalt				7	883
Gray basalt				1	884
Dark basalt				6	890
Broken basalt				7	897
Dark basalt				35	932
Gray basalt				3	935

Dark basalt			2	937
Gray basalt			5	942
Dark basalt			10	952
Gray basalt			3	955
Dark basalt			4	959
Dark gray basalt			5	964
Hard dark basalt			6	970
Dark basalt			28	998
Gray basalt			17	1015
Gray basalt, broken			18	1033
Gray basalt			10	1043
Broken gray basalt			17	1060
Dark basalt	S.W.L.	190'	20	1080
Gray basalt, hard			4	1084
Gray basalt			1	1085
Space	"	170'	7	1092
Black basalt		164'	9	1101
Dark gray basalt			6	1107
Gray basalt			20	1127
Dark basalt			7	1134
Gray basalt			10	1144
Basalt	"	166'	2	1146
Dark basalt, med. hard			8	1154
Dark basalt			3	1157
Gray basalt			45	1202
Dark basalt			80	1282
Dark gray basalt, hard			5	1287
Dark gray basalt, med.			6	1293
Gray basalt			52	1345
Gray basalt w/streaks of gray shale			7	1352
Dark gray basalt, med.			7	1359
Gray basalt	"	169'	1	1360
Dark lava rock, some red			4	1364
Basalt, dark			3	1367
Red basalt			1	1368
Broken lava rock			3	1371
Black basalt			3	1374
Dark gray basalt			4	1378
Gray basalt			5	1383
Dark gray basalt	"	170'	6	1389
No cuttings			2	1391
Gray basalt			2	1393
Gray basalt, hard			1	1394
Gray basalt			6	1400
Broken basalt			10	1410
Dark basalt			10	1420
Dark broken basalt and hard shells		168'	8	1428
Dark basalt			8	1436
Red rock and shale			4	1440
To correct measurement			7-	1433
Dark basalt			2	1435
Blue basalt, hard			2	1437
Blue basalt			2	1439
Broken basalt			1	1440
Rock			1	1441
Blue basalt			11	1452
Basalt, hard			1	1453
Blue basalt			8	1461
Blue basalt and hard gray basalt			2	1463
Gray basalt, hard			49	1512

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG

No. Appli. #2702
Permit #2770

Date May 29, 19 53

Record by Don E. Gray

Source well driller's record

Location: State of WASHINGTON

County Yakima

Area

Map

NE ¼ SE ¼ sec 23 T. 9 N., R. 23 E.

Diagram of Section

Drilling Co.

Address

Method of Drilling drilled Date March 15, 19 53

Owner City of Grandview

Address Grandview, Washington

Land surface, datum ft above / below

Correlation	Material	Thickness (feet)	Depth (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)		
	Surface soil, yellow, soft	22	22
	Sandy soil, yellow, soft	11	33
	Gravel, black, med.	4	37
	Basalt, broken, blk., med.	2	39
	Basalt, black, hard	38.5	77.5
	Burnt basalt, red, soft	7.5	85
	Basalt, black, hard	2	87
	Basalt, sharp, blk., med	8	95
	Basalt, black, hard	16	111
	Basalt, black med	12	123
	Fine gravel & clay, soft	7	130
	Clay, yellow, soft	90	220
	Sand, yellow, soft	8	228
	Basalt, black med.	7	235
	Basalt, black, hard	34	269
	Basalt, gray, hard	3	272

Turn up

Sheet ... of ... sheets

9N/23E-23J

City of Grandview

WELL LOG.—Continued No...../.....-.....

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	Depth forward		
	Basalt, black, med.	13	285
	Crevice	3	288
	Basalt, black, med.	8	296
	Pump Test:		
	Dim: 296' x 12"		
	Casing: 16" standard casing from 0 to 39.7		
	12" standard casing from 0 to 257'		
	Recovery data: Complete recovery in 5 minutes		
	Perfpr: none		

S. F. No. 7[illegible]—12-54—3M. [illegible]08.

RETURN TO:
DIV. OF WATER RESOURCES
406 TRANSPORTATION BLDG., OLYMPIA

B. F. No. 7359—1-53—SM. 33599.

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W. 2279

("The well driller or other constructor of works for the withdrawal of public ground waters shall be obligated to furnish the permittee a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. CITY OF GRANDVIEW
(Name and address of owner of well or other works for withdrawal of water)
2. Type; name or number of works where water is taken Well #6
(Well, tunnel or infiltration trench)
3. Date on which work on well or other structure was started Sept. 15, 1952
4. Date on which work was completed May 29, 1953
5. If work on well or other structure was abandoned, give date
and reason for abandonment
6. DESCRIPTION OF WORKS:
(a) WELL: Depth 296 ft. Diameter 12 in. or ft. Dug or drilled drilled
Flowing or pump well
IF PUMP WELL: Type and size of pump is
Type and size of motor or engine is
Depth from ground surface to water level before pumping feet
After continuous operation for (At least four) hours, the measured discharge of the pump is
g.p.m., and the drawdown of water level is feet
Bail test only - 86 GPM - 25' drawdown
Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level
Complete Recovery in 5 minutes			

Date of test March 15, 1953
IF FLOWING WELL: Measured discharge g.p.m. on (Date)
Shut-in pressure at ground surface lbs. per sq. in. on (Date)
Water is controlled by (Cap, valve, etc.)

CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.)

16 in. diameter Standard Casing from 0 to 39.7 ft.
12 in. diameter Standard Casing from 0 to 257 ft.
in. diameter from to ft.
in. diameter from to ft.

Describe and show depth of shoe, plug, adapter, liner or other details:

Perforated casing or screen: NONE

(Number per foot and size of perforations, or describe screen)	from	to	ft.
	from	to	ft.
	from	to	ft.
	from	to	ft.
	from	to	ft.

Log of Well or Tunnel: (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
See Attached Map		

(b) **Infiltration Trench or Tunnel:** Type

Dimensions: (Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width ft. **Discharge** g.p.m. **Date of test**

Position of water bearing stratum with reference to portal of tunnel

Don E. Gray
(Signature of well driller or other constructor)
CONSULTING ENGINEER
Larsen Bldg., Yakima, Wash.
(Address)

State of Washington,
County of Yakima } ss.

I, DON E GRAY*, being first duly sworn, do hereby certify that I am the driller or constructor of the aforesaid well or tunnel or trench who furnished the foregoing statement of facts; that I have read said statement and each and all of the items therein contained are true to the best of my knowledge and belief.*

Don E. Gray
(Signature)

Subscribed and sworn to before me this 24 *day of* July *1953*

Charles B. Walters
Notary Public

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT #7 1906

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name City of Grandview #7 Address .....

(2) LOCATION OF WELL: County ..... — ¼ ¼ Sec. 22 T. 9 N., R. 23 W.M.

Bearing and distance from section or subdivision corner >>

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☐ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 248 ft. Depth of completed well 248 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from 0 ft. to 52 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☐
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☐
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☐ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☐ No ☐ To what depth? ..... ft.
Material used in seal .....
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 14 ft. below top of well, Date .....
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
silty Dirt	0	15
silty Clay	15	20
silt 5GPM	20	46
Black Basalt	46	65
Grey Basalt	65	76
Black Basalt	76	90
Shaley Clay	90	95
Lava Rock	95	97
Black Basalt	97	108
Grey Basalt	108	145
Brown Shaley Clay	145	157
Sandstone	157	162
Shaley Clay	162	183
sandstone	183	194
sandstone 200 GPM	194	200
~~200~~ Shaley Clay	200	243
Caliche	243	248
Bottom Basalt		
Pumping level 223'		

Work started ....., 19..... Completed 1962 19.....

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Storey Drilling Co.
(Person, firm, or corporation) (Type or print)

Address .....

[Signed]: .....
(Well Driller)

License No. ..... Date ....., 19.....

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

3

STATE OF WASHINGTO.
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG No. A. 6433

Date 1-2, 1963

Record by well driller

Source driller's record

Location: State of WASHINGTON

County Yakima

Area

Map

¼ ¼ sec. 22 T. 9 N., R. 23 E. W

Diagram of Section

Drilling Co. J.J. Storey

Address Rt. 1, Box 40, Prosser, Wash.

Method of Drilling Date August, 19 62

Owner City of Grandview, Wash.

Address

Land surface, datum ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)		
	Silty dirt	15	15
	Silty clay	5	20
	Silt	26	46
	Black basalt	19	65
	Grey basalt	11	76
	Black basalt	14	90
	Shaley clay	5	95
	Lava rock	2	97
	Black basalt	11	108
	Grey "	37	145
	Brown shaley clay	12	157
	Sandstone	5	162
	Shaely clay	21	183
	Sandstone	11	194
	"	6	200
	Shaley clay	43	243
	Caliche	5	248
	Bottom basalt		

Turn up (over) Sheet ... of ... sheets

9/23/224

WELL LOG.—Continued No. ..... /..... -.. .....

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	Depth forward	———	
	PUMP TEST:		
	Dim. 8"x248'		
	SWL: 48 ft.		
	DD: 175 ft.		
	Yield; 240 g.p.m.		
	Type & size of pump: Turbine 24		
	Type & size of motor or engine: 30 hp		
	Recovery within 4 hrs.		
	CASING: 8" diam. from 0 to 52 ft.		

S F No 7449—OS—6-61—2M

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT #7 1906

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name City of Grandview #7 Address .....

(2) LOCATION OF WELL: County ..... — ¼ ¼ Sec. 22 T. 9 N., R. 23 W.M.

Bearing and distance from section or subdivision corner >>

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☐ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches.
Drilled 248 ft. Depth of completed well 248 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8 " Diam. from 0 ft. to 52 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☐
Type of perforator used .....
SIZE of perforations ..... in. by ..... in.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☐
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☐ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☐ No ☐ To what depth? ..... ft.
Material used in seal .....
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 14 ft. below top of well, Date .....
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? .....
Yield: ..... gal./min. with ..... ft. drawdown after ..... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test .....
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
silty Dirt	0	15
silty Clay	15	20
silt 5GPM	20	46
Black Basalt	46	65
Grey Basalt	65	76
Black Basalt	76	90
Shaley Clay	90	95
Lava Rock	95	97
Black Basalt	97	108
Grey Basalt	108	145
Brown Shaley Clay	145	157
Sandstone	157	162
Shaley Clay	162	183
sandstone	183	194
sandstone 200 GPM	194	200
~~200~~ Shaley Clay	200	243
Caliche	243	248
Bottom Basalt		
Pumping level 223'		

Work started ....., 19..... Completed 1962 19.....

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Storey Drilling Co.
(Person, firm, or corporation) (Type or print)

Address .....

[Signed]: .....
(Well Driller)

License No. ..... Date ....., 19.....

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

3

STATE OF WASHINGTO.
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG No. A. 6433

Date 1-2, 1963

Record by well driller

Source driller's record

Location: State of WASHINGTON

County Yakima

Area

Map

¼ ¼ sec. 22 T. 9 N., R. 23 E. W

Diagram of Section

Drilling Co. J.J. Storey

Address Rt. 1, Box 40, Prosser, Wash.

Method of Drilling Date August, 19 62

Owner City of Grandview, Wash.

Address

Land surface, datum ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)		
	Silty dirt	15	15
	Silty clay	5	20
	Silt	26	46
	Black basalt	19	65
	Grey basalt	11	76
	Black basalt	14	90
	Shaley clay	5	95
	Lava rock	2	97
	Black basalt	11	108
	Grey "	37	145
	Brown shaley clay	12	157
	Sandstone	5	162
	Shaely clay	21	183
	Sandstone	11	194
	"	6	200
	Shaley clay	43	243
	Caliche	5	248
	Bottom basalt		

Turn up (over) Sheet ... of ... sheets

9/23/224

WELL LOG.—Continued No. ..... /..... -.. .....

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	Depth forward	———	
	PUMP TEST:		
	Dim. 8"x248'		
	SWL: 48 ft.		
	DD: 175 ft.		
	Yield; 240 g.p.m.		
	Type & size of pump: Turbine 24		
	Type & size of motor or engine: 30 hp		
	Recovery within 4 hrs.		
	CASING: 8" diam. from 0 to 52 ft.		

S F No 7449—OS—6-61—2M

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG No. A-6434

Date ....., 19.....
Record by well driller
Source driller's record

Location: State of WASHINGTON
County Yakima
Area .....
Map .....
SW ¼ SW ¼ sec. 12 T. 9 N., R. 23 E. W.

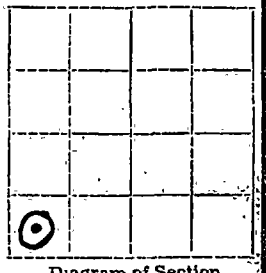


Diagram of Section

Drilling Co. Storey Drilling Co.
Address Route 1, Box 40, Prosser, Wash.
Method of Drilling drilled Date July 15, 19 62
Owner City of Grandview
Address Grandview, Washington
Land surface, datum ..... ft. above / below

CORRELATION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
	(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)		
	Dirt	15	15
	Hard basalt (broken brown)	20	35
	Black basalt	60	95
	Brown basalt and shale	7	102
	Shaley clay (hard)	3	105
	Sand and sandstone	5	110
	Water flows approx. 20 gpm		
	Casing: 12 in from 0 to 36 ft.		
	Yield: 325 gpm with 70 ft drawdown after 4 hrs.		
	SWL: flowing - discharge 20 gpm on 8-15-62		
	-- 10 ft recovery in 6 hrs.		
	Depth 110 ft 7 in - Diam. 12 in.		
	Pump: turbine pump - Motor: electric	30 HP	

Turn up Sheet ..... of ..... sheets

F R S

9/23/12

RETURN TO:
DIVISION OF WATER RESOURCES
[illegible] GENERAL ADMINISTRATION BLDG.
OLYMPIA, WASHINGTON

RECORD BY WELL DRILLER OR OTHER CONSTRUCTOR OF WORKS FOR WITHDRAWAL OF GROUND WATER

Under Permit No. G. W. _____

("The well driller or other constructor of works for the withdrawal of public ground waters shall be required to file with the [illegible] a certified record of the factual information necessary to show compliance with the provisions of this section." Sec. 8, Chap. 263, Laws of 1945.)

1. CITY OF GRANDVIEW, Grandview, Washington
(Name and address of owner of well or other works for withdrawal of water)
2. Type; name or number of works where water is taken Well #8
(Well, tunnel or infiltration gallery)
3. Date on which work on well or other structure was started July 15, 1962
4. Date on which work was completed August 15, 1962
5. If work on well or other structure was abandoned, give date No
and reason for abandonment _____
6. DESCRIPTION OF WORKS:
(a) WELL: Depth 110' 7" ft. Diameter 12" in. or ft. Dug or drilled Drilled
Flowing or pump well Pump Water Temp. 60°
IF PUMP WELL: Type and size of pump is Turbine Pump
Type and size of motor or engine is Electric, 30 H.P.
Depth from ground surface to water level before pumping [illegible] Flowing
After continuous operation for 4 (At least four) hours, the measured discharge of the pump is
325 g.p.m., and the drawdown of water level is 70' (Pumping level above or below static level)
Recovery data (taken after pump has been shut off) (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level
6 hrs.	60		

10ft recovery in 6 hrs

Date of test _____
IF FLOWING WELL: Measured discharge 20 g.p.m. on 8/15/62 (Date)
Shut-in pressure at ground surface 0 lbs. per sq. in. on _____ (Date)
Water is controlled by Pipe (Cap, valve, etc.)
CASING: (Give diameter, commercial specifications and depth below ground surface of each casing size.)
12 in. diameter 3/8 wall from 0 to 36 ft.
_____ in. diameter _____ from _____ to _____ ft.
_____ in. diameter _____ from _____ to _____ ft.
_____ in. diameter _____ from _____ to _____ ft.
Describe below depth of shoe, plug, adapter, liner or other details:
12" gapper drive shoe

Perforated casing or screens

_____ from _____ to _____ ft.
(Number per foot and size of perforations, or describe screen)

_____ from _____ to _____ ft.

_____ from _____ to _____ ft.

_____ from _____ to _____ ft.

_____ from _____ to _____ ft.

LOG OF WELL OR TUNNEL (Describe each stratum or formation clearly, indicate if water bearing, and give thickness and depth as indicated.)

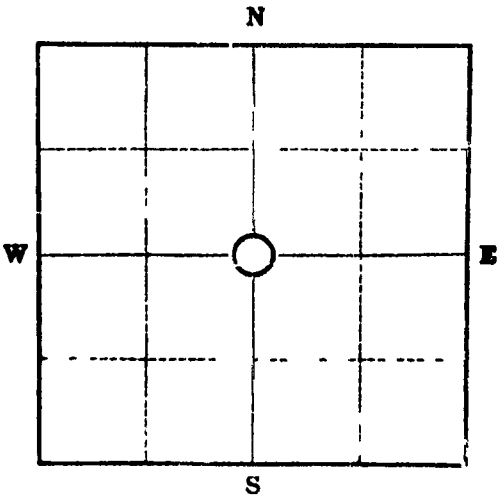
MATERIAL	Thickness (Feet)	Depth to bottom (Feet)
0' - 15' - Dirt	15'	15'
15' - 35' - Hard Basalt (broken brown)	20'	35'
35' - 95' - Black Basalt	60'	95'
95' - 102' - Brown Basalt & Shale	7'	102'
102' - 105' - Shaley Clay (hard)	3'	105'
105' - 110' - Sand & Sandstone	5'	110'
Water Flows Approx 20 G.P.M.		
12" casing drove & grouted to 6'		

(b) INFILTRATION TRENCH OR TUNNEL Type _____

Dimensions _____
(Tunnel—length, course, and cross-sectional size) (Trench—minimum and maximum depths)

Bottom width _____ ft Discharge _____ g p.m Date of test _____

Position of water bearing stratum with reference to portal of tunnel _____



Scale 1" = 2000'

Sec _____ Twp. _____ Rge. _____

Show approximate location of well or other works with (X) on section plat at left

STOREY DRILLING CO.

T. J. Storey
Signature of well driller or other constructor

Route 1, Box 40 - Prosser, Wn
Address

STATE PRINTING PLANT

Please print, sign and return to the Department of Ecology

Water Well Report

Original – Ecology, 1st copy – owner, 2nd copy – driller

Construction/Decommission 152110

☑ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Current Notice of Intent No. W07245

Unique Ecology Well ID Tag No. AAS 263

Water Right Permit No. Cert. No.9; Page No.44564

Property Owner Name City of Grandview

Well Street Address Olmstead Rd E, Grandview, WA 98930

City Grandview, WA County Yakima

Location SW1/4-1/4 SW1/4 Sec 12 Twn 9N R 23 EWM or WWM ☑ circle one

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. 23091233002

DEPT. OF ECOLOGY Received JUN 03 2004 CENTRAL REGIONAL OFFICE

PROPOSED USE: ☐ Domestic ☐ Industrial ☑ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other _____

TYPE OF WORK: Owner's number of well (if more than one) 7A - old well 7

☐ New well ☑ Reconditioned *Method:* ☐ Dug ☐ Bored ☐ Driven ☐ Deepened ☐ Cable ☐ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 10x12 inches, drilled 0 ft.

Depth of completed well 100 ft.

CONSTRUCTION DETAILS

Casing Installed: ☑ Welded 10 " Diam. from +1.3 ft. to 113 ft.

☐ Liner installed _____ " Diam. from _____ ft. to _____ ft.

☐ Threaded _____ " Diam. from _____ ft. to _____ ft.

Perforations: ☑ Yes ☐ No

Type of perforator used factory mill cut

SIZE of perfs 3/16 in. by 2.5 in. and no. of perfs 1224 from 53 ft. to 113 ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☐ Yes ☑ No To what depth? _____ ft.

Material used in seal Not Changed

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name Goulds

Type submersible HP 20

WATER LEVELS: Land-surface elevation above mean sea level 818+/- ft.

Static level 3 ft. below top of well Date 4/8/04

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☑ Yes ☐ No If yes, by whom? SEI

Yield: 245 gal./min. with 52 ft. drawdown after 1 hrs

Yield: 245 gal./min. with 56 ft. drawdown after 2 hrs

Yield: 245 gal./min. with 58 ft. drawdown after 5 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 10/2/03

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water ~55F Was a chemical analysis made? ☑ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information indicate all water encountered. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
No Drilling.		
Work consisted of.		
-Test pumping.		
-Installing 10" casing w/welded ring between it and		
the existing 12" casing.		
-Bailing out bottom of well.		
-Placing gravel backfill inside 10" casing.		
-Installing permanent pump.		
3/4" gravel backfill	100	112

Start Date 9/30/03 Completed Date 5/19/04

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Driller/Engineer/Trainee Name (Print) Stephen J Schneider

Driller/Engineer/Trainee Signature Stephen J Schneider

Driller or trainee License No. 643

Drilling Company Schneider Equipment, Inc.

Address 21881 River Road NE

City, State, Zip St. Paul, OR 97137

Contractor's Registration No. SCHNEI*226LG Date 5/28/04

If TRAINEE, Driller's Licensed No. _____ Driller's Signature _____

Ecology is an Equal Opportunity Employer. ECY 050-1-20 (Rev 2/03)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W07388
UNIQUE WELL I.D. # AAS279
Water Right Permit No. G4-24086P

(1) **OWNER:** Name City of Grandview Address 207 West Second St, Grandview, WA 98930

(2) **LOCATION OF WELL:** County Yakima NW 1/4 SW 1/4 Sec 22 T. 9 N., R. 23E W.M.

(2a) **STREET ADDRESS OF WELL** (or nearest address) Appleway Rd, Grandview, WA

(3) **PROPOSED USE:** ☐ Domestic ☐ Irrigation ☐ DeWater ☐ Industrial ☐ Test Well ☐ Municipal ☒ Other ☐

(4) **TYPE OF WORK:** Owner's number of well (if more than one) 9
Abandoned ☐ New well ☐ Deepened ☒ Reconditioned ☒ Method: Dug ☐ Cable ☐ Rotary ☒ Bored ☐ Driven ☐ Jetted ☐

(5) **DIMENSIONS:** Diameter of ~~well~~ bore: 12 inches.
Drilled 134-346 feet. Depth of completed well 342 ft.

(6) **CONSTRUCTION DETAILS:**
Casing installed: exist 12 Diam. from +2 ft. to 134 ft.
Welded ☒ #8 Diam. from +3 ft. to 342 ** ft.
Liner installed ☐ Threaded ☐ Diam. from ft. to ft.
except at screens

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Houston
Type V shape wire wrap Model No. 304SS
Diam. 8PS Slot size .033 from 229 ft. to 294 ft.
Diam. 8PS Slot size .033 from 314 ft. to 322 ft.

Filter Pack packed: Yes ☒ No ☐ Size of gravel pack: 10x20
placed from 145 ft. to 346 ft.

Surface seal: Yes ☐ No ☐ To what depth? ft.
Material used in seal
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Not Grouted Depth of strata
Method of sealing strata off

(7) **PUMP:** Manufacturer's Name
Type: H.P.

(8) **WATER LEVELS:** Land-surface elevation above mean sea level approx 820 ft.
Static level 85 ft. below top of well Date 8/23/99
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Schneider
Yield: gal./min. with ft. drawdown after hrs.
" " "
" " "
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

See attached graphs
Date of test 8/19 - 20/99
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water 60°F Was a chemical analysis made? Yes ☐ No ☐

(10) **WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION**

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Clay, pale green, med	302	315
Basalt, grey, vesicular, broken	315	324
Sandstone, green, soft-med	324	327
Siltstone w/basalt, multi-colored	327	329
Shale, green, med	329	339
Basalt, grey, vesicular, broken, soft	339	343
Claystone, green, med	343	344
Basalt, grey, frac	344	346
**Platebottom		
Threaded coupling @ 190'		
Plate Ring welded between 12" & 8" at top of 12" casing.		

STATE OF ECOLOGY RECEIVED SEP 17 1999 REGION OFFICE

Work Started 7/9/99 19. Completed 8/24 19 99

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

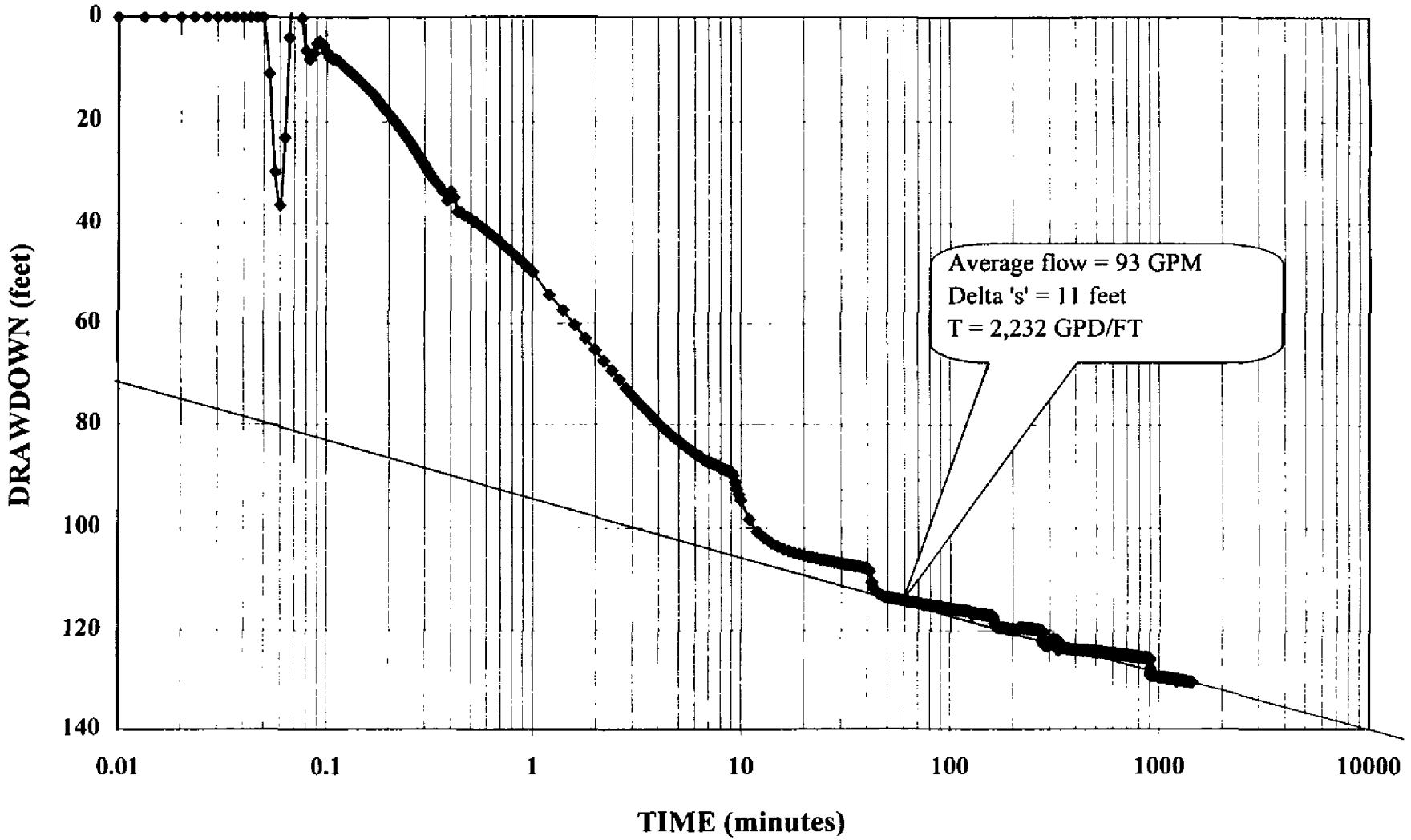
NAME Schneider Drilling Co. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address 21881 River Road NE, St. Paul, OR 97137
(Signed) Stephen A. Schneider (WELL DRILLER) License No. 0643
Contractor's Registration No. SCHNEI*226LG Date 9/14 19 99

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (206) 407-6600. The TDD number is (206) 407-6006.

ECY 050-1-20 (9/93) * * I

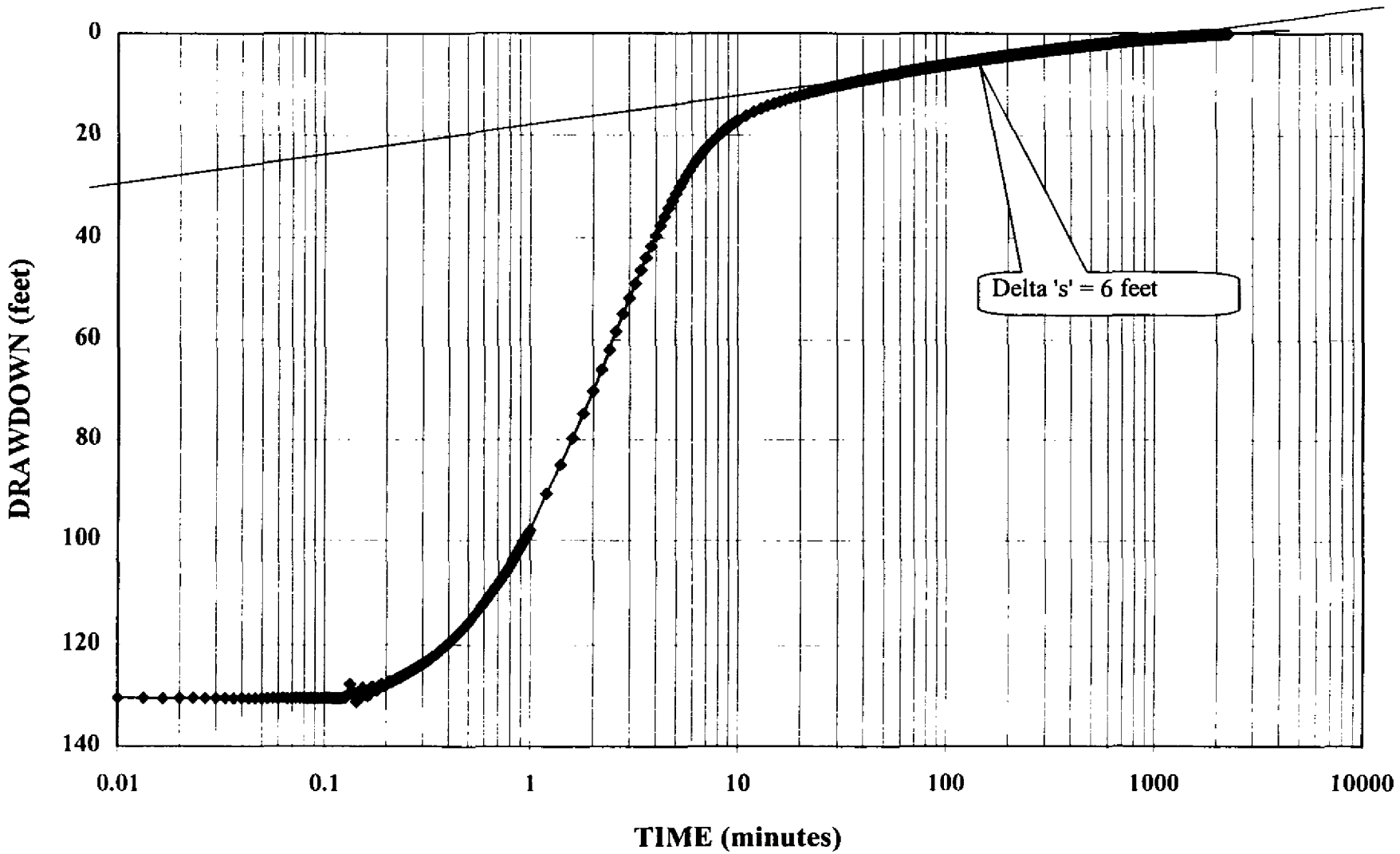
GRANDVIEW WELL #9
Pump Test beginning 8/19/99



Well 9 tests 8-19 24h pump graph

Schneider Drilling Co.

GRANDVIEW WELL #9
Recovery beginning 8/20/99



Well 9 tests 8-20 rec graph

Schneider Drilling Co.

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

#13

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....

Permit No G4255701P

(1) OWNER: Name City of Grandview Address 207 West Second Grandview, Wash.

(2) LOCATION OF WELL: County Yakima SW¼ NE¼ Sec. 13 T. 9 N., R. 23E W.M. G

Bearing and distance from section or subdivision corner & NE¼ of SW¼

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 10 inches.
Drilled 610 ft. Depth of completed well 610 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 12 " Diam. from +1 ft. to 155 ft.
Threaded ☐ 10 " Diam. from +1 ft. to 610 ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☒ No ☐
Type of perforator used Cutting Torch
SIZE of perforations 3/8 in. by 6 in.
144 perforations from 222 ft. to 240 ft.
180 perforations from 392 ft. to 412 ft.
244 perforations from 576 ft. to 603 ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 35 ft.
Material used in seal Cement Grout
Did any strata contain unusable water? Yes ☒ No ☐
Type of water? Sand Depth of strata 146
Method of sealing strata off Casing And Cement

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level ..... ft.
Static level 17 ft. below top of well Date 3/13/78
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? STRASSER
Yield: 573 gal./min. with 189 ft. drawdown after 21 hrs.
" 403 " 139 " 21.5 "
" 292 " 100 " 22. "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
10:20	49	10:23	50	10:30	43
[redacted]	52	10:24	48	10:44	40
	50	10:32	46		

Date of test MAR 14-15, 1978
Baller test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Brown Sand	0	20
Broken Brown Rock	20	24
Black Basalt	24	62
Broken Porous Basalt	62	90
Med Hard Black Basalt	90	120
Fine Gray Sand	120	146
Brown Sandstone	146	220
Broken Brown Basalt	220	238
Black Basalt	238	392
Broken Brown Basalt	392	412
Black Basalt	412	440
Hard Grey Basalt	440	576
Broken Brown Basalt	576	605
Green Sand Interbed	605	610

RECEIVED
JUN 12 1978
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started JAN 18, 1978 Completed MAR 29, 1978

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME R.J. STRASSER DRILLING CO.
(Person, firm, or corporation) (Type or print)

Address 8110 SE Sunset Lane Portland, Ore.

[Signed] Edward R. Strasser
(Well Driller)

License No. 0456 Date APR 17, 1978

(USE ADDITIONAL SHEETS IF NECESSARY)

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DOH-656

UNIQUE WELL I D NUMBER A B R 6 4 7

WELL TAGGING FORM

Date of Field Visit 8/17/94 By Pat Repp

ADDITIONAL WELL IDENTIFIERS

Department of Health System ID Number 28970J Source Number SO-10

USGS Site Identification

RECORD VERIFICATION

- [x] Well Report available *(please attach)*
- [ ] Well Report not available
- [ ] Verification inconclusive

WELL OWNERSHIP, IF DIFFERENT FROM WELL REPORT

Name CITY OF GRANDVIEW

Street address 207 WEST 2ND

City GRANDVIEW State WA.

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address 571 Willoughby Rd.

City Grandview County YAKIMA

T. 09 N R. 23 E WM Sec. 13 NE ¼ of the SW ¼

Latitude N/A ° ' "

Longitude N/A ° ' "

- [ ] GPS (raw data)
- [ ] GPS (corrected)
- [ ] Topographic Map
- [ ] Survey
- [ ] Computer generated
- [ ] Other

Elevation at land surface UNAVAILable feet/meters *(circle one)*

- [ ] Digital Altimeter
- [ ] Topographic Map

Additional information, if available:

☒ Location marked on topographic map *(please attach)*

☐ Location marked on air photo *(please attach)*

Water Right # N/A Priority Date _____

Circle one: Application Permit Certificate Claim Exempt

WELL CHARACTERISTICS

Physical Description of Well (size of casing, type of well, housing, etc.): 12" Casing, Drilled, well is housed in Cement Block Building

Location of Well Identification Tag: on Line by meter Regulator

Was Supplemental Tag needed for ease of identifying well?

☑ NO ☐ YES

If yes, where was tag placed? _____

Scale 1:24,000 (1"=2,000')

D	C	B	A
E	F	G	H
M	L	K	J
N ●	P	Q	R

Indicate the location of the well within the Section by drawing a dot at that point.

SECTION N

COMMENTS: N/A

Please attach this form to the Well Report and submit it to the Department of Ecology, Water Resources Program Headquarters, Well Identification Project, P.O. Box 47600, Olympia, WA 98504-7600

47600 98504 7600

Copy with
Driller's Copy

ER WELL REPORT

STATE OF WASHINGTON

Application No. ....

Permit No. ....

OWNER: Name City of Grandview Address 207 West Second Grandview Wash.

LOCATION OF WELL: County YAKIMA SW¼ NE¼ Sec. 13 T. 9 N. R. 23 WM

Distance from section or subdivision corner 1424' NE¼ of SW¼

PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

DIMENSIONS: Diameter of well 16 inches
Drilled 616 ft. Depth of completed well 610 ft.

CONSTRUCTION DETAILS:
Casing installed: 12" Diam. from +1 ft. to 155 ft.
Threaded ☐ 10" Diam. from +1 ft. to 610 ft.
Welded ☒ ..." Diam. from .... ft. to .... ft.

Perforations: Yes ☒ No ☐
Type of perforator used Cutrite Torch
SIZE of perforations 3/8 in by 6 in.
144 perforations from 200 ft. to 340 ft.
190 perforations from 342 ft. to 412 ft.
344 perforations from 576 ft. to 603 ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ....
Type .... Model No. ....
Diam. .... Slot size .... from .... ft. to .... ft.
Diam. .... Slot size .... from .... ft. to .... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ....
Gravel placed from .... ft. to .... ft.

Surface seal: Yes ☒ No ☐ To what depth? 35 ft.
Material used in seal CEMENT GROUT
Did any strata contain unusable water? Yes ☒ No ☐
Type of water? SAND Depth of strata 146
Method of sealing strata off CASING AND CEMENT

PUMP: Manufacturer's Name ....
Type: .... H.P. ....

WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Level 17 ft. below top of well Date 3/13/78
Artesian pressure .... lbs. per square inch Date ....
Artesian water is controlled by .... (Cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Pump test made? Yes ☒ No ☐ If yes, by whom? STRASSER
579 gal./min. with 154 ft. drawdown after 24 hrs.
403 " 199 " 215 "
292 " 110 " 24 "
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Water Level	Time	Water Level	Time	Water Level
244	10:03	200	10:59	143
152	10:24	148	10:44	110
150	10:33	146		

Date of test MAR 13-15 1978
.... gal./min. with .... ft. drawdown after .... hrs.
Artesian flow .... g.p.m. Date ....
Temperature of water .... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
BROWN SAND	0	20
BROKEN BROWN BASALT	20	42
BLACK BASALT	42	62
BROKEN RED BASALT	62	80
MEDIUM BLACK BASALT	80	120
FINE BROWN SAND	120	146
BROWN SAND STONE	146	220
BROKEN BROWN BASALT	220	238
BLACK BASALT	238	342
BROKEN BROWN BASALT	342	412
MEDIUM BASALT	412	446
HARD GREY BASALT	446	506
BROKEN BROWN BASALT	506	606
GREEN SAND FORMED	606	616

Work started JAN 18 19 78 Completed MAR 29 19 78

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME R.L. STRASSER DRILLING CO. (Person, firm, or corporation) (Type or print)

Address 5110 S.E. SUNSET LANE PORTLAND, ORE.

[Signed] Edward R. Strasser (Well Driller)

License No. 0256 Date APR 17, 1978

(USE ADDITIONAL SHEETS IF NECESSARY)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Please print, sign and return to the Department of Ecology

Water Well Report

Original – Ecology, 1st copy – owner, 2nd copy – driller

Construction/Decommission

☑ Construction 481358

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Current

Notice of Intent No. WE05938

Unique Ecology Well ID Tag No. AAS245

Water Right Permit No. G4-27784 L

Property Owner Name City of Grandview

Well Street Address 603 N. Willoughby, Grandview, WA 98930

City Grandview **County** Yakima

Location NE 1/4-1/4 SW 1/4 **Sec** 13 **Twn** 9 **R** 23 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. 23091331002

PROPOSED USE: ☐ Domestic ☐ Industrial ☑ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other _____

TYPE OF WORK: Owner's number of well (if more than one) 13

☐ New well ☐ Reconditioned *Method:* ☐ Dug ☐ Bored ☐ Driven ☑ Deepened ☐ Cable ☑ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 16 inches, drilled 246 ft

Depth of completed well 1200 ft

CONSTRUCTION DETAILS

Casing Installed: ☑ Welded *20 " Diam. from +2 ft to ?? ft.

☑ Liner installed *16 " Diam. from 0 ft to 683 ft

☐ Threaded 12 " Diam. from 676 ft. to 1200 ft

Perforations: ☑ Yes ☐ No

Type of perforator used Factory mill cut

SIZE of perfs ** in. by ** in and no. of perfs ** from ** ft to ** ft

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam _____ Slot size _____ from _____ ft to _____ ft

Diam _____ Slot size _____ from _____ ft to _____ ft

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft

Surface Seal: ☑ Yes ☐ No To what depth? existing ft

Material used in seal existing

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level 855 ft

Static level 266 ft. below top of well Date 2/1/07

Artesian pressure _____ lbs per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☑ Yes ☐ No If yes, by whom? SEI

Yield: 1980 gal./min. with 52 ft. drawdown after 1 hrs

Yield: 1980 gal./min. with 53 ft. drawdown after 8 hrs

Yield: 1980 gal./min. with 55 ft. drawdown after 24 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
1 min	266				

Date of test started 2/1/07

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs

Artesian flow _____ g.p.m. Date _____

Temperature of water ~70F Was a chemical analysis made? ☑ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information indicate all water encountered. (USE ADDITIONAL SHEETS IF NECESSARY)

MATERIAL	FROM	TO
Basalt, grey, hard, fractured	954	1001
Basalt, grey, medium, fractured, vesicular	1001	1008
Basalt, grey, medium, fractured	1008	1036
Basalt, grey, hard, some fractures	1036	1123
Basalt, brown & grey, medium-soft, vesicular w/	1123	
some claystone, green		1159
Basalt, grey & some brown, soft-medium, fractured	1159	1164
Basalt, grey, hard, some fractures	1164	1166
Basalt, grey, hard, some fractures w/some CS, green	1166	1200
**Perforations		
Size of perfs .25 in. by 2.5 in. and no. of perfs 656	694	715
Size of perfs .25 in. by 2.5 in. and no. of perfs 1312	821	863
Size of perfs .25 in. by 2.5 in. and no. of perfs 1968	884	947
Size of perfs .25 in. by 2.5 in. and no. of perfs 656	989	1010
Size of perfs .25 in. by 2.5 in. and no. of perfs 1968	1116	1179

RECEIVED
DEC 10 2007
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

DEPT. OF ECOLOGY FISCAL & BUDG 07 DEC -6 AM 8:42

DEPT. OF ECOLOGY Received DEC 13 2007 CENTRAL REGION OFFICE

Start Date 12/13/06 Completed Date 2/22/07

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Driller/Engineer/Trainee Name (Print) Stephen J Schneider

Driller/Engineer/Trainee Signature Stephen J Schneider

Driller or trainee License No. _____

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Drilling Company Schneider Equipment, Inc.

Address 21881 RIver Road NE

City, State, Zip St. Paul, OR 97137

Contractor's Registration No. SCHNEI*226LG Date 3/26/07

Ecology is an Equal Opportunity Employer ECY 050-1-20 (Rev 2/03)

File Original and First Copy with Department of Ecology
Second Copy -- Owner's Copy
Third Copy -- Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No
Permit No

(1) OWNER: Name City of Grandview Address 114 Ave "A", Grandview, Wash.

(2) LOCATION OF WELL: County Yakima NW ¼ - NW ¼ SW ¼ Sec. 24 T 9 N R 23 W.M.
Bearing and distance from section or subdivision corner 48 ft S and 635 ft E from W 1/4 corner Sec. 24

(3) PROPOSED USE: Domestic [ ] Industrial [ ] Municipal [X]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK: Owner number of well if more than one 10
New well [X] Method: Dug [ ] Rotary [X] Cable [ ] Driven [ ] Jetted [ ]
Deepened [ ]
Reconditioned [ ]

(5) DIMENSIONS: Diameter of well 10-12 inches
Drilled 245 ft. Depth of completed well 245 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: Diam from ft to ft
Threaded [ ] 12 Diam from 0 ft to 33 ft
Welded [X] 10 Diam from 0 ft to 35 ft

Perforations: Yes [ ] No [X]
Type of perforator used
SIZE of perforations in by in
perforations from ft to ft
perforations from ft to ft
perforations from ft to ft

Screens: Yes [ ] No [X]
Manufacturer's Name
Type Model No
Diam Slot size from ft to ft
Diam Slot size from ft to ft

Gravel packed: Yes [ ] No [X] Size of gravel
Gravel placed from ft to ft

Surface seal: Yes [X] No [ ] To what depth? 35 ft
Material used in seal Concrete
Did any strata contain unusable water Yes [ ] No [ ]
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name Peerless
Type Water lube HP 50

(8) WATER LEVELS: Land-surface elevation above mean sea level 818 ft
Static level 140 ft below top of well Date 2/4/74
Artesian pressure 110 lbs per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was pump test made? Yes [X] No [ ] If yes, by whom
Yield 550 gal/min with 50 ft drawdown after hrs

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
2 hrs					

Date of test
Bailer test gal/min with ft drawdown after hrs
Artesian flow g.p.m. Date
Temperature of water Was chemical analysis made? Yes [ ] No [ ]

(10) WELL LOG:
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO

Work started 19 Completed 19

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

NAME Person, firm, or corporation (Type or print)
Address
(Signed) Well Driller
License No Date 19

USE ADDITIONAL SHEETS IF NECESSARY

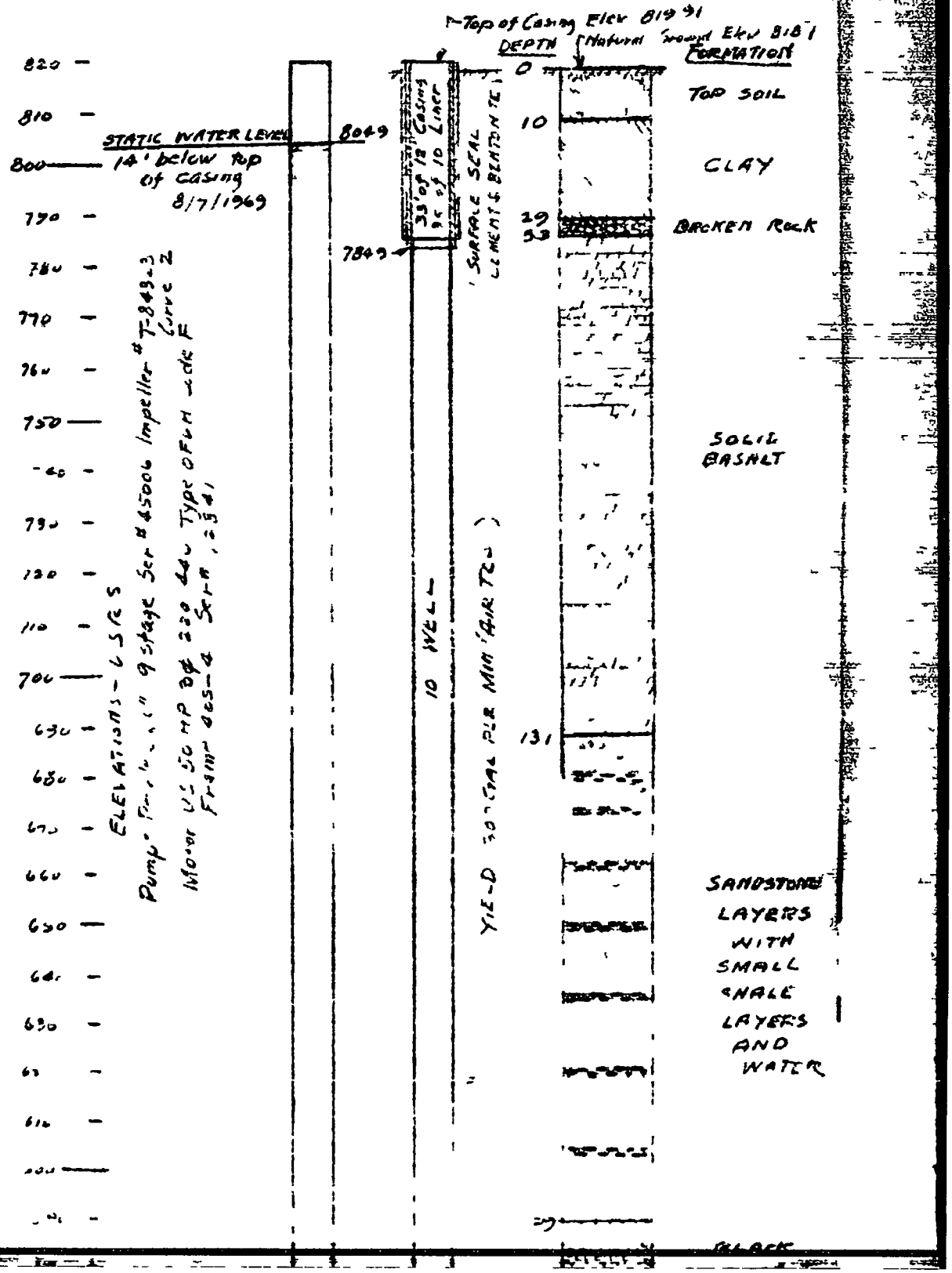
OK/WR

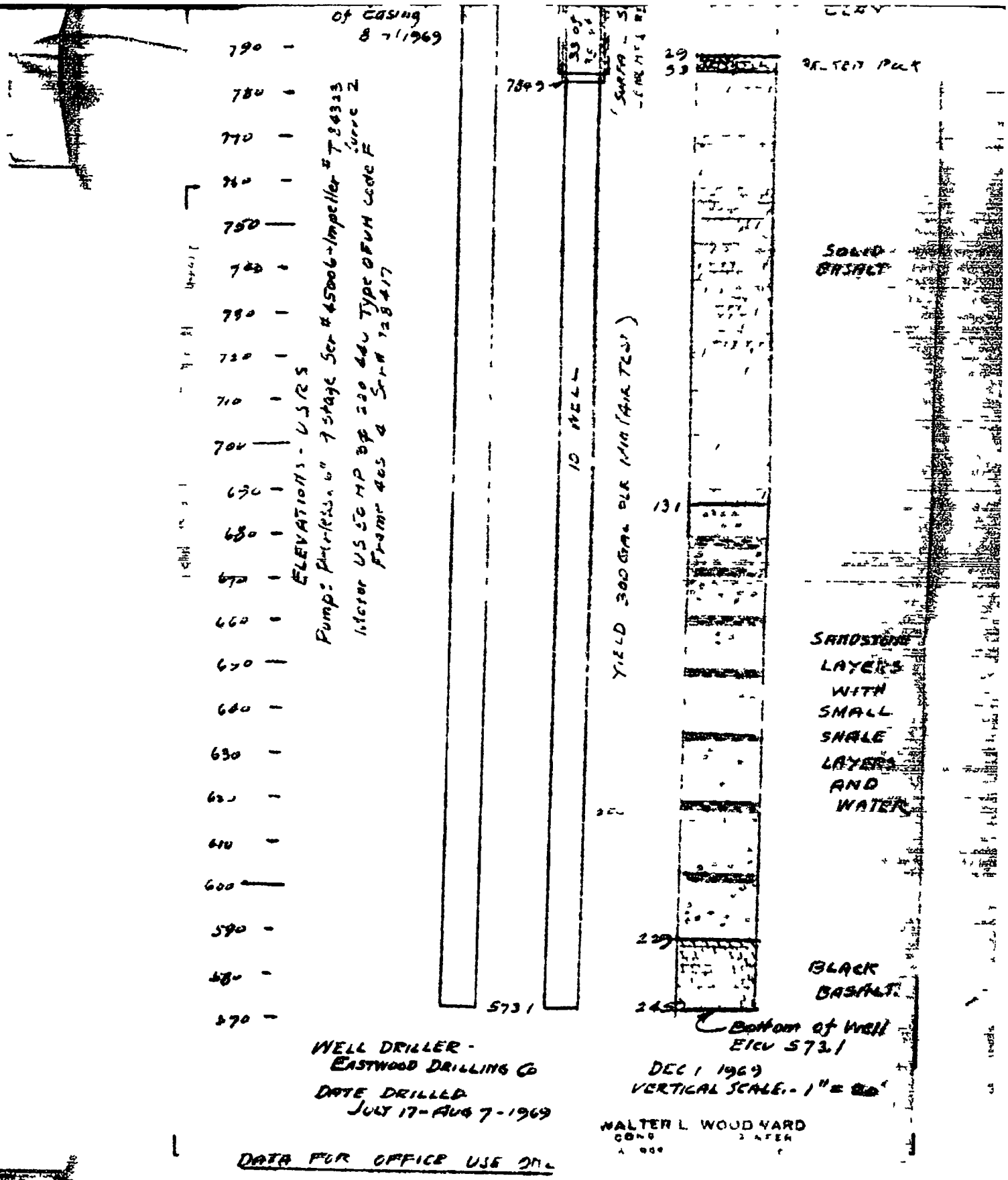
CITY OF GRANDVIEW

WELL NO 10 STATE #92324 (1)

LOCATED 635 EAST OF ELM ST, 48' SOUTH OF HIGHLAND ROAD

IN NW¼ NW¼ SW¼ SEC 24-9-23





File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W07387

UNIQUE WELL I.D. # AAS240

Water Right Permit No. G3-20383 P

(1) **OWNER:** Name City of Grandview Address 207 West Second St, Grandview, WA 98930

(2) **LOCATION OF WELL:** County Yakima NW 1/4 SW 1/4 Sec 24 T. 9 N., R. 23E W.M.

(2a) **STREET ADDRESS OF WELL** (or nearest address) Highland Rd, Grandview, WA

(3) **PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☒ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (If more than one) 10 (replacement)

Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☒ Jetted ☐

(5) **DIMENSIONS:** Diameter of bore: 26x20x16 inches. Drilled 250 feet. Depth of completed well 250 ft.

(6) **CONSTRUCTION DETAILS:**

Casing Installed: 16" Diam. from +2 ft. to 165 ft.
Welded ☒ *12" Diam. from +3 ft. to 184 ft.
* Liner installed ☒ *10" Diam. from 244 ft. to 250 ft.
Threaded ☐ *12x10 weld bell reducer 184-185

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Houston
Type V shape wire wrap Model No. 304SS
Diam. 10PS Slot size .033 from 185 ft. to 244 ft.
Diam. Slot size from ft. to ft.

Filter packed: Yes ☒ No ☐ Size of pack: 10x20/8x12
pack placed from 100/205 ft. to 205/250 ft.
top of pack between 16" & 12" is 150 ft.

Surface seal: Yes ☒ No ☐ To what depth? 100 ft.
Material used in seal cement w/ bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) **PUMP:** Manufacturer's Name
Type: H.P.

(8) **WATER LEVELS:** Land-surface elevation above mean sea level approx. 820 ft.
Static level 42 ft. below top of well Date 5/18/99
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Schneider
Yield: gal./min. with ft. drawdown after hrs.
" " "
" " "
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 5/18/99 to 5/19/99
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water 60°F Was a chemical analysis made? Yes ☐ No ☐

(10) **WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION**

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
See Attached Log		
Plate ring welded between 16" & 12" at top of 16" casing.		
** Plate Bottom		

RECEIVED DEPT. OF ECOLOGY SEP 17 1999 CENTRAL REGIONAL OFFICE

Work Started 3/10/99 19. Completed 8/19 19 99

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Schneider Drilling Co. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address 21881 River Road NE, St. Paul, OR 97137
(Signed) [signature] (WELL DRILLER) License No. 0643
Contractor's Registration No. SCHNEI*226LG Date 9/14 19 99

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (206) 407-6600. The TDD number is (206) 407-6006.

ECY 050-1-20 (9/93)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

City of Grandview Well #10

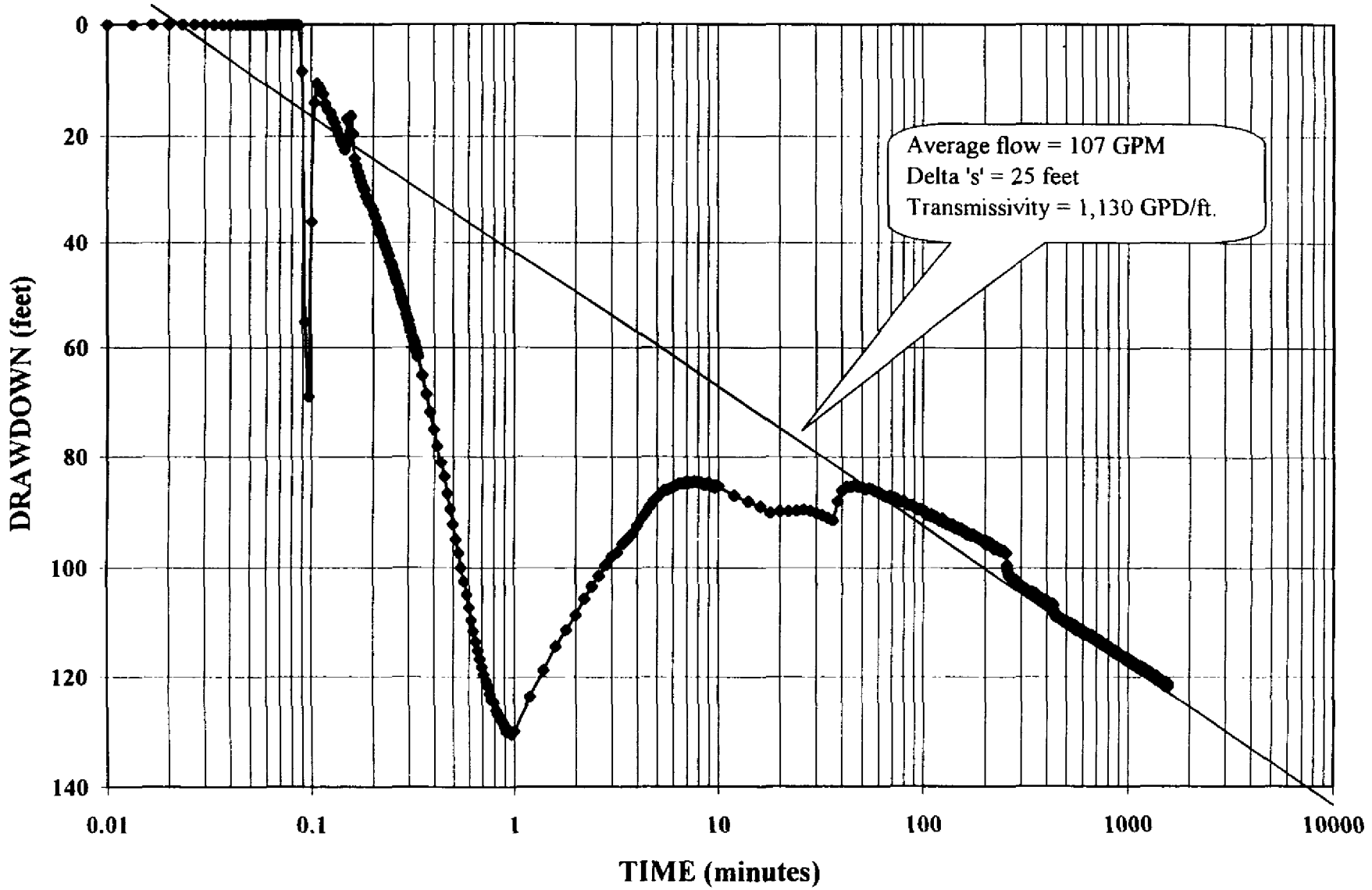
By Schneider Drilling Co.

Start Card #W07387 - Well Label #AAS240

Depth From	Depth To	Description
0	28	Sandy loam, bown, soft
28	30	Basalt, brown, broken
30	34	Basalt, grey w/brown, fractured, vesicular, medium
34	57	Basalt, grey & brown, some fracures & vesicles, medium
57	61	Basalt, grey, fractured, medium-hard
61	83	Basalt, grey, hard
83	86	Basalt, grey, fractured, vesicular w/claystone, brown, medium
86	87	Basalt, grey, fractured, vesicular w/quartz, medium
87	92	Basalt, grey, few fractures & vesicles, medium-hard
92	99	Basalt, grey, very hard
99	100	Basalt, grey, fractured, very hard
100	109	Basalt, grey, very hard
109	117	Basalt, grey, few fractures, hard
117	131	Basalt, grey, very hard
131	132	Basalt, grey, fractured, vesicular, weathered w/sandstone, green, medium
132	137	Sandstone, green, medium
137	142	Shale, green w/sandstone, green, soft
142	147	Shale, grey, soft
147	151	Shale, grey-tan-pink w/claystone, grey, soft
151	156	Shale, green-grey w/clay, soft
156	166	Shale, grey, soft
166	172	Shale, grey-green, soft
172	175	Clay, brown, silty, soft
175	178	Claystone, tan, soft-medium
178	185	Clay, tan, silty, soft
185	190	Sandstone, brown/tan, soft-medium
190	193	Sandstone, brown, vesicular, coarse grain, soft-medium
193	196	Sandstone, brown, vesicular, fine grain, soft-medium
196	198	Clay, tan, silty, sticky, soft
198	203	Clay, tan, sandy, medium-soft
203	208	Sandstone, brown, vesicular, meidium grain, soft-medium
208	213	Shale, grey, soft
213	217	Sandstone, brown, medium
217	220	Sandstone, brown, fine grain, soft-medium
220	222	Clay, yellow, sandy, soft
222	223	Shale, green-brown, vesicular, soft-medium
223	227	Sandstone, brown, medium grain, soft-medium
227	231	Shale, grey, soft-medium
231	233	Sandstone, brown, vesicular, medium
233	235	Basalt, grey, vesicular, weathered, broken, medium
235	238	Basalt, brown-grey w/some red, vesicular, weathered, broken
238	242	Basalt, grey, vesicular, fractured, medium
242	244	Basalt, grey, fractured, few vesicules
244	250	Basalt, grey, few fractures, medium-hard

Schneider Drilling Co.

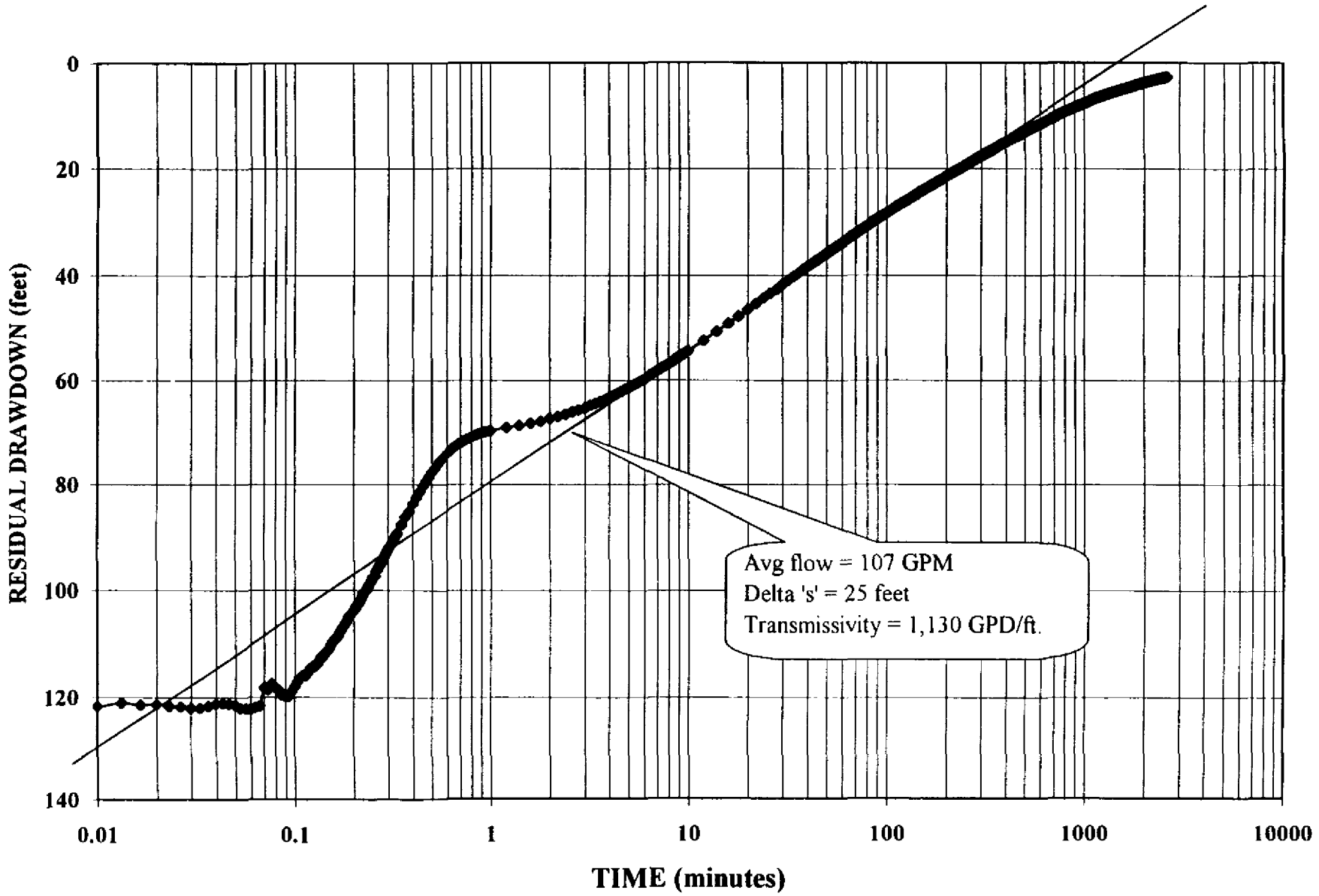
CITY OF GRANDVIEW WELL #10
Constant Rate Pump Test beginning 5/18/99



Well 10 tests 5-18 CR pumping graph

Schneider Drilling Co.

CITY OF GRANDVIEW WELL #10
Recovery beginning 5/19/99



Well 10 tests 5-19 rec graph

Schneider Drilling Co.

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. 24086
Permit No. 24086P

(1) OWNER: Name City of Grandview Address 114 Ave. A Grandview, Wash. 98930

(2) LOCATION OF WELL: County Yakima NE ¼ SW ¼ SW ¼ Sec. 22 T. 9 N., R. 23 W.M.
Bearing and distance from section or subdivision corner 800 Ft E. 900 Ft. N. from SW. corner of Sec. 22

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 12 x 6 inches.
Drilled 320 ft. Depth of completed well 320 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 12" Diam. from +1½ ft. to 102½ ft.
Threaded ☐ ____" Diam. from ____ ft. to ____ ft.
Welded ☒ ____" Diam. from ____ ft. to ____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations ____ in. by ____ in.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ____ ft. to ____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 102 ft.
Material used in seal cement and bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 31 ft. below top of well Date 1/23/76
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level Cassel
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Fessenns
Yield: 155 gal./min. with 90 ft. drawdown after 1 hrs.
" 155 " 219 " 3 "
" 155 " 228 " 5½ "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

OK MB

(10) WELL LOG:
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Well Dia. 12" to 102½ 6" 102½ to	320	
Top soil	0	3
Clay, sandy, tan, hard	3	6
Clay, gray, sandy	6	35
Sand, loose, fine	35	40
Clay, brown, sticky	40	90
Clay, brown, sandy w. small gray.	90	95
Basalt, black, fractured	95	99
Basalt, black	99	156
Clay, brown, w. fractured basalt	156	160
Clay, brown, light	169	280
Clay, light brown, w. small gray.	280	292
Basalt, black	292	320

RECEIVED
APR - 6 1976
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started 12/17 19 75 Completed 3/8 1976

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Cassel Well Drilling (Person, firm, or corporation) (Type or print)
Address 1308 Voelker Yakima, Wash. 98902
[Signed] Larry R. Cassel (Well Driller)
License No. 0073 Date 3/31, 1976

(USE ADDITIONAL SHEETS IF NECESSARY)

S. P. No. 7158—OS—(Rev. 4-71).

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W07386

UNIQUE WELL I.D. # AAS282

Water Right Permit No. ~~G3-20382P~~

(1) **OWNER:** Name City of Grandview Address 207 West Second St, Grandview, WA 98930

(2) **LOCATION OF WELL:** County Yakima SW 1/4 SW 1/4 Sec 22 T. 9 N, R 23 E W.M.

(2a) **STREET ADDRESS OF WELL** (or nearest address) Pecan St., Grandview, WA

(3) **PROPOSED USE:** ☐ Domestic ☐ Industrial ☐ Municipal ☒ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☐ DeWater

(4) **TYPE OF WORK:** Owner's number of well (if more than one) 12

Abandoned ☐ New well ☐ Method: Dug ☐ Bored ☐
Deepened ☒ Cable ☐ Driven ☐
Reconditioned ☒ Rotary ☒ Jetted ☐

(5) **DIMENSIONS:** Diameter of Bore: 12 inches.
Cleaned/ Drilled 102-327 feet. Depth of completed well 265 ft.

(6) **CONSTRUCTION DETAILS:**

Casing Installed: exist:12 " Diam. from +1 ft. to 102 ft.
Welded ☒ *8 " Diam. from +1.5 ft. to 214 ft.
* Liner installed ☒
Threaded ☐ *8 " Diam. from 264 ft. to 269** ft.

Perforations: Yes ☒ No ☐
Type of perforator used Mills Knife
SIZE of perforations .5 in. by 2.5 in.
16 perforations from 267 ft. to 268 ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Houston
Type V shape wire wrap Model No.
Diam. 8 PS Slot size .033 from 214 ft. to 264 ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Filter packed: Yes ☒ No ☐ Size of pack: 10x20/8x12
~~Pack. Gravel~~ placed from 150/285 + ft. to 285+/327 ft.

Surface seal: Yes ☐ No ☐ To what depth? _____ ft.
Material used in seal _____
Did any strata contain unusable water? Yes ☒ No ☐
Type of water? Not changed Depth of strata _____
Method of sealing strata off _____

(7) **PUMP:** Manufacturer's Name _____
Type: _____ H.P. _____

(8) **WATER LEVELS:** Land-surface elevation above mean sea level approx. 800 ft.
Static level 67 ft. below top of well Date 6/30/99
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Schneider
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " "
" " " "
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) attached graphs
Time Water Level Time Water Level Time Water Level
Date of test 6/30/99 - 7/1/99
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water 62°F Was a chemical analysis made? Yes ☐ No ☐

(10) **WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION**

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Basalt, grey, frac w/quartz, hd	320	322
Basalt, grey, hard	322	327
Plate ring welded between 12" & 8" at top of 12" casing		
**cement plug 265 to 268' & plate bottom in 8" liner.		

DEPT. OF ECOLOGY SEP 14 1999 CENTRAL REGIONAL OFFICE

Work Started 5/17/99 19. Completed 8/19 19 99

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Schneider Drilling Co. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 21881 River Road NE, St. Paul, OR 97137

(Signed) Stephen Schneider (WELL DRILLER) License No. 0643

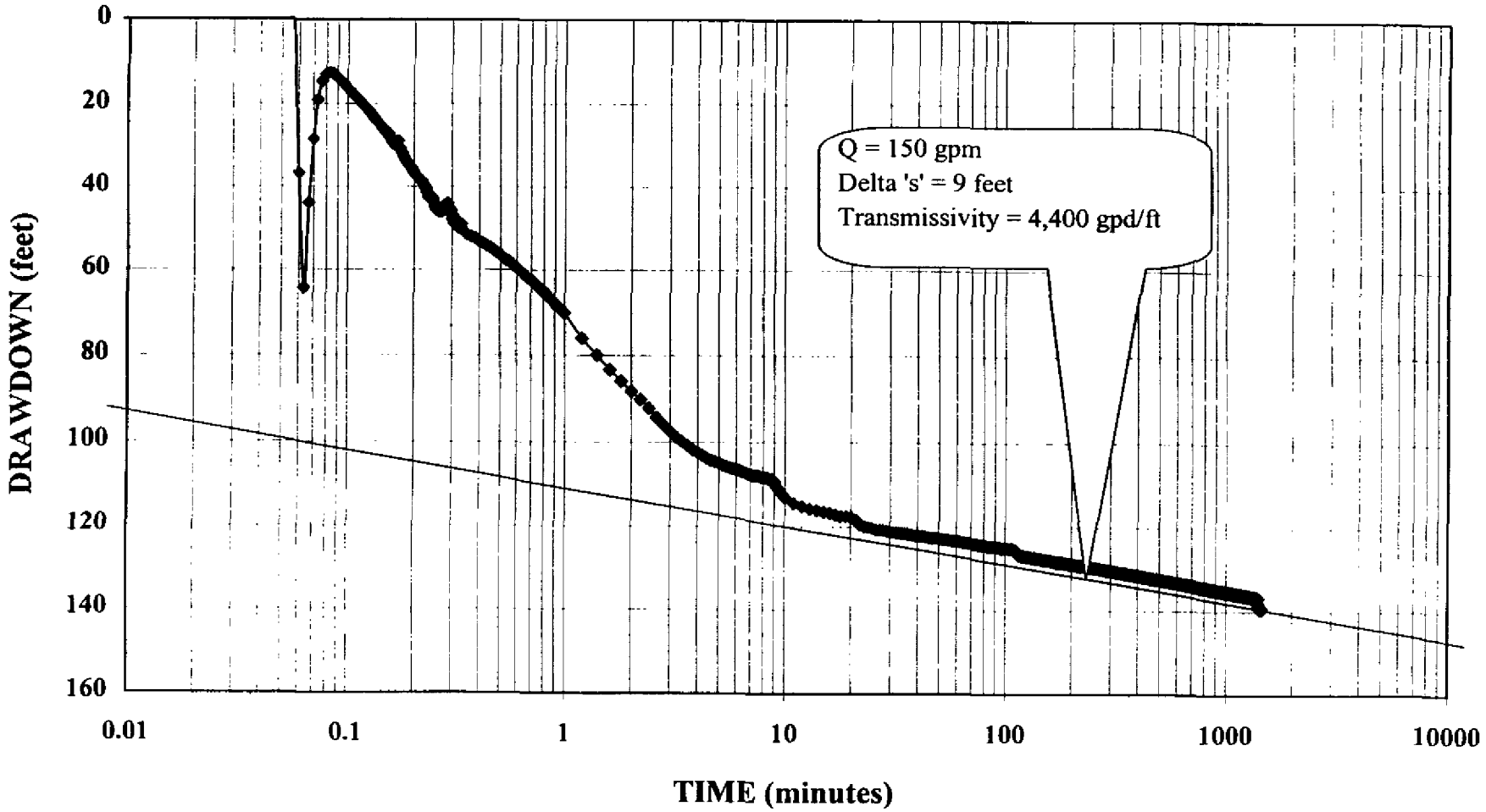
Contractor's Registration No. SCHNEI*226LG Date 9/14 19 99

(USE ADDITIONAL SHEETS IF NECESSARY)

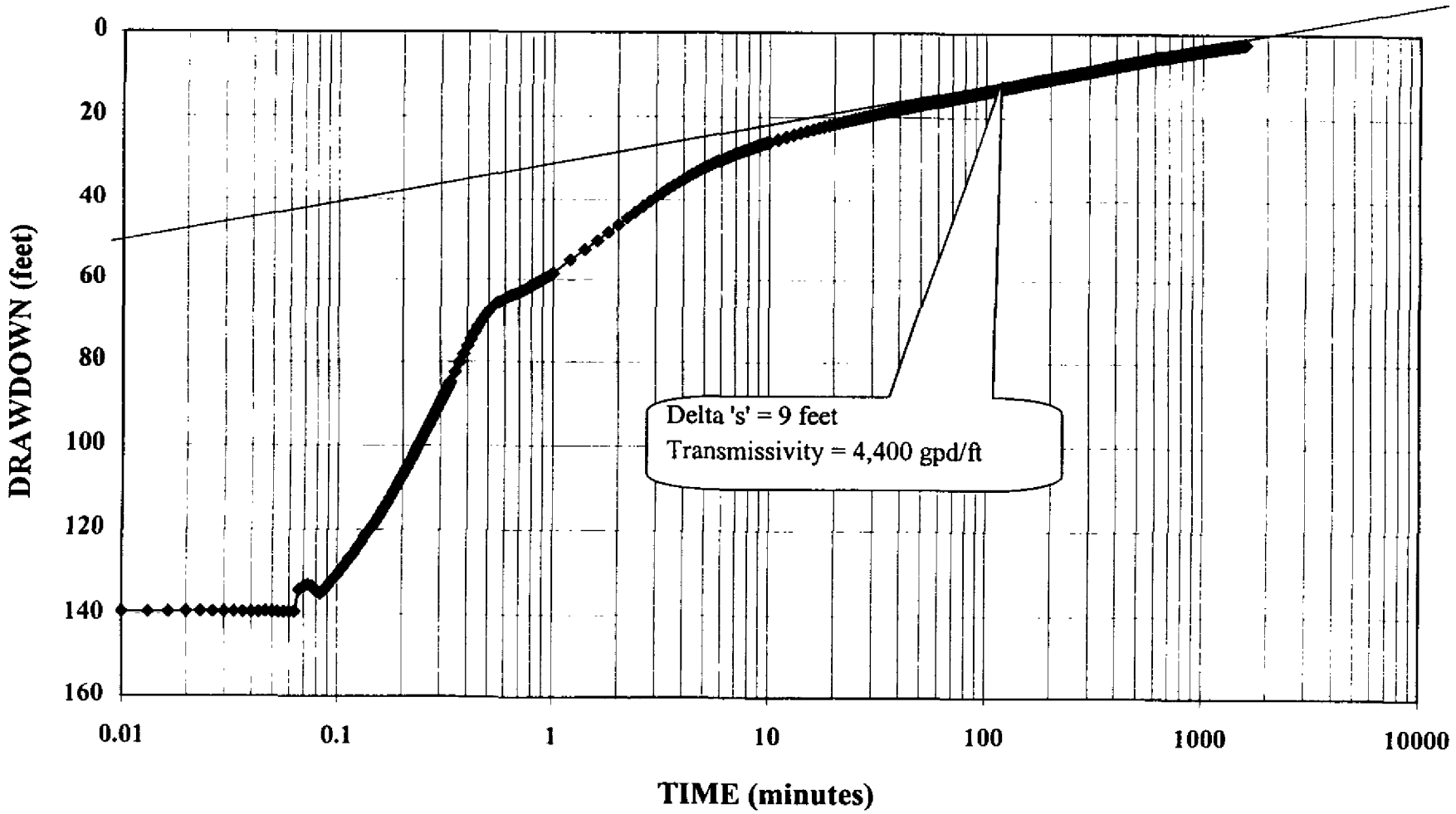
Ecology is an Equal Opportunity and Affirmative Action employer. For special accommodation needs, contact the Water Resources Program at (206) 407-6600. The TDD number is (206) 407-6006.

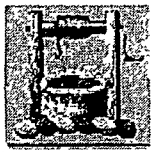
ECY 050-1-20 (9/93) * * f

CITY OF GRANDVIEW WELL #12
Constant Rate Pump Test beginning 6/30/99



CITY OF GRANDVIEW WELL #12
Constant Rate Pump Test Recovery beginning 7/1/99





Well Report Change Form

IMPORTANT: GET AS MUCH INFORMATION AS POSSIBLE. THIS FORM WILL BE USED TO FIND THE WELL REPORT. ALL REQUIRED FIELDS MUST BE FILLED IN. USE INK PEN ONLY WHEN FILLING OUT THIS FORM.

(REQUIRED) This Well Report has been changed on (Date) 4 / 15 / 2002

(Required) Person Requesting Change _____

(Required) Contact Phone No (_____) _____

(REQUIRED) ☐ Not in NITS ☐ NITS Log ID#_____

Regional Office: ☒ CRO ☐ ERO ☐ NWRO ☐ SWRO

Well Type: ☒ Water Well ☐ Resource ProtectionWell

Notice of Intent #:_____ Unique Ecy Well ID Tag No:_____

(Required) Original Owner Name:_____

Well Street Address:_____

City:_____ County:_____ Zip Code:_____

Geographic Location:

(Required) _____ 1/4 of the _____ 1/4 Section_____ Township_____ Range_____ EWM or WWM *(circle one)*

(Optional) Lat Degrees _____ Lat Time _____

Long Degrees _____ Long Time _____ Horizontal collection method code _____

Tax Parcel No (include all zeros and dashes):_____

Type of Work: ☐ New Well ☐ Reconditioned ☐ Deepened

Well Report Recvd Date:____/____/____ Well Completed Date:____/____/____

Well Diameter (in):_____ Well Depth (ft):_____ Other:_____

Driller License No:_____ Trainee License No:_____

Other (Specify):_____

(Required) Reason for Change Internal Correction - Not changing the image

(Required) Tracker Signature: JK.

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

#13

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....

Permit No G4255701P

(1) OWNER: Name City of Grandview Address 207 West Second Grandview, Wash.

(2) LOCATION OF WELL: County Yakima SW¼ NE¼ Sec. 13 T. 9 N., R. 23E W.M. G

Bearing and distance from section or subdivision corner & NE¼ of SW¼

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 10 inches.
Drilled 610 ft. Depth of completed well 610 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 12 " Diam. from +1 ft. to 155 ft.
Threaded ☐ 10 " Diam. from +1 ft. to 610 ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☒ No ☐
Type of perforator used Cutting Torch
SIZE of perforations 3/8 in. by 6 in.
144 perforations from 222 ft. to 240 ft.
180 perforations from 392 ft. to 412 ft.
244 perforations from 576 ft. to 603 ft.

Screens: Yes ☐ No ☒
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☒ No ☐ To what depth? 35 ft.
Material used in seal Cement Grout
Did any strata contain unusable water? Yes ☒ No ☐
Type of water? Sand Depth of strata 146
Method of sealing strata off Casing And Cement

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level ..... ft.
Static level 17 ft. below top of well Date 3/13/78
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? STRASSER
Yield: 573 gal./min. with 189 ft. drawdown after 21 hrs.
" 403 " 139 " 21.5 "
" 292 " 100 " 22. "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
10:20	49	10:23	50	10:30	43
[redacted]	52	10:24	48	10:44	40
	50	10:32	46		

Date of test MAR 14-15, 1978
Baller test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow ..... g.p.m. Date .....
Temperature of water ..... Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Brown Sand	0	20
Broken Brown Rock	20	24
Black Basalt	24	62
Broken Porous Basalt	62	90
Med Hard Black Basalt	90	120
Fine Gray Sand	120	146
Brown Sandstone	146	220
Broken Brown Basalt	220	238
Black Basalt	238	392
Broken Brown Basalt	392	412
Black Basalt	412	440
Hard Grey Basalt	440	576
Broken Brown Basalt	576	605
Green Sand Interbed	605	610

RECEIVED
JUN 12 1978
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started JAN 18, 1978 Completed MAR 29, 1978

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME R.J. STRASSER DRILLING CO.
(Person, firm, or corporation) (Type or print)

Address 8110 SE Sunset Lane Portland, Ore.

[Signed] Edward R. Strasser
(Well Driller)

License No. 0456 Date APR 17, 1978

(USE ADDITIONAL SHEETS IF NECESSARY)

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DOH - 656

UNIQUE WELL I D NUMBER A B R 6 4 7 (X Y Z 1 2 3)

WELL TAGGING FORM

Date of Field Visit 8/17/94 By Pat Repp

ADDITIONAL WELL IDENTIFIERS

Department of Health System ID Number 28970J Source Number SO-10

USGS Site Identification ______

RECORD VERIFICATION

☑ Well Report available *(please attach)*
☐ Well Report not available
☐ Verification inconclusive

WELL OWNERSHIP, IF DIFFERENT FROM WELL REPORT

Name CITY OF GRANDVIEW

Street address 207 WEST 2ND

City GRANDVIEW State WA.

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address 571 Willoughby Rd.

City Grandview County YAKIMA

T. 09 N R. 23 E WM Sec. 13 NE ¼ of the SW ¼

Latitude N/A ° ______ ' ______ "
Longitude N/A ° ______ ' ______ "

☐ GPS (raw data)
☐ GPS (corrected)
☐ Topographic Map
☐ Survey
☐ Computer generated
☐ Other ______

Elevation at land surface UNAVAILABLE feet/meters *(circle one)*

☐ Digital Altimeter
☐ Topographic Map

Additional information, if available:

☒ Location marked on topographic map *(please attach)*

☐ Location marked on air photo *(please attach)*

Water Right # N/A Priority Date _____

Circle one: Application Permit Certificate Claim Exempt

WELL CHARACTERISTICS

Physical Description of Well (size of casing, type of well, housing, etc.): 12" Casing, Drilled, well is housed in Cement Block Building

Location of Well Identification Tag: on Line by meter Regulator

Was Supplemental Tag needed for ease of identifying well?

☑ NO ☐ YES

If yes, where was tag placed? _____

Scale 1:24,000 (1"=2,000')

D	C	B	A
E	F	G	H
M	L	K	J
N ●	P	Q	R

Indicate the location of the well within the Section by drawing a dot at that point.

SECTION N

COMMENTS: N/A

Please attach this form to the Well Report and submit it to the Department of Ecology, Water Resources Program Headquarters, Well Identification Project, P.O. Box 47600, Olympia, WA 98504-7600

47600 98504 7600

Copy with
Driller's Copy

ER WELL REPORT

STATE OF WASHINGTON

Application No. ....

Permit No. ....

OWNER: Name City of Grandview Address 207 West Second Grandview Wash.

LOCATION OF WELL: County YAKIMA SW¼ NE¼ Sec. 13 T. 9 N. R. 23 WM

Distance from section or subdivision corner 1424' NE¼ of SW¼

PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

DIMENSIONS: Diameter of well 16 inches
Drilled 616 ft. Depth of completed well 610 ft.

CONSTRUCTION DETAILS:
Casing installed: 12" Diam. from +1 ft. to 155 ft.
Threaded ☐ 10" Diam. from +1 ft. to 610 ft.
Welded ☒ ..." Diam. from .... ft. to .... ft.

Perforations: Yes ☒ No ☐
Type of perforator used Cutrite Torch
SIZE of perforations 3/8 in by 6 in.
144 perforations from 200 ft. to 340 ft.
190 perforations from 342 ft. to 412 ft.
344 perforations from 576 ft. to 603 ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ....
Type .... Model No. ....
Diam. .... Slot size .... from .... ft. to .... ft.
Diam. .... Slot size .... from .... ft. to .... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ....
Gravel placed from .... ft. to .... ft.

Surface seal: Yes ☒ No ☐ To what depth? 35 ft.
Material used in seal CEMENT GROUT
Did any strata contain unusable water? Yes ☒ No ☐
Type of water? SAND Depth of strata 146
Method of sealing strata off CASING AND CEMENT

PUMP: Manufacturer's Name ....
Type: .... H.P. ....

WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Level 17 ft. below top of well Date 3/13/78
Artesian pressure .... lbs. per square inch Date ....
Artesian water is controlled by .... (Cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Pump test made? Yes ☒ No ☐ If yes, by whom? STRASSER
579 gal./min. with 154 ft. drawdown after 24 hrs.
403 " 199 " 215 "
292 " 110 " 24 "
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Water Level	Time	Water Level	Time	Water Level
244	10:03	200	10:59	143
152	10:24	148	10:44	110
150	10:33	146		

Date of test MAR 13-15 1978
.... gal./min. with .... ft. drawdown after .... hrs.
Artesian flow .... g.p.m. Date ....
Temperature of water .... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
BROWN SAND	0	20
BROKEN BROWN BASALT	20	42
BLACK BASALT	42	62
BROKEN RED BASALT	62	80
MEDIUM BLACK BASALT	80	120
FINE BROWN SAND	120	146
BROWN SAND STONE	146	220
BROKEN BROWN BASALT	220	238
BLACK BASALT	238	342
BROKEN BROWN BASALT	342	412
MEDIUM BASALT	412	446
HARD GREY BASALT	446	506
BROKEN BROWN BASALT	506	606
GREEN SAND FORMED	606	616

Work started JAN 18 19 78 Completed MAR 29 19 78

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME R.L. STRASSER DRILLING CO. (Person, firm, or corporation) (Type or print)

Address 5110 S.E. SUNSET LANE PORTLAND, ORE.

[Signed] Edward R. Strasser (Well Driller)

License No. 0256 Date APR 17, 1978

(USE ADDITIONAL SHEETS IF NECESSARY)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

#14

Application No
Permit No

(1) OWNER Name City of Grandview Address 207 West 2nd St Grandview, Wa

(2) LOCATION OF WELL County — ¼ SW ¼ Sec 13 T 9 N R 23 WM

Bearing and distance from section or subdivision corner

(3) PROPOSED USE Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK Owner's number of well (if more than one) DW #14

New well ☒ Method Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS Diameter of well 16 inches
Drilled 954 ft Depth of completed well 954 ft

(6) CONSTRUCTION DETAILS

Casing installed 22 Diam from 0 ft to 24 ft
Threaded ☐ 16 Diam from 0 ft to 683 ft
Welded ☒ Diam from ft to ft

Perforations Yes ☐ No ☒
Type of perforator used
SIZE of perforations in by in
perforations from ft to ft
perforations from ft to ft
perforations from ft to ft

Screens Yes ☐ No ☒
Manufacturer's Name
Type Model No
Diam Slot size from ft to ft
Diam Slot size from ft to ft

Gravel packed Yes ☐ No ☒ Size of gravel
Gravel placed from ft to ft

Surface seal Yes ☒ No ☐ To what depth? 683 ft
Material used in seal Cement grout
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP Manufacturer's Name
Type H.P

(8) WATER LEVELS Land surface elevation above mean sea level 855 ft
Static level 187 ft below top of well Date 5/24/82
Artesian pressure lbs per square inch Date
Artesian water is controlled by (Cap valve etc)

(9) WELL TESTS Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes by whom? Layne
Yield 2000 gal/min with 349 ft drawdown after 24 hrs

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
2 20	536				
3 00	187				

Date of test 5/20-21
Bailer test gal/min with ft drawdown after hrs
Artesian flow g p m Date
Temperature of water 73 Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG LMVP

Formation *Describe by color character, size of material and structure and show thickness of aquifers and the kind and nature of the material in each stratum penetrated with at least one entry for each change of formation*

MATERIAL	FROM	TO
Soil sandy, med brn	0	17
Basalt fract grey-orn	17	71
Basalt weath brn-red, yell	71	76
Basalt semi fract grey-brn	76	91
Basalt med-hrd grey	91	118
Sandstone soft, brn-grey-white-green, sand conglom	118	144
Claystone med brn	144	217
Basalt fract grey-red	217	251
Basalt hrd black	251	364
Basalt hrd grey	364	380
Basalt weath brn-grey	380	401
Basalt hrd grey	401	426
Basalt fract grey-brn	426	432
Basalt hrd grey	432	564
Basalt semi fract. red-grn	564	576
Basalt fract brn-green-grey, blue claystn strks	576	606
Sand packed, green	606	622
Claystn blue-green	622	665
Asn, coal, red med	665	672
Basalt hrd grey	672	707
Basalt fract black	707	716
Basalt hrd black, seamy	716	824
Basalt med black	824	841
Basalt hrd black	841	891
Basalt porous, grey-brn	891	898
Basalt hrd grey	898	910
Basalt fract grey	910,	917
Basalt fract black, with red & brn inscames	917	932
Basalt hrd grey	932	954

Work started 2/17 19 82 Completed 5/24 19 82

WELL DRILLER'S STATEMENT

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief

NAME West Coast Drilling Co Inc
(Person firm or corporation) (Type or print)

Address 220 Academy St Mt Angel, Or

[Signed] Steve Stadele
(Well Driller)

License No 0860 Date 6/15 19 82

(USE ADDITIONAL SHEETS IF NECESSARY) EP 7.28.82

Lic # 0339-0861

PAGE 1

West Coast Drilling Co., Inc.
220 Academy St.
Mt. Angel, OR 97362
503-845-6824

JUN 30 1982
DEPARTMENT OF ECOLOGY
CENTRAL REGION

WELL TESTING REPORT

NAME CITY OF GRANDVIEW LOCATION GRANDVIEW, WA

I. D. WELL 16 WELL DEPTH 953' WATER TEMP. 23 STATIC WATER LEVEL 198'

ORIFICE SIZE _____ DISCHARGE PIPE 10" COLUMN & LENGTH 540' AIRLINE 540'

TIME	WATER LEVEL FT. FROM TOP	R. P. M.	ORIFICE READING	G. P. M.	REMARKS: SAND? CASCADING WATER? etc
16:00	START TEST		Flow		
16:00	155	850	METER	800	CLOUDY
16:15	194	850		800	CLEARING
16:23	237				
16:35	SHUT DOWN				
16:45	326	1050		1500	CLEAR
17:20	371	1150		1500	
17:30	436	1300		2500?	
17:40	461	1400		3000?	
18:10	451	1400	SHUT	DOWN	
19:20	START UP				
19:25	471	1400		2400	CLEAR
19:50	SHUT DOWN				
20:30	SURGING WELL			3300	CLEAR
21:50	SHUT DOWN - CHANGE PIPE				
22:00	501	1500		2500	CLEAR
22:30	501	1500		2500	
23:00	496	1500		2000	
23:30	501	1500		2000	
24:00	516	1500		2000	
00:30	516	1500		2000	
01:00	526	1500		2000	
02:00	536	1500		1900	
03:00	536	1500		1900	
04:00	536	1500		1900	
05:00	536	1500		1900	

RECOVERY TIME: FT. 1 MINUTE FT. 2 MINUTES FT. 3 MINUTES

APPROVED BY: Janine Brick (LAYNE & BOWLER, INC.)

CITY OF GRANDVIEW (OWNER OF WELL)

INSTALLED BY: NELSON, TREVINO, WHITING & ULRICH DATE 5/20/82

LAYNE & BOWLER, INC. VERTICAL TURBINE PUMPS FACTORY BRANCH PHONE 547-4132
P. O. BOX 610
PASCO, WASHINGTON 99301

PAGE 2

WELL TESTING REPORT

NAME CITY OF GRANDVIEW LOCATION GRANDVIEW WA.

I.D. WELL 16" WELL DEPTH 953' WATER TEMP. STATIC WATER LEVEL 198'

CASE SIZE CHARGE PIPE 10" COLUMN & LENGTH 540' AIRLINE 540'

TIME	WATER LEVEL FT. FROM TOP	R. P. M.	ORIFICE READING	G. P. M.	REMARKS: SAND? CASCADING WATER? etc.
6:00	536	1500	FLOW	1900	CLEAR
07:00	536	1500	METER	CHANGE PIPE	
08:00	536	1500		PUMP SUCKING AIR - FLUCTUATING	
09:00	536	1450		1800	CLEAR
10:00	536	1450		2000	CLEAR - NO AIR
11:00	536	1450		2000	↓
12:00	536	1450		2000	↓
13:00	536	1450		1700	FLUCTUATING
13:30	536	1450		SUCKING	AIR TOLD TO SLOW DOWN
14:35	536	1350		1750	CLEAR
15:00	536	1350		1750	↓
16:00	536	1350		1750	↓
17:20	536	1350		1750	SHUT DOWN FOR FUNERAL
15:00	206	STATIC	RECOVERY TIME		40 MINUTES
15:15	RESTART TEST.				
15:16	371	1200		2000	CLEAR
15:17	421	1350		2000	↓
15:18	461	1350		2000	↓
15:19	491	1350		2000	↓
15:20	496	1350		2000	↓
15:30	506	1350		2000	↓
15:31	514	1350		2000	↓
15:32	527	1350		2000	↓
15:40	536	1350		2000	↓
17:00	536	1350		2000	SHUT DOWN

RECOVERY TIME: FT. 1 MINUTE FT. 2 MINUTES FT. 3 MINUTES

APPROVED BY:

LAYNE & BOWLER, INC.

CITY OF GRANDVIEW
(OWNER OF WELL)

INSTALLED BY NELSON, IRRIG., WHITING DATE 5/21/82

LAYNE & BOWLER, INC. VERTICAL TURBINE PUMPS FACTORY BRANCH PHONE 545-9546
P. O. BOX 610
PASCO, WASHINGTON 99301

PAGE 3

WELL TESTING REPORT

NAME CITY OF GRANDVIEW LOCATION GRANDVIEW WA

I.D. WELL 16" WELL DEPTH 453' WATER TEMP STATIC WATER LEVEL 198'

CASING SIZE DISCHARGE PIPE 10" COLUMN & LENGTH 540' AIRLINE 540'

TIME	WATER LEVEL FT. FROM TOP	R. P. M.	ORIFICE READING	G. P. M.	REMARKS: SAND? CASCADING WATER? etc
0800	START ENGINE				
	ADDED CHLORINE TO WELL				
0815	198	950			PUMPED TO REMOVE CHLORINE
0820	SURGED WELL				
0830	SHUT DOWN END OF TEST				

RECOVERY TIME: FT. 1 MINUTE FT. 2 MINUTES FT. 3 MINUTES

APPROVED BY:

Lynnie Brock (LAYNE & BOWLER, INC.)

City of Grandview (OWNER OF WELL)

INSTALLED BY LEGGETT TRENNEL WHITING DATE 5/24/82

LAYNE & BOWLER, INC. P. O. BOX 610 PASCO, WASHINGTON 99301 VERTICAL TURBINE PUMPS FACTORY BRANCH PHONE 545-9546

Please Print Plainly
USE HEAVY PENCIL
DO NOT WRITE IN SHADED AREAS

LABORATORY NAME

SEE BACK FOR INSTRUCTIONS

WATER SAMPLE INFORMATION FOR INORGANIC CHEMICAL ANALYSES

NUMBER: 5114 | CO. | CITY | DATE RECEIVED: 05/21/82 | DATE COLLECTED: __/__/__ | COLLECTED BY: | Telephone:

RECEIVED JUN 30 1982

Is this a follow up of a previous out of compliance sample? Yes ☐ No ☐

If yes, what was the laboratory number of the previous sample?

SYSTEM I.D. NO. | SYSTEM NAME: | SYSTEM CLASS (circle one) 1 2 3 4 | COUNTY

SAMPLE LOCATION: 1 | THIS SAMPLE TAKEN BEFORE TREATMENT ☐ U AFTER ☐ T | IF TAKEN *AFTER* TREATMENT WAS IT __FILTERED __FLUORIDATED __CHLORINATED __WATER SOFTENER: TYPE USED

SOURCE TYPE: __ 1. SURFACE __ 2. SPRING __ 3. WELL __ 4. PURCHASE | SOURCE NO. | IF SOURCE IS LAKE OR STREAM, ENTER NAME | IF SAMPLE WAS DRAWN FROM DISTRIBUTION SYSTEM IT WAS COLLECTED FROM SYSTEM AT: (ADDRESS)

DATE OF FINAL REPORT: 06/28/82

SEND REPORT TO: (PRINT FULL NAME & ADDRESS)
Name
Street
CITY — ZIP CODE
Telephone: ( ) Area Code

REMARKS:
[illegible] mg/L Sulfide
< 0.005 mg/L Hydrogen Sulfide

LABORATORY REPORT
(DO NOT WRITE BELOW THIS LINE)

Tests		*MCL		Less Than	RESULTS	Units	Compliance YES	Compliance NO	Chemist Initials	Laboratory Number (If different than above)
Arsenic	As	0.05	P	<	0.01	mg/l	X			
Barium	Ba	1.0	P	<	.35	mg/l	X			
Cadmium	Cd	0.01	P	<	0.001	mg/l	X			
Chromium	Cr	0.05	P		0.02	mg/l	X			
Iron	Fe	0.3		<	.05	mg/l	X			
Lead	Pb	0.05	P	<	0.005	mg/l	X			
Manganese	Mn	0.05		<	0.01	mg/l	X			
Mercury	Hg	0.002	P	<	.001	mg/l	X			
Selenium	Se	0.01	P	<	0.005	mg/l	X			
Silver	Ag	0.05	P	<	0.01	mg/l	X			
Sodium	Na				131	mg/l			CAF	
Hardness		500			298	mg/l as CaCO3	X		MCK	
Conductivity		700				Micromhos/cm @25° C				
Turbidity		1.0	P		.	NTU				
Color		15.0		<	5.0	Color Units	X		MKH	
Fluoride	F	2.0	P		2.1	mg/l		X	CAF	
Nitrate	as N	10.0	P	<	0.2	mg/l	X		MCH	
Chloride	Cl	250				mg/l				
Sulfate	SO_4	250				mg/l				

*MCL is the Maximum Contaminant Level Allowed
P Primary Standard

Laboratory Supervisor

DSHS 4-92G (10-79) DISTRICT ENGINEER OR LOCAL HEALTH DEPT. COPY

2684

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No 024364

Water Right Permit No

(1) OWNER: Name City of Grandview Address 207 West Second St., Grandview, WA. 98930

(2) LOCATION OF WELL: County Yakima NE ¼ of SW ¼ Sec 22 T 9 N. R 23R WM

(2a) STREET ADDDRESS OF WELL (or nearest address) across Butternut from Briar Court

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal ☒ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 15

Abandoned ☐ New well ☒ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☒ Rotary ☒ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 16 inches. Drilled 1294 feet. Depth of completed well 1294 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 16 " Diam. from +3 ft. to 739 ft.
Welded ☒
Liner installed ☐
Threaded ☐
" Diam. from ft. to ft.
" Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 739 ft.
Material used in seal cement grout
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level approx. 790 ft.
Static level 159 ft. below top of well Date 1/18/90
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? SEI
Yield: 1550 gal./min. with 83 ft. drawdown after 6.5 hrs.
" 1836 " 113 " 2 "
" 2547 " 222 " 2 "
Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
Complete recovery in 4 minutes both days					

Date of test 1/17 & 18/90
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water 79°F Was a chemical analysis made? Yes ☒ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
See Attached		

RECEIVED
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started 8/17/89 19 Completed 1/24 19 90

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Schneider Equipment, Inc. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address 21881 River Road N.E. St. Paul, OR 97137
(Signed) Stephen Schneider (WELL DRILLER) License No. 0643
Contractor's Registration No. SCHNEI*226LG Date 1/30 19 90

(USE ADDITIONAL SHEETS IF NECESSARY)

CITY OF GRANDVIEW

WELL NO. 15
by Schneider Equipment, Inc.

completed: January 1990

0	10	Sand, gravel, 2" minus, brown
10	23	Sand, silty & sand, coarse to small grvl, brown
23	29	Sand, silty w/some coarse & med, brown
29	42	Sand, fine w/some occas. gravel, grayish-brown
42	45	Clay, sandy w/gravel, 2" minus, brown
45	50	Clay, gravel, 2" minus conglomerate, tan, brown
50	60	Clay, sticky w/some small gravel, tan
60	68	Clay, w/some gravel & claystone, tan, brown
68	76	Claystone, clay, brown
76	80	Basalt, fractured w/some vesicles, black
80	101	Basalt, fractured, med-hard, brown
101	118	Basalt, hard, black
118	122	Basalt, med-hard, reddish-black
122	156	Basalt, hard, fractured, black
156	164	Basalt, grey-black
164	184	Basalt w/claystone, black-brown
184	198	Clay w/some basalt (brown), gray
198	210	Sand, very fine w/mica, brown
210	219	Clay, gray
219	287	Claystone, gray & sandstone, br, w/some clay, gray
287	290	Claystone, brown & gray w/basalt, brown & black
290	302	Basalt, fractured, black, some clay, gray
302	316	Basalt, med-hard, fractured, black
316	334	Basalt, hard, fractured, black
334	392	Basalt, hard, some fractured, black
392	412	Basalt, hard, fractured, black
412	442	Basalt, hard, fractured, gray
442	459	Basalt, gray
459	479	Multi-colored rock, black, brown, red & gray
479	522	Basalt, fractured, black
522	643	Basalt, hard, gray
643	656	Basalt, hard, some fractures, gray
656	666	Basalt, soft, gray, & clay, hard layers, grey
666	673	Basalt, soft, gray & brown & clay, soft & hard layers, gray
673	676	Basalt & clay, soft, w/gray & brown
676	726	Clay, hard & soft layers, brown, gray, blue
726	734	Clay, hard & soft layers, multi-colored, & small layers of basalt, black
734	744	Basalt, hard, some small fractures, black
744	882	Basalt, grey-black, hard, occ. frac.
882	886	Basalt, black, ves.
886	918	Basalt, black, med

918	937	Basalt, black & grey, hard
937	953	Basalt, black
953	972	Basalt, black w/red tint, frac
972	988	Basalt, black w/quartz
988	1077	Basalt, grey & black
1077	1099	Basalt, greenish black, soft, frac
1099	1129	Basalt, black
1129	1165	Basalt, grey
1165	1170	Basalt, grey frac, hard
1170	1184	Basalt, grey, hard
1184	1202	Basalt, black, soft, ves.
1202	1244	Basalt, dark grey, occ. frac
1244	1260	Basalt, black, some frac
1260	1267	Basalt, grey & black
1267	1270	Basalt, grey, frac.
1270	1285	Basalt, grey, hard
1285	1294	Basalt, grey & black

W0036.GDV

Please print sign and return to the Department of Ecology

Water Well Report

Original – Ecology 1st copy – owner 2nd copy – driller

ECOLOGY

Construction/Decommission

☑ Construction 147859

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Current Notice of Intent No W0724~~3~~ 2

Unique Ecology Well ID Tag No AAS278

Water Right Permit No Cert 04456

Property Owner Name CITY OF GRANDVIEW

Well Street Address ~1175 Olmstead Rd

City Grandview WA **County** Yakima

Location SW 1/4 1/4 SW 1/4 Sec 12 Twn 9N R 23 EWM ☑ or WWM ☐ circle one

Lat/Long (s t r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No 23091233002

DEPT OF ECOLOGY Received APR 12 2004 CENTRAL REGION OFFICE

PROPOSED USE ☐ Domestic ☐ Industrial ☑ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other _____

TYPE OF WORK Owner s number of well (if more than one) 7B (new)

☑ New well ☐ Reconditioned ☐ Deepened *Method* ☐ Dug ☐ Bored ☐ Driven ☐ Cable ☑ Rotary ☐ Jetted

DIMENSIONS Diameter of well 16x12 inches drilled 660 ft. Depth of completed well 622 ft.

CONSTRUCTION DETAILS

Casing Installed ☑ Welded 16 Diam from +2 ft to 230 ft

☑ Liner installed 12 Diam from 219 3 ft to 622 6 ft

☐ Threaded _____ Diam from _____ ft to _____ ft

Perforations ☑ Yes ☐ No

Type of perforator us d factory mill cut

SIZE of perfs 1/4 in by 2 in and no of perfs ** from ** ft to ** ft

Screens ☐ Yes ☑ No ☐ K Pac Location _____

Manufacturer's Name _____

Type _____ Model No _____

Diam _____ Slot size _____ from _____ ft to _____ ft

Diam _____ Slot size _____ from _____ ft to _____ ft

Gravel/Filter packed ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft to _____ ft

Surface Seal ☑ Yes ☐ No To what depth? 230 ft

Material used in seal cement grout

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP Manufacturer's Name _____

Type _____ HP _____

WATER LEVELS Land surface elevation above mean sea level ~818 ft

Static level _____ ft below top of well Date _____

Artesian pressure 7 lbs per square inch Date 3/24/04

Artesian water is controlled by flange top & valve on dischrge (cap valve etc)

WELL TESTS Drawdown is amount water level is lowered below static level

Was a pump test made? ☑ Yes ☐ No If yes by whom? SEI

Yield 80 gal /min with 173 ft drawdown after 1 hrs

Yield 80 gal /min with 228 ft drawdown after 4 hrs

Yield 80 gal /min with 269 ft drawdown after 47 hrs

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
0	269	60	55	240	11
10	180	120	27	480	0
30	102				

Date of test 9/23/03 9/26/03

Bailer test _____ gal /min with _____ ft drawdown after _____ hrs

Airtest _____ gal /min with stem set at _____ ft for _____ hrs

Artesian flow ~5 g p m Date 3/24/04

Temperature of water ~63F Was a chemical analysis made? ☑ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation Describe by color character size of material and structure and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information indicate all water encountered (USE ADDITIONAL SHEETS IF NECESSARY)

MATERIAL	FROM	TO
See attached formation log		
Cement grout bottom	622 6	660
Has 3 inch weld on pitless adaptor installed on		
16 inch casing at 3 feet below ground surface		
** Perforations		
1920 perforations	349	412
640 perforations	433	454
640 perforations	475	496
640 perforations	517	538
1920 perforations	559	622

Start Date 7/30/03 Completed Date 3/25/04

WELL CONSTRUCTION CERTIFICATION I constructed and/or accept responsibility for construction of this well and its compliance with all Washington well construction standards Materials used and the information reported above are true to my best knowledge and belief

Driller/Engineer/Trainee Name (Print) Stephen J Schneider

Driller/Engineer/Trainee Signature Stephen J Schneider

Driller or trainee License No 0643

Drilling Company Schneider Equipment, Inc.

Address 21881 River Road NE

City State Zip St Paul, OR 97137

Contractor s Registration No SCHNEI*226LG Date 4/6/04

If TRAINEE

Driller s Licensed No _____

Driller s Signature _____

Ecology is an Equal Opportunity Employer ECY 050 1 20 (Rev 2/03)

147859

City Grandview - Well No 7B

by Schneider Drilling Co

Start Card #W07242 Label #AAS 278

N

FM	TO	DESCRIPTION
0	11	Clay, brown, silty
11	22	Basalt, brown, broken
22	47	Basalt, brown & black, fractured
47	92	Basalt, black, fractured
92	97	Basalt, brown w/clay
97	104	Clay, gray, hard, basalt, gravel
104	115	Sand & clay
115	193	Clay, tan, hard
193	200	Sandstone, brown
200	206	Basalt, brown, broken, weathered
193	220	Basalt, brown & gray, hard, fractured
220	231	Basalt, gray, hard, occasional fracture
231	362	Basalt, black w/blue fractures
362	370	Basalt, brown & black, soft, fractured
370	374	Basalt, black w/brown, weathered fractures
374	412	Basalt, black, medium, some fractures
412	550	Basalt, gray, hard, occasional fracture
550	568	Basalt, gray, hard, columnar w/shiny black fractures
568	570	Basalt, black, medium, fractured
570	579	Claystone, grey, hard
579	580	Basalt, red, cindery, soft, grainy
580	584	Claystone, red, medium
584	585	Claystone, red, medium w/clay
585	587	Claystone, light green, medium-soft
587	590	Claystone, green, soft & sandsone, white & mica
590	595	Clay green, soft
595	602	Claystone, green w/mica and sandstone
602	611	Claystone, green, medium
611	613	Clay, light green, soft
613	617	Claystone, dark green w/brown lenses
617	620	Clay, green, soft
620	624	Clay, dark green, hard
624	627	Clay, green, soft
627	635	Clay, green, hard w/soft lenses
635	638	Clay, olive-tan, soft
638	644	Clay, green, hard w/soft lenses
644	648	Basalt, black, fractured, soft w/red cinders at 647-1/2
648	650	Basalt, black, soft, vesicular
650	660	Basalt, black, medium, fractured

Please print, sign and return to the Department of Ecology

DEPT. OF ECOLOGY Received JUN 03 2004 CENTRAL REGION OFFICE

Water Well Report

Original – Ecology, 1st copy – owner, 2nd copy – driller

Construction/Decommission /52///

☑ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Current Notice of Intent No. W07243

Unique Ecology Well ID Tag No. AAS 242

Water Right Permit No. Cert No.3; Page No.133B-A

Property Owner Name City of Grandview (Olivera)

Well Street Address Asahel Curtis Dr & Ware Rd

City Grandview, WA County Yakima

Location NE 1/4-1/4 SE 1/4 Sec 21 Twn 9N R 23 EWM ☑ or WWM ☐ circle one

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. 23092142400

PROPOSED USE: ☐ Domestic ☐ Industrial ☑ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other _____

TYPE OF WORK: Owner's number of well (if more than one) 4

☑ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☐ Driven ☐ Cable ☑ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 16x12 inches, drilled 718 ft.

Depth of completed well 718 ft.

CONSTRUCTION DETAILS

Casing Installed: ☑ Welded 16 " Diam. from +2 ft. to 339 ft.

☑ Liner installed 12 " Diam. from 323 ft. to 721 ft.

☐ Threaded " Diam. from ft. to ft.

Perforations: ☑ Yes ☐ No

Type of perforator used factory mill cut

SIZE of perfs 1/4 in. by 2.5 in. and no. of perfs 270 from 489 ft. to 721 ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____

Manufacturer's Name _____

Type _____ Model No. _____

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: ☑ Yes ☐ No To what depth? 339 ft.

Material used in seal cement grout

Did any strata contain unusable water? ☐ Yes ☐ No

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level ~800 ft

Static level 92 ft. below top of well Date 4/14/04

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? ☑ Yes ☐ No If yes, by whom? SEI

Yield: 180 gal./min. with 300 ft. drawdown after 1 hrs.

Yield: 180 gal./min. with 335 ft. drawdown after 2 hrs.

Yield: 180 gal./min. with 353 ft. drawdown after 24 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
1min	301	2	276	3	257
4	239	5	222	10	151
30	33	60	17	120	12

Date of test began 3/12/04

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water ~60F Was a chemical analysis made? ☑ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information indicate all water encountered. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Soil, brown, silty, sandy	0	16
Sand, brown, med-fine, silty	16	32
Clay, brown, soft	32	35
Claystone, yellow & brown, w/some gravel, small	35	40
Clay, grey & brown, soft - getting hard w/depth	40	88
Claystone, brown, med	88	97
Claystone, brown & tan, sandy, med - hard w/depth	97	131
Basalt, black, med, frac, some vesicular	131	136
Basalt, black & brown, med, frac, some ves & red	136	148
Basalt, red, soft-med, broken, vesicular	148	149
Basalt, black & brown, med, frac, vesicular	149	153
Basalt, black, med, frac & some vesicles	153	162
Basalt, black, hard, some fractures & vesicles	162	192
Sandstone, grey, hard, fractured	192	195
Clay & claystone, grey-brn-yellow, silty	195	297
Sandstone, brown, med w/some claystone	297	311
Clay, brown & grey, med w/some basalt	311	318
Basalt, brown then black, broken, vesicular	318	326
Basalt, dk grey, med-hard, frac & occ ves.	326	350
Basalt, dk grey, med-hard, w/blue-green frac	350	445
Basalt, grey, hard, some frac	445	494
Basalt, grey & brown, broken	494	495
Clay, brown, soft, sandy, some gravel, small	495	497
Basalt, brown-grey-black, bkn, med-soft, some CS	497	510
Basalt, grey, hard, some fractures	510	683
Basalt, grey & brown, very fractured	683	687
Claystone & clay, grey-bluegreen, med, w/basalt, brn	687	701
Claystone, brown w/clay, brown, soft, silty	701	702
Claystone, grey & bluegreen, sandy w/basalt, brown	702	714
Clay, green, soft, sandy	714	718

Start Date 1/6/04 Completed Date 4/21/04

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Driller/Engineer/Trainee Name (Print) Stephen J Schneider

Driller/Engineer/Trainee Signature Stephen J Schneider

Driller or trainee License No. 643

Drilling Company Schneider Equipment, Inc

Address 21881 River Road NE

City, State, Zip St. Paul, OR 97137

Contractor's Registration No. SCHNEI*226LG Date 5/21/04

If TRAINEE, Driller's Licensed No. _____ Driller's Signature _____

Ecology is an Equal Opportunity Employer. ECY 050-1-20 (Rev 2/03)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Please print, sign and return to the Department of Ecology

Water Well Report

Original – Ecology, 1st copy – owner, 2nd copy – driller

Construction/Decommission 205137

☑ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Current
Notice of Intent No. WE04779

Unique Ecology Well ID Tag No. AAS161

Water Right Permit No. G3-20382C

Property Owner Name City of Grandview

Well Street Address NA - Pecan St

City Grandview County Yakima

Location SW1/4-1/4 SW1/4 Sec 22 Twn 9N R 23 EWM or WWM ☑ circle one

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec N

Tax Parcel No. 23092299984

PROPOSED USE: ☐ Domestic ☐ Industrial ☑ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other _____

TYPE OF WORK: Owner's number of well (if more than one) 18

☐ New well ☐ Reconditioned ☐ Deepened *Method:* ☐ Dug ☐ Bored ☐ Driven ☐ Cable ☑ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 12x10 inches, drilled 495 ft.
Depth of completed well 485 ft

CONSTRUCTION DETAILS

Casing Installed: ☑ Welded Pitless " Diam. from +2.5 ft. to 5.5 ft.
☑ Liner installed 12 " Diam. from 5.5 ft. to 304 ft.
☐ Threaded 10 " Diam. from 260 ft. to 495 ft.

Perforations: ☑ Yes ☐ No
Type of perforator used factory mill cut
SIZE of perfs 3/16 in. by 3 in. and no. of perfs 304 from 339 ft. to 479 ft.

Screens: ☐ Yes ☑ No ☐ K-Pac Location _____
Manufacturer's Name _____
Type _____ Model No. _____
Diam _____ Slot size _____ from _____ ft. to _____ ft.
Diam _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: ☐ Yes ☑ No ☐ Size of gravel/sand _____
Materials placed from _____ ft. to _____ ft.

Surface Seal: ☑ Yes ☐ No To what depth? 304 ft.
Material used in seal cement (8-304) and bentonite (0-8) around pitless unit
Did any strata contain unusable water? ☐ Yes ☐ No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level approx 800 ft
Static level 69 ft. below top of well Date 6/22/06
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? ☑ Yes ☐ No If yes, by whom? Schneider
Yield: 340 gal/min. with 164 ft. drawdown after 1 hrs
Yield: 340 gal/min. with 221 ft. drawdown after 8 hrs.
Yield: 340 gal./min. with 281 ft. drawdown after 24 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
2	250	120	143	600	96
10	229	200	116	1000	87
60	170	400	105	1500	81

Date of test 6/13-14/06
Bailer test _____ gal/min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal/min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water ~67F Was a chemical analysis made? ☑ Yes ☐ No

CONSTRUCTION OR DECOMMISSION PROCEDURE

Formation: Describe by color, character, size of material and structure, and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information indicate all water encountered. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Topsoil, brown	0	1
Clay, brown, firm	1	29
Clay, brown, soft, silty-sandy	29	42
Claystone grey, hard, w/sand, black, coarse	42	47
Clay, grey, soft-medium	47	54
Clay, brown, soft-medium	54	74
Claystone, brown, medium	74	89
Basalt, brown, weathered, broken, vesicular	89	98
Basalt, black, medium-hard	98	110
Basalt, brown, med, frac, w/claystone, tan, med-soft	110	120
Basalt, black, hard, some fractures	120	149
Basalt, black, medium-hard	149	154
Clay, tan, medium-hard, silty-sandy	154	173
Clay, tan, soft-med, w/some small gravel 261-279	173	281
Basalt, blk & brn, soft, frac, ves w/CS, tan, hard	281	288
Basalt, black, med, some fractures & somes vesicular	288	376
Basalt, black, broken,	376	386
Basalt, dark grey, med-hard, fractured	386	406
Basalt, grey, hard, some fractures	406	426
Basalt, grey, hard, frac w/some claystone, grey, hard	426	
& some sand, black, medium		436
Basalt, grey hard, fractured	436	462
Claystone, grey, medium	462	463
Basalt, grey & black & some brown, medium-hard	463	
w/some claystone, grey, medium		467
Basalt, brown & black, broken	467	470
Basalt, dark brown, med-soft, fractured	470	472
Claystone, brown & tan, w/some basalt, black, soft	472	475
Clay, tan, soft, getting silty-sandy w/depth	475	479
Clay, green, soft, w/claystone, green, med, sloughs	479	489
Claystone & clay, green, medium, sloughs	489	495

Start Date 3/17/06 Completed Date 8/2/06

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Driller/Engineer/Trainee Name (Print) Stephen Schneider
Driller/Engineer/Trainee Signature Stephen Schneider
Driller or trainee License No. 0643

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Schneider Equipment, Inc.
Address 21881 River Road NE
City, State, Zip St Paul, OR 97137
Contractor's Registration No. SCHNEI*226LG Date 8/3/06

DEPT. OF ECOLOGY Received AUG 07 2006 CENTRAL REGION OFFICE

Ecology is an Equal Opportunity Employer ECY 050-1-20 (Rev 2/03)

13.
WATER RIGHT STATUS SUMMARY MEMORANDUM - 10/24/2011

HLA
Engineering and Land Surveying, Inc.

MEMORANDUM

Project No.: 090014

October 24, 2011

To: Cus Arteaga, City of Grandview

cc: Justin Bellamy, Huibregtse, Louman Associates, Inc.

From: Joe Morrice, LHG

Re: **City of Grandview Water Right Status Summary**

This memo summarizes the status of the City of Grandview's water rights following approval of 11 water right change applications by the Yakima County Conservancy Board and Department of Ecology. The purpose of the change applications was to consolidate the City's water rights and source wells within the Saddle Mountain Basalt Aquifer (SMBA) and the Wanapum Basalt Aquifer (WBA) into two well fields, allowing the City to exercise its water rights associated with a given aquifer at any and all of the City's wells within the same aquifer. The water right changes also authorize the City to drill up to two additional wells in each aquifer, designated as Future Wells A through D.

The outcomes of the approved water right changes are as follows:

- Saddle Mountain Basalt Aquifer wells. The City's water rights and source wells for the SMBA are summarized in Table 1. The City is authorized to pump a total of 2,755 gallons per minute (gpm) and 904 acre-feet per year (afy) from any combination of the 12 (9 active) existing and two potential future wells, plus any water pumped under permit G4-27784P (up to 2,500 gpm and 1,613 afy, see below) from future wells completed in the SMBA and well S10 (North Willoughby). The one additional limitation on pumping is that each individual SMBA well is limited to the historical instantaneous production rate, shown on Table 1. Except for permit G4-27784P these water rights have been perfected (put to full use) and water right certificates issued by Ecology. Except for drilling potential future wells and perfecting permit G4-27784P (see below), no additional action is required by the City with regard to these water rights.

- Wanapum Basalt Aquifer wells. The City's water rights and source wells for the WBA are summarized in Table 2. The City is authorized to pump a total of 1,700 gpm and 1,994 afy from any combination of the three existing and two potential future wells, plus any water pumped from WBA wells under permit G4-27784P (up to 2,500 gpm and 1,742 afy, see below). There is no limitation on the instantaneous withdrawal from any individual WBA well. Water right 791-A has been perfected and a certificate issued. Ecology determined that water right G3-20381 was not fully perfected, and will be reissuing this water right as a permit. Under the development schedule for G3-20381 the City will have until December 31, 2026 to put this right to full use and request a certificate. If water has not been put to full use by that time the City will likely be able to request an extension from Ecology.

- Permit G4-27784P authorizes withdrawals of 2,500 gpm and 1,742 afy. This permit can be used at the three existing WBA wells, future wells completed in the WBA and SMBA, plus SMBA well S10 (North Willoughby). The development schedule for putting this permit to full use was extended to December 31, 2026. When the City puts this water to use and requests a certificate (files a Proof of Appropriation), Ecology will issue separate certificates for sources completed in the SMBA and WBA. Instantaneous withdrawals from the SMBA under this permit are limited to a total of 1,000 gpm (quantities authorized for well S10 and the two future wells, if constructed in the SMBA). Assuming continuous production, the highest annual quantity that could be perfected in the SMBA under this permit is 1,613 afy.

- When the City files the Proof of Appropriation for Permit G4-27784P it is expected that Ecology will only issue a water right certificate for use greater than that authorized by the existing water right certificates for each source aquifer. For example, if the City wishes to certificate a portion of this permit for withdrawals from the SMBA, the City will need to demonstrate through source meter data that total withdrawals from the SMBA exceed the current certificated quantity of 904 afy. Use in excess of 904 afy that can also be shown to have come from approved SMBA source wells for Permit G4-27784P (i.e., S10, Future Well A, and Future Well B) would be eligible for certification.

- Future wells. Up to two additional wells are authorized in the SMBA and in the WBA, for a total of four wells. The development schedule on the water right changes requires well construction to be completed by December 31, 2021. Instantaneous withdrawals from future wells completed in the SMBA are limited to 250 gpm each.

- Application G4-29972. The City has one pending water right application filed in 1989. The recent water right changes do not alter the status of this application.

Limitations

Work for this project was performed and this memorandum prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of the City of Grandview for specific application to the referenced property. This memorandum does not represent a legal opinion. No other warranty, expressed or implied, is made.

Attachments

Table 1 –Water Rights and Sources, Saddle Mountain Basalt Aquifer
Table 2 –Water Rights and Sources, Wanapum Basalt Aquifer

S:\City of Grandview 090014\Report Drafts\WR Summary\Grandview Status Summary (102411).docx

Table 1 - Water Rights and Sources, Saddle Mountain Basalt Aquifer

City of Grandview, Washington
Project 090014

Water Right Document	Priority Date	Qi (gpm)	Qa (afy)
1338-A	10/8/1951	600	0
4455-A	8/14/1962	240	384
4456-A	8/14/1962	325	520
G3-20382C	7/27/1972	200	0
G3-20383C	7/27/1972	300	0
G3-20384C	7/27/1972	400	0
G4-24086C	8/22/1975	190	0
G4-25570C	10/13/1977	500	0
G4-27784P*	12/21/1981	2,500	1,613
Total (without G4-27784P)		2,755	904
Total (with G4-27784P)*		5,255	2,517

SMBA Source ID	Maximum Authorized Qi (gpm)	Current Well Capacities (gpm, per DOH WFI)
S01 – West Main	400	180
S03 – Velma	1,000	175
S04 – Orchard Tracts	600	Inactive
S06 – Euclid	240	30
S07 – Olmstead A	325	165
S08 – Appleway	200	Inactive
S10 – N. Willoughby	500	410
S11 – Highland	300	60
S12 – Pecan A	190	Inactive
S16 – Olmstead B	325	90
S17 – Asahel Curtis	600	160
S18 – Pecan B	190	180
Future Well A	250	N/A
Future Well B	250	N/A

Notes:
* Permit G4-27784P authorizes use at all Wanapum Basalt Aquifer source wells (see Table 2) plus Saddle Mountain Basalt Aquifer wells S10, Future Well A, and Future Well B. This permit authorizes annual withdrawals of up to 1,742 afy; however, due to limits on the instantaneous withdrawals from approved SMBA source wells the maximum that could be exercised from the Saddle Mountain Basalt Aquifer under this permit is 1,613 afy.
Qi - instantaneous withdrawal
Qa - annual withdrawal
gpm - gallons per minute
afy - acre-feet per year

Table 2 - Water Rights and Sources, Wanapum Basalt Aquifer

City of Grandview, Washington
Project 090014

Water Right Document	Priority Date	Qi (gpm)	Qa (afy)
791-A	8/15/1947	1,000	1,210
G3-20381P	7/27/1972	700	784
G4-27784P*	12/21/1981	2,500	1,742
Total (without G4-27784P)		1,700	1,994
Total (with G4-27784P)		4,200	3,736

WBA Source ID	Current Well Capacities (gpm, per DOH WFI)
S02 – Balcom & Moe	500
S13 – S. Willoughby	1,980
S14 – Butternut	1,490
Future Well C	N/A
Future Well D	N/A

Notes:
* Permit G4-27784P authorizes use at all Wanapum Basalt Aquifer source wells plus Saddle Mountain Basalt Aquifer wells S10, Future Well A, and Future Well B (see Table 1).
Qi - instantaneous withdrawal
Qa - annual withdrawal
gpm - gallons per minute
afy - acre-feet per year

CITY OF GRANDVIEW

14.
WATER RIGHT DOCUMENTS

HLA
Engineering and Land Surveying, Inc.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG4-27784 (YAKI-07-04)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD), Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology has **modified** the decision of the Board and the proposed change/transfer of water right is **approved** under the following conditions:

Summary of Ecology's Final Order

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	2,500	1,742	Continuous municipal supply

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Five (5) wells	

¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
SW	NE	23	9N	23 EWM	37	Yakima
NE	SW	13				
NE	SW	13				
NW	SW	22				
NW	SE	15				
NE	NW	24				

AT A POINT LOCATED:
PARCEL NO.

S02 – 23092313468, S10 – 23091331002, S13 – 23091331002, S14 – 23092231508, Future Well A or C – 23091542411, Future Well B or D – 23092421001, respectively

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,

DEVELOPMENT SCHEDULE		
BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER TO PUT TO FULL USE BY THIS DATE:
begun	December 31, 2021	December 31, 2026

Ecology has **MODIFIED** the decision of the Board as follows:

1. Because the City would like to retain flexibility in regards to drilling two additional points of withdrawal completed in the Wanapum aquifer and two additional points of withdrawal completed in the Saddle Mountains aquifer, "future well C and well D" will be added to the Report of Examination (ROE) and the Board's decision for ease of nomenclature for the portfolio of water rights and their sources.
2. The following provision will be ADDED:
   "Permit No. G4-27784P originally authorized three wells to be completed in either the Wanapum aquifer or the Saddle Mountains aquifer. Because regulation of this right may be necessary in the future, certificated quantities must be established for each aquifer. Following the City's submittal of Proof of Appropriation for Permit No. G4-27784P, this water right will be split based on actual beneficial use and two Certificates, an (A) portion and a (B) portion, will issue to separately reflect the portion of the Water Right Permit perfected within the Wanapum and Saddle Mountains aquifer. This would include any use perfected in future wells A, B, C, D, and existing well S14."

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608

Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Robert F. Barwin, Acting Section Manager
Water Resources Program
Central Region Office

RFB:BZ:gh
110833

Enclosures: *Your Right to Be Heard*
Construction Notice

By Certified Mail: 7007 2560 0001 9535 3137

cc: Janet Rajala, Department of Ecology, Easter Region Office (email pdf)
Sylvia Cervantes, Yakima County Water Conservancy Board
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____
Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-04 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June, 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board

Approve ☑
Deny ☐
Abstain ☐
Recuse ☐

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board

Approve ☑
Deny ☐
Abstain ☐
Recuse ☐

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board

Approve ☑
Deny ☐
Abstain ☐
Recuse ☐

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board

Approve ☐
Deny ☐
Abstain ☐
Recuse ☐

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	G4-27784P	December 21, 1981	YAKI-07-04

NAME			
City of Grandview			
ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal
☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	2,500	1,742 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Three wells (Sources S02, S10, and S13)	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY
S02 - 23092313468	SW	NE	23	9N	23E	37	Yakima
S10 - 23091331002	NE	SW	13				
S13 - 23091331002	NE	SW	13				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED
Area served by City of Grandview.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	2,500	1,742 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
6 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY
S02 - 23092313468	SW	NE	23	9N	23E	37	Yakima
S10 - 23091331002	NE	SW	13				
S13 - 23091331002	NE	SW	13				
S14 - 23092231508	NW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	2,500	1,742 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
6 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY
S02 – 23092313468	SW	NE	23	9N	23E	37	Yakima
S10 - 23091331002	NE	SW	13				
S13 - 23091331002	NE	SW	13				
S14 - 23092231508	NW	SW	22				
Future Well A - 23091542411	NE	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE

DESCRIPTION OF PROPOSED WORKS

One of the three additional points of withdrawal currently exists and is connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add one point of withdrawal under Groundwater Permit G4-27784P. The application was accepted at an open public meeting and the board assigned application number YAKI-07-04. The application was modified on December 15, 2009 to add two additional points of withdrawal (Future Well A and Future Well B). In total, three additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right G4-27784P

Priority date: December 21, 1981

Water quantities: Qi: 2,500 gpm Qa: 1,742 acre-ft/yr primary

Source: Three wells

Points of withdrawal: S02 - 2,100 feet south and 1,800 feet west of the NE corner of Section 23, T9N, R23E.W.M.

S10 - 2,600 feet north and 1,700 feet east of the SW corner of Section 13, T9N, R23E.W.M.

S13 - 2,100 feet north and 1,750 feet east of the SW corner of Section 13, T9N, R23E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: Area served by City of Grandview.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

A water right permit (G3-20381P) was issued to the City on June 27, 1983, authorizing the withdrawal of 2,500 gpm, 1,742 acre-ft/yr for municipal use. The authorized sources are well source numbers S02, S10, and S13, previously referred to as Well Nos. 3, 11, and 14, respectively. The permit specified that water be put to beneficial use by April 1, 1990. Ecology subsequently approved extensions of the development schedule. The most recent extension, approved in 2004, calls for water to be put to

beneficial use by April 1, 2012.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate well source S10 was originally capable of producing 573 gpm, S02 was originally capable of producing 700 gpm, and S13 was originally capable of producing 2,600 gpm. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source numbers S02, S10, and S13 combined have recently produced up to about 1,235 acre-ft/yr. Based on this information, the primary Qa of 1,742 acre-ft/yr authorized by G4-27784P has not been fully perfected. However, because the City is still within the development schedule, the authorized Qa of 1,742 acre-ft/yr remains in good standing.

Previous changes

There have been no previous changes on Permit G4-27784P.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application is to change a groundwater withdrawal of greater than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

No other pertinent information relative to the background of this water right was identified.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Three wells, including two of the wells authorized under Permit G4-27784P (S02 and S13), tap the Wanapum Basalt Formation. Eleven wells, including one well authorized under Permit G4-27784P (S10) tap the overlying Saddle Mountain Basalt Formation. Under the proposed change applications, the existing wells within a given aquifer would be added as additional points of withdrawal to each water right with a point of withdrawal from that aquifer, allowing the City greater flexibility to utilize the water rights throughout its well field. The City has also requested to add two potential future well locations as additional points of withdrawal from the Wanapum Formation and to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation.

For the subject application, only wells completed in the Wanapum Basalt Formation would be added as points of withdrawal. Requested Wanapum Aquifer points of withdrawal for Permit G4-27784P include well source number S14, existing points of withdrawal S02 and S13, and potential Future Well A and Future Well B. The authorized point of withdrawal from the Saddle Mountain Formation (S10) would be retained.

Other water rights appurtenant to the property

Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), requesting use of a well (source number S14) completed in the Wanapum Basalt Formation. Application G4-29972 is not subject to change and is not considered further in this investigation, although well source S14 is proposed as an additional point of withdrawal under the change application for Permit G4-27784P.

Eight certificated water rights authorize points of withdrawal from wells tapping the Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/yr)	Non-Additive Qa (acre-ft/yr)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Formation sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/yr)	Non-Additive Qa (acre-ft/yr)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13 (see text)	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

One well (source number S03, Groundwater Certificate 791-A) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Formation. Under the proposed water right changes, only wells completed in the Wanapum Formation would be added as points of withdrawal to certificate 791-A. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Formation.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A and G3-20381C are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) competed in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates 1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C). The combined annual quantity of water that

can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C).

However, regardless of the potential maximum quantities that could be withdrawn from either source, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the sources, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the following findings:

1. Source wells S02, S10, and S13 are capable of producing the full authorized Qi of 2,500 gpm.
2. Qa of 1,742 acre-ft/yr authorized by permit G4-27784P has not been fully perfected.
3. The current development schedule approved by Ecology for permit G4-27784P extends to April 1, 2012, such that authorized quantities remain in good standing.

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater for wells completed in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Wanapum Basalt Formation: S02, S13, and S14. Well sources interpreted to be completed in the Saddle Mountain Basalt Formation include S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and S04, which was decommissioned in 2003.

Review of geologic reports indicate there are no geologic structures mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed, east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Wanapum Basalt Formation as a single aquifer, the three City wells completed in the Wanapum Aquifer are in hydraulic continuity and tap the same source of public groundwater as each other. Completion of two proposed points of withdrawal (Future Well A and Future Well B) within the Wanapum Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Wanapum Basalt.

Potential for Impairment
The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Wanapum Formation. No water rights or wells tapping the Wanapum Aquifer were identified within two miles of the City's wells. The Wanapum Formation is relatively productive and, due to its depth and thickness, has available drawdown generally exceeding 800 feet. Based on these considerations, impairment of wells or other water rights due to adding points of withdrawal to the City's existing water rights for the Wanapum Formation is not considered likely.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 2,500 gpm and a primary Qa of 1,742 acre-feet/yr for municipal use.

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that the proposed additional point of withdrawal (S14) taps the same body of public groundwater as two of the wells (sources S02 and S13) authorized under Permit G4-27784P. If Future Well A and Future Well B are completed in the Wanapum Basalt they would also tap the same body of public groundwater as tapped by the well source numbers S02 and S13.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

There will be no impairment to existing water rights.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION Based on the above investigation and conclusions, the Board's decision is to approve the additional point of withdrawal, located as follows:

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S14 - 23092231508	NW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized points of withdrawal (Sources S02, S10, and S13) are retained without change in this decision.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

One of the three additional points of withdrawal is currently in operation and connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 2 day of June, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer

ATTACHMENT 1

September 9, 2010

CITY OF GRANDVIEW
HISTORIC WATER PRODUCTION
(values are in acre-feet)

Source No.	Source Name	Previous Source Name	Year														
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

REPORT OF EXAMINATION
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
December 21, 1981	G4-27784		

NAME
CITY OF GRANDVIEW

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second	Grandview,	Washington	98930

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Three (3) wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	2500	1742

QUANTITY, TYPE OF USE, PERIOD OF USE
For continuous municipal supply

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
A: 100 feet south and 1100 feet west from the center of Section 13;

B: 300 feet south and 900 feet west from the center of Section 13;

C: 2040 feet south and 1000 feet west from the northeast corner of Section 23

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, IE. OR W.I W.M.	W.R.I.A.	COUNTY
A & B: NE¼SW¼; C: NE¼	13/23	9	23 E.	37	Yakima

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by Grandview Municipal Water System.

DESCRIPTION OF PROPOSED WORKS

(A): a 400 horsepower vertical line shaft turbine pumping plant; (B): a 12" diameter well with a 500 gallon per minute pump; (C): a 12" diameter well with an 800 gallon per minute pump, connected to an existing municipal supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Begun	April 1, 1984	April 1, 1990

PROVISIONS

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gage may be installed in addition to the access port.

All water wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or fail to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand and the seal of this office at Yakima, *Washington, this* 3rd *day of* August, *19* 82.

Department of Ecology

by Russell K. Taylor

RUSSELL K. TAYLOR, REGIONAL MANAGER

ENGINEERING/DATA

OK RB

Site

DESCRIPTION OF PROPOSED WORKS

(A): a 400 horsepower vertical line shaft turbine pumping plant; (B): a 12" diameter well with a 500 gallon per minute pump; (C): a 12" diameter well with an 800 gallon per minute pump, connected to an existing municipal supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Begun	April 1, 1985	April 1, 1993

REPORT

Background

On December 21, 1981 the City of Grandview applied for authorization to appropriate 2500 gallons per minute (gpm) of public ground water for continuous municipal supply. The application was accepted and assigned No. G4-27784. Proper public notice was made and no objections were received during the 30-day protest period.

Investigation

A record search produced the following list of Ground Water Certificates for the City of Grandview. Numbers in brackets indicate supplemental water rights (non-additive) for the annual allocation.

Well Number	Certificate Number	GPM	acre-feet per year
1 & 2	G3-20384C	400	(640)
3	G3-20381C	700	784 (336)
4	791-A	1000	1210
5	1338-A	600	(784)
7	4455-A	240	384
8	4456-A	325	520
9	G3-20382C	200	(322)
10	G3-20383C	300	(480)
11	G3-20385C	40	64
12	G4-24086C	500	(306)
13	G4-25570C	500	0
		4805 gpm	2962 acre-feet

The total water right for Grandview is 2962 acre-feet not counting supplemental water rights.

File review shows the breakdown of how the supplemental water is allocated. Ground Water Certificate No. 791-A is supplemented by No. 1338-A and Nos. G3-20382C through G3-20384C. No. G3-20381C partly supplements No. 791-A. No. G4-24086C supplements all previous existing rights and No. G4-25570C was issued without any acre-foot allowance which results in it being supplemental to prior rights.

The field examination was conducted on October 1, 1982 by the undersigned. Mr. David Veley, the city supervisor, was contacted and a joint inspection of the well sites was conducted.

During discussion with Mr. Veley it was learned that 876 million gallons of water (2688 acre-feet) was pumped in 1981. Of that figure, one-half the consumption was industrial use. Population projections show that the population may increase from 6000 to 9000 by the year 2002. If the present use rate per capita stays the same, then 672 additional acre-feet of water would be required to support population growth. Additionally, the city expects to double the industrial demand due to increases in fruit packing, canning and other processing. The industrial requirement, therefore, may increase an additional 1344 acre-feet by the year 2002. Based upon the preceding logic the total municipal water requirement for the year 2002 is projected to be 4706 acre-feet or 468 gallons per day per capita. Existing municipal water rights allow a use of 2962 acre-feet, therefore, an additional 1742 acre-feet of water are necessary to provide for this future expansion.

The applicant has requested 2500 gallons per minute (gpm). The source of this water is to be from three wells. Well A has recently been constructed and is 952 feet deep. Based on the pumping test it is supposed to produce 2000 gpm. Well B was previously constructed under G4-25570C and is 610 feet deep pumping 500 gpm. Well C was previously constructed under G3-20381C and is 687 feet deep pumping 800 gpm.

In function wells B and C will not be pumped at an instantaneous rate much beyond the previous authorizations of G4-25570C and G3-20381C, however, no expanded annual use was authorized under those rights. The current recommendation under G4-27784C allows 1742 acre-feet per year to be withdrawn from wells A, B and C.

Conclusions

1. Prior rights will not be adversely affected.

2. There is water available for this use.

3. Continuous municipal supply is a beneficial use and issuing a permit for said use would not be contrary to the public interest.

Recommendations

Based on the above, I recommend that 2500 gpm be allowed for continuous municipal supply. 1742 acre-feet of water should be allowed on an annual basis to fulfill projected water requirements for the year 2002.

Installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required. An air line and gage may be installed in addition to the access port.

All water wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under RCW 18.104 (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

REPORT BY: William W. Myers DATE: 27 June 1983
William W. Myers

APPROVED BY: Doug C. Clausing DATE: 6/27/83
Doug Clausing, Regional Supervisor

sks

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

March 20, 2013

City of Grandview
207 W 2nd St
Grandview WA 98930

Re: Water Right No. G3-20381P

Dear City of Grandview:

Enclosed is your Superseding Permit to be retained for your records. Please read the enclosed information sheet, as well as your entire Superseding Permit.

Our information indicates you have begun construction of your project. We are enclosing a *Construction Notice* form. Once you finish construction, submit the completed form to this office. **If you cannot complete your project by December 31, 2021, you must contact this office to apply for an extension.**

If you have any questions, please contact Teresa Mitchell at 509-575-2597.

Sincerely,
Guyla Galindo
Guyla Galindo, Secretary Sr.
Water Resources Program

120320

Enclosures: Superseding Permit
Construction Notice
Important Information About Your Water Right

DEPARTMENT OF ECOLOGY
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

SUPERSEDING PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON
Supersedes Permit Issued December 14, 1973

☒ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☐ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
July 27, 1972	G3-20381	G3-20381P	

NAME
City of Grandview

ADDRESS (STREET)	CITY	STATE)	ZIP CODE)
207 W. 2nd Street	Grandview	WA	98930

The applicant is hereby granted a permit to appropriate the following public waters of the State of Washington, subject to existing rights and to the limitations and provisions set out herein.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
5 Wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE -FEET PER YEAR
	700	784 primary/336 alternate, non-additive

QUANTITY, TYPE OF USE, PERIOD OF USE
Continuous municipal supply.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION--WITHDRAWAL
SO2 - 23092313468, S13 – 23091331002, S14 – 23092231508, Future Well A or C – 23091542411, Future Well B or D – 23092421001, respectively

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N	RANGE, EWM	WRIA	COUNTY
SW¼NE¼	23	9 N	23 EWM	37	Yakima
NE¼SW¼	13				
NE¼SW¼	22				
NW¼SE¼	15				
NE¼NW¼	24				

PARCEL NOS.	LATITUDE	LONGITUDE	DATUM
23092313468 23091331002 23092231508 23091542411 23092421001			

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)
N/A	N/A	N/A

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

The place-of-use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place-of-use of this water right if the criteria in section RCW 90.03.386(2) are not met.

DESCRIPTION OF PROPOSED WORKS

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

PROVISIONS

This permit shall be subject to cancellation should the permittee fail to comply with the above development schedule and/or to give notice to the Department of Ecology on forms provided by that Department documenting such compliance.

Given under my hand the seal of this office at Yakima, Washington, this 19 *day of* MARCH *2012.*

Ted Sturdevant, Director
Department of Ecology

DATA REVIEW

OK

by

Mark Kemner LHG
Section Manager
Water Resources Program/CRO

If you need this publication in an alternate format, please call Water Resources Program at 509 575 2490. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

SUPERSEDING PERMIT

WRTS File No. G3-20381P

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

March 20, 2012

City of Grandview
Attn: Cus Arteaga, City Administrator
207 W 2nd St
Grandview WA 98930-1360

Re: Water Right No. G3-20381C

Dear Mr. Arteaga:

Enclosed is a Rescinding Order which rescinds Certificate of Water Right No. G3-20381C dated December 27, 1974. If you have any questions, please contact Teresa Mitchell at 509-575-2597.

Sincerely,

Mark Kemner, LHG
Section Manager
Water Resources Program

MK:CLG:gh
120314a

Enclosure: *Rescinding Order*

cc: Justin Bellamy, Huibregtse, Louman Associates, Inc.

By certified mail 7007 2560 0001 7675 6933

Department of Ecology
Central Region Office
15 West Yakima Avenue, Suite 200
Yakima WA 98902-3452

DEPARTMENT OF ECOLOGY
State of Washington

**BEFORE THE
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON**

IN THE MATTER OF AN ADMINISTRATIVE ORDER TO GROUND WATER CERTIFICATE NO G3-20381C	))))	Rescinding Order Docket No. 9059

TO: City of Grandview
207 W. 2nd Street
Grandview, WA 98930-1360

On December 27, 1974, Ecology issued Certificate of Water Right No. G3-20381C. After a request for a change to add four points of withdrawal, the Yakima Conservancy Board issued a Report of Examination on June 2, 2011. Ecology subsequently modified the Board's decision dated August 17, 2011, stating that Ecology had prematurely issued a "pumps and pipes" Certificate in 1974, a business practice that the Supreme Court found to be *ulta vires* in the case of *Ecology v. Theodoratus* (1998). In so stating, Ecology presented two options for the City of Grandview to resolve the issue. In a letter dated October 27, 2011, the City of Grandview requested Ecology to rescind Ground Water Certificate No. G3-20381C and to issue a Superseding Permit.

Ecology is therefore rescinding the Certificate and concurrently issuing Superseding Permit No. G3-20381P.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Rd SW Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Dated this 19 day of MARCH 2012.

Mark Kemner, Section Manager
Water Resources Program
Department of Ecology

MK:CLG:gh
120314

DATA REVIEW
OK

CITY OF GRANDVIEW

207 W. 2nd Street • Grandview, Washington 98930 • (509) 882-9200

October 27, 2011

Department of Ecology
Central Regional Office
Water Resources Program
15 W. Yakima Avenue, Suite 200
Yakima, WA 98902

Attn: Robert F. Barwin, Acting Section Manager

Re: City of Grandview
Water Right Change Application No. CG3-20381C@1 (YAKI-07-05)
Ecology Modifications

Dear Robert:

In your letter dated August 17, 2011, Ecology made three modifications to the Yakima County Water Conservancy Board's decision on the above water right change application. The third modification provides two options for the City to satisfy the original intent of Certificate No. G4-20381C, as interpreted by Ecology, to provide water for new growth and system demand.

The City of Grandview has chosen to select option one, in which Ecology will issue a Superceding Permit for the full instantaneous and annual quantities of 700 gallons per minute and 784 acre-feet primary/336 acre-feet alternate, non-additive, as stated in the Final Order of the change application for this right. To be consistent with the development schedules of the City's ten other change applications, the City requests that the development schedule of the Superceding Permit for G4-20381C remain the same as the dates stated in Ecology's Final Order of December 31, 2021 for completion of the project, and December 31, 2026 for putting the water to full beneficial use.

As evidence to support continued diligence by the City towards perfecting this right, enclosed is a copy of Section 2.6 of the City's current Water System Plan, which provides tables showing projected future water system demands of about 3,200 acre-feet per year in 2028. This compares to the City's current primary water rights under Certificate Nos. 791-A, 4455-A and 4456-A of 2,114 acre-feet per year. Should you have any questions or need any further information, please contact me at (509) 882-9213.

Very truly yours,

Cus Arteaga,
City Administrator

Enclosure: (1) Copy – City of Grandview Water System Plan, Section 2.6

Copy: Justin Bellamy, PE – Huibregtse, Louman Associates, Inc.
Joe Morris, LHG – Aspect Consulting, LLC
Breean Zimmerman – DOE

TABLE 2-16 WATER DEMANDS BY USER CATEGORY EQUIVALENT RESIDENTIAL UNIT FACTORS						
User Category	Average Annual (2003 - 2007)		Maximum Day (October 2003)		Peak Hour (October 2003)	
	GPD/Service	ERUs	GPD/Service	ERUs	GPM/Service	ERUs
Single-Family Residential	269	1.0	349	1.0	0.5	1.0
Outside Residential	281	1.0	387	1.1	0.5	1.0
Multi-Family Residential	1,940	7.2	2,312	6.6	3.2	6.4
Mobile Home Residential	251	0.9	352	1.0	0.5	1.0
Commercial	569	2.1	893	2.6	1.2	2.4
Industrial	33,752	125.5	127,033	364.0	176.4	352.8
Government	1,764	6.6	2,193	6.3	3.0	6.0
Standpipe	117	0.4	349*	1.0	0.5	1.0

* There were no Standpipe Services in October 2003. MDD and PHD values for standpipe have been estimated using the 2007 standpipe water consumption values.

2.6 FORECAST OF FUTURE WATER DEMAND

Water use is contingent upon a number of varying and uncertain factors, which makes forecasting future demand difficult. Of primary importance are the following factors:

1. Population;
2. Type of residential development, i.e., single-family, multi-family, rural, large or small lot;
3. Per capita income;
4. Types of commercial and industrial enterprises;
5. Climate;
6. Irrigation use of water; and
7. Price charged for water and type of rate structure, i.e., whether individual service meters are used and, if so, the base water quantity and cost.

Table 2-16 identifies the water service consumption by user category for annual average day, maximum day, and peak hour demand. Forecasting future system demands is based upon the projected number of single-family residential, multi-family residential, commercial, industrial, and government water services, and the annual average day, maximum day, and peak hour water demand.

As stated previously in this chapter, although Grandview adopted the "Medium" population projection, greater than expected county-wide growth has occurred, and the Yakima Valley Conference of Governments has recommended the City use the "High" population estimate of 12,279 for the year 2025 in projecting future growth and demand on City services. For the purpose of this Water System Plan, the "High" population estimate will be used, and the various water services are projected to be as shown in Table 2-17.

TABLE 2-17 FUTURE WATER SERVICES						
	2014		2018		2028	
	Services	ERUs*	Services	ERUs*	Services	ERUs*
Single-Family Residential	2,270	2,270.0	2,424	2,424.0	2,854	2,854.0
Outside Single-Family Residential	76	76.0	76	76.0	76	76.0
Multi-Family Residential	54	388.8	57	410.4	68	489.6
Mobile Home Residential	447	402.3	478	430.2	562	505.8
Commercial	212	445.2	226	474.6	266	558.6
Industrial	31	3,890.5	34	4,267.0	39	4,894.5
Government	33	217.8	35	231.0	41	270.6
Standpipe	3	1.2	4	1.6	4	1.6
TOTAL SERVICES	3,126	7,691.8	3,334	8,314.8	3,910	9,650.7
* ERUs based on average annual water demand for the period 2003-2007 as shown in Table 2-17.						

Other factors such as income, climate and water cost will be assumed to remain consistent with current trends. Climate does have a major influence on Grandview's water consumption because of the use of domestic water supply for irrigation purposes. However, the area's climate has remained reasonably consistent with historical averages.

Table 2-18 provides the future water demand forecast for the City of Grandview by the year 2014, Table 2-19 provides the future water demand forecast for the City of Grandview by the year 2018, and Table 2-20 provides the future water demand forecast for the City of Grandview by the year 2028. To accommodate the uncertainties in projecting future water demand and to account for system losses (non-revenue water) which have been discussed previously, an additional 10% contingency factor has been applied to these projections.

TABLE 2-18 FUTURE WATER DEMAND FORECAST FOR YEAR 2014				
Type of Service	Number of Services	Annual Demand (MG)	Maximum Day Demand (gallons)	Peak Hour Demand (GPM)
Single-Family Residential	2,270	222.880	792,230	1,135
Outside Single-Family Residential	76	7.795	29,412	38
Multi-Family Residential	54	38.237	124,848	173
Mobile Home Residential	447	40.952	157,344	224
Commercial	212	44.029	189,316	254
Industrial	31	381.904	3,938,023	5,468
Government	33	21.247	72,369	99
Standpipe	3	0.128	1,047	2
Subtotal	3,126	757.172	5,304,589	7,393
10% Contingency		75.717	530,459	739
TOTAL	3,126	832.889	5,835,048	8,132

TABLE 2-19 FUTURE WATER DEMAND FORECAST FOR YEAR 2018				
Type of Service	Number of Services	Annual Demand (MG)	Maximum Day Demand (gallons)	Peak Hour Demand (GPM)
Single-Family Residential	2,424	238.000	845,976	1,212
Outside Single-Family Residential	76	7.795	29,412	38
Multi-Family Residential	57	40.362	131,784	182
Mobile Home Residential	478	43.792	168,256	239
Commercial	226	46.937	201,818	271
Industrial	34	418.862	4,319,122	5,998
Government	35	22.535	76,755	105
Standpipe	4	0.171	1,396	2
Subtotal	3,334	818.454	5,774,519	8,047
10% Contingency		81.845	577,452	805
TOTAL	3,334	900.299	6,351,971	8,852

TABLE 2-20 FUTURE WATER DEMAND FORECAST FOR YEAR 2028				
Type of Service	Number of Services	Annual Demand (MG)	Maximum Day Demand (gallons)	Peak Hour Demand (GPM)
Single-Family Residential	2,854	280.220	996,046	1,427
Outside Single-Family Residential	76	7.795	29,412	38
Multi-Family Residential	68	48.151	157,216	218
Mobile Home Residential	562	51.488	197,824	281
Commercial	266	55.244	237,538	319
Industrial	39	480.460	4,954,287	6,880
Government	41	26.398	89,913	123
Standpipe	4	0.171	1,396	2
Subtotal	3,910	949.927	6,663,632	9,288
10% Contingency		94.993	666,363	929
TOTAL	3,910	1,044.920	7,329,995	10,217

Table 2-21 summarizes the current and future 6-year and 20-year water rights, source capacity, and water demands for the City of Grandview.

Water Rates and Impacts on Water Demand

Water service charges are set by ordinance of the City Council. The current water service charges were last adopted in January 2008. A copy of the current water service charges (City Code Chapter 13.28) is included in the Miscellaneous Documents Chapter (Chapter 10) of this plan.

TABLE 2-21 CURRENT AND FUTURE WATER RIGHTS, SOURCE CAPACITY, AND WATER DEMAND SUMMARY

Year	System Water Demand					Existing Source Capacity		Existing Water Rights		
	# of ERUs[a]	Total Annual Demand	ADD	MDD	PHD	Pumping Capacity	Maximum Daily Capacity	Water Rights Qi		Water Rights Qa
		MG/Year	MGD	MGD	GPM	GPM	MGD	GPM	MGD	MG/Year
2007	6,924.8	699.904[b]	1.912[b]	4.605[c]	6,395[c]	5,390	7.761	6,955	10.015	1,511.944
2014	7,691.8	832.889	2.282	5.835	8,132	5,390	7.761	6,955	10.015	1,511.944
2018	8,314.8	900.299	2.467	6.352	8,852	5,390	7.761	6,955	10.015	1,511.944
2028	9,650.7	1,044.920	2.863	7.330	10,217	5,390	7.761	6,955	10.015	1,511.944

[a] Based on the average annual 2003-2007 ERU values shown on Table 2-17.
[b] Existing total annual demand and ADD are based on Year 2004 consumption values (the year of highest annual consumption).
[c] Existing MDD and PHD quantities are based on maximum month consumption experienced in October 2003.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG3-20381C@1 (YAKI-07-05)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD), Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology has **modified** the decision of the Board and the proposed change/transfer of water right is **approved** under the following conditions:

Summary of Ecology's Final Order

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	700	784 primary 336 alternate, non-additive	Continuous municipal supply

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Five (5) wells	

¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
SW	NE	23	9N	23 EWM	37	Yakima
NE	SW	13				
NW	SW	22				
NW	SE	15				
NE	NW	24				

AT A POINT LOCATED:
PARCEL NO.

S02 – 23092313468, S13 – 23091331002, S14 – 23092231508, Future Well A or C – 23091542411, Future Well B or D – 23092421001, respectively

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,

DEVELOPMENT SCHEDULE		
BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER TO PUT TO FULL USE BY THIS DATE:
begun	December 31, 2021	December 31, 2026

Ecology has **MODIFIED** the decision of the Board as follows:

1. References and statements to future well A and well B are DELETED and REPLACED with "future well C and well D" for ease of nomenclature for the portfolio of water rights and their sources.
2. The following provision is ADDED:
"Future well C and well D are only authorized under Certificate No. G3-20381C only if completed in the Wanapum aquifer."
3. The following provision is ADDED:
"Certificate No. G4-20381C originally issued by Ecology for 700 gpm and 1120 acre-feet as a 'pumps-and-pipes certificate', a business practice that the Supreme Court found to be *ultra vires* in the case *Ecology v. Theodoratus* (1998). Based on metering data reviewed by the Board, the peak use perfected to-date from authorized well S02 under Certificate No. G4-220381 is 700 gpm and 349 acre-feet. The Board erred in finding that use by wells S10, S12 and S18 from a different aquifer were used to perfect Certificate No. G4-20381C. Only water withdrawn from the authorized aquifer (the Wanapum aquifer) or ground water body may be used to perfect the water right, regardless of any non-additive water right relationship Certificate No. G4-20381C may share with other water rights.

   Additionally, in concluding that Certificate No. G4-20381C has been perfected, the Board did not consider the original intent of the City under Certificate No. G4-203181C. An 'appropriation of water consists of the intention, accompanied by reasonable diligence, to use the water for the purposes originally contemplated at the time of its diversion.' *Offield v. Ish*, (1899). The intent of Certificate No. G4-20381C was to provide approximately 784 acre-feet for new growth, with the remaining 336 acre-feet as a non-additive alternate source. In order to perfect the additive quantity of Certificate No. G4-20381C and be consistent with its intent to provide water supply for new growth, then 784 acre-feet must be used in addition to Certificates No. 791-A, 4455-A and 4456-A. If the City decides to no longer pursue the original intent with diligence, then the 784 acre-feet could be instead authorized as a non-additive alternate quantity.

   Consistent with Ecology's interpretation of state law, the City shall provide evidence of the following by October 31, 2011:

   1. The City of Grandview shall provide Ecology with the evidence to support continued diligence and steps taken to perfect the water authorized through this Certificate, the need for the additional 784 acre-feet originally contemplated for growth, and a timeline when such growth is anticipated. If due diligence has been exercised and future growth planned, then Ecology will rescind this Certificate it prematurely issued in 1974, and issue a Superseding Permit (with a reasonable

development schedule) to allow the City to develop and put this water to full beneficial use; **OR**

2. The City of Grandview shall file a Proof of Appropriation for the water currently being pumped from the City's source well no. S02, in which instance Ecology shall issue a Superseding Certificate recognizing only the perfected quantities from the Wanapum aquifer (S02) as additive and the remainder as non-additive."

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Robert F. Barwin, Acting Section Manager
Water Resources Program
Central Region Office

RFB:BZ:gh
110834

Enclosures: *Your Right to Be Heard*
Construction Notice

By Certified Mail: 7007 2560 0001 9535 3137

cc: Janet Rajala, Department of Ecology, Easter Region Office (email pdf)
Sylvia Cervantes, Yakima County Water Conservancy Board
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____

Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-05 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June, 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board
☑ Approve ☐ Deny ☐ Abstain ☐ Recuse

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board
☑ Approve ☐ Deny ☐ Abstain ☐ Recuse

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board
☑ Approve ☐ Deny ☐ Abstain ☐ Recuse

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board
☐ Approve ☐ Deny ☐ Abstain ☐ Recuse

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	G3-20381C	July 27, 1972	YAKI-07-05

NAME			
City of Grandview			
ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal
☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	700	784 primary 336 alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
A well (Source S02)	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
23092313468	SW	NE	23	9N	23E	37	Yakima

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED
Area served by City of Grandview.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	700	784 primary 336 alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
5 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S02 - 23092313468	SW	NE	23	9N	23E	37	Yakima
S13 - 23091331002	NE	SW	13				
S14 - 23092231508	NW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	700	784 primary 336 alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
5 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY
S02 - 23092313468	SW	NE	23	9N	23E	37	Yakima
S13 - 23091331002	NE	SW	13				
S14 - 23092231508	NW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,

DESCRIPTION OF PROPOSED WORKS

Two of the four additional points of withdrawal currently exist and are connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add two points of withdrawal under Groundwater Certificate G3-20381C. The application was accepted at an open public meeting and the board assigned application number YAKI-07-05. The application was modified on December 15, 2009 to add two additional points of withdrawal (Future Well A and Future Well B). In total, four additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right G3-20381C

Priority date: July 27, 1972

Water quantities: Qi: 700 gpm Qa: 784 acre-ft/yr primary, 336 acre-ft/yr alternate, non-additive to existing rights

Source: A well

Point of withdrawal: 2,100 feet south and 1,800 feet west of the NE corner of Section 23, Township 9N, Range 23E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: Area served by City of Grandview.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

A water right permit (G3-20381P) was issued to the City on December 14, 1973, authorizing the withdrawal of 700 gpm, 1,120 acre-ft/yr for municipal use. The authorized source is well source number S02, previously referred to as Well No.3. The authorization limited total rights from all City sources at that time to 2,898 acre-ft/yr. The City's primary rights prior to issuance of Permit G3-20381P totaled 2,114 acre-ft/yr, effectively limiting the authorization to 784 acre-ft/yr of primary right and 336 acre-ft/yr, alternate, non-additive right to existing water right certificates 791-A, 4455-A, and 4456-A. A water right certificate

was issued on December 27, 1974 with the same quantities authorized in the permit.

Two Groundwater Certificates (G4-24086C and G4-25570C) were subsequently issued to the City as "supplemental to any and all existing rights". No primary Qa was authorized with these certificates. Under Ecology Water Resources Program Policy-1040, *Use of Terms that Clarify Relationships Between Water Rights*, the term supplemental is no longer used. Certificates G4-24086C and G4-25570C are interpreted as being alternate, non-additive to all existing primary annual rights, including certificate G3-20381C. Authorized sources for these certificates are S10 (G4-25570C) and S12 (G4-24086C). Source well S12 is currently inactive and was replaced by a new well, source S18, in 2006. Based on the relationship of G4-24086C and G4-25570C to preexisting rights, the annual pumping from sources S10 and S12 or S18 can be considered as exercising the primary annual right authorized by G3-20381C.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate well source S02 was originally equipped with a 100 hp pump capable of producing the authorized Qi of 700 gpm. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source number S02 has recently produced up to 349 acre-ft/yr, S10 has produced up to 617 acre-ft/yr, and sources S12 or replacement well S18 have produced up to 196 acre-ft/yr. In 2007 these sources produced a combined 945.4 acre-ft, of which 784 acre-ft can be attributed to the primary annual right authorized by G3-20381C. Based on this information, the Qi of 700 gpm and the primary Qa of 784 acre-ft/yr authorized by G3-20381C has been perfected.

Previous changes

There have been no previous changes on Certificate G3-20381C.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application, combined with other concurrent applications, is to change groundwater withdrawals of more than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

The City completed SEPA for the water right consolidation project as a whole. On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

Claim No. 118947, held by the City, claims the right to use water authorized under G3-20381C. This claim will remain active in the event an adjudication occurs and the earlier priority date of the claim is confirmed by the court.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Three wells, including the well authorized under Certificate G3-20381C, tap the Wanapum Basalt Formation and eleven wells tap the overlying Saddle Mountain Basalt Formation. Under the proposed change applications, the existing wells within a given source would be added as additional points of withdrawal to each water right with a point of withdrawal from that source, allowing the City greater flexibility to utilize the water rights throughout its well field. The City has also requested to add two potential future well locations as additional points of withdrawal from the Wanapum Formation and to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation. Requested Wanapum Basalt Formation points of withdrawal for Certificate G3-20381C include well source numbers S02 (existing point of withdrawal), S13, S14, and potential Future Well A and Future Well B.

Other water rights appurtenant to the property

Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), requesting use of a well (source number S14) completed in the Wanapum Basalt Formation. Application G4-29972 is not subject to change and is not considered further in this investigation, although well source S14 is proposed as an additional point of withdrawal under the change application for Certificate G3-20381C.

Eight certificated water rights authorize points of withdrawal from wells tapping the Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/yr)	Non-Additive Qa (acre-ft/yr)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Formation sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/yr)	Non-Additive Qa (acre-ft/yr)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13 (see text)	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

Permit G4-27784P authorizes three points of withdrawal, two of which are completed in the Wanapum Aquifer (S02 and S13), and one of which is completed in the Saddle Mountain Formation (S10). One well (source number S03, Groundwater Certificate 791-A) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Aquifer. Under the proposed water right changes, only wells completed in the Wanapum Aquifer would be added as points of withdrawal to permit G4-27784P and certificate 791-A. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Aquifer.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A and G3-20381C are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain

Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) completed in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates 1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C). The combined annual quantity of water that can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C).

However, regardless of the potential maximum quantities that could be withdrawn from either source, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the sources, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the following findings:

1. The original pump installed in source well S02 was capable of producing 700 gpm.
2. Certificates G4-24086C and G4-25570C are alternate, non-additive rights to all previous water rights held by the City, including G3-20381C.
3. In 2007 the combined annual withdrawal from the sources authorized by G3-20381C, G4-24086C, and G4-25570C was 945.4 acre-ft, of which 784 acre-ft can be attributed to exercise of the primary right authorized under G3-20381C.

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater for wells completed in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Wanapum Basalt Formation: S02, S13, and S14. Well sources interpreted to be completed in the Saddle Mountain Basalt Formation include S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and S04, which was decommissioned in 2003.

Review of geologic reports indicate there are no geologic structures mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed, east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Wanapum Basalt Formation as a single body of groundwater, the three City wells completed in the Wanapum Formation are in hydraulic continuity and tap the same source of public groundwater as each other. Completion of two proposed points of withdrawal (Future Well A and Future Well B) within the Wanapum Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Wanapum Basalt.

Potential for Impairment

The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Wanapum Formation. No water rights or wells tapping the Wanapum Formation were identified within two miles of the City's wells. The Wanapum Formation is relatively productive and, due to its depth and thickness, has available drawdown generally exceeding 800 feet. Based on these considerations, impairment of wells or other water rights due to adding points of withdrawal to the City's existing water rights for the Wanapum Formation is not considered likely.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 700 gpm, a primary Qa of 784 acre-feet/yr, and a Qa of 161.4 acre-ft/yr alternate, non-additive to existing water right certificates 791-A, 4455-A, and 4456-A for municipal use. Data are not available to document whether the remaining alternate, non-additive quantity of 174.6 acre-ft/yr that was previously certificated has been put to beneficial use. This quantity is considered inchoate.

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that the two proposed additional points of withdrawal (S13 and S14) tap the same body of public groundwater as the well (Source S02) authorized under Certificate G3-20381C. If Future Well A and Future Well B are completed in the Wanapum Basalt they would also tap the same body of public groundwater as tapped by the well source number S02.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

There will be no impairment to existing water rights.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION Based on the above investigation and conclusions, the Board's decision is to approve the additional points of withdrawal, located as follows:

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S13 - 23091331002	NE	SW	13	9N	23E
S14 - 23092231508	NW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized point of withdrawal (Source S02) is retained without change in this decision.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

Two of the four additional points of withdrawal are currently in operation and connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 2 day of June, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer

ATTACHMENT 1

September 9, 2010

CITY OF GRANDVIEW
HISTORIC WATER PRODUCTION
(values are in acre-feet)

Source No.	Source Name	Previous Source Name	Year													
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

G3-20381C	G3-20381P	G3-20381	July 27, 1972

CITY OF GRANDVIEW

114 Avenue "A" Grandview Washington 98930

PUBLIC WATER TO BE APPROPRIATED

a well (No. 3)

700 1120

700 gallons per minute, 1120 acre feet per year, continuously, for municipal supply.

LOCATION OF DIVERSION WITHDRAWAL

... feet south and ... feet west of the northeast corner of Sec. 23

SE¼SW¼NE¼ 23 ... 37 Yakima

RECORDED PLATTED PROPERTY

... 45 Grandview

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by City of Grandview.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION

WATER RIGHT CLAIM

RECEIVED
DEPARTMENT OF ECOLOGY
JUN 20 74 129378
CASH __ OTHER ✓ NONE __

1. NAME CITY OF GRANDVIEW

ADDRESS City Hall

Grandview, Washington ZIP CODE 98930

2. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: Ground water (SURFACE OR GROUND WATER)

W.R.I.A. 37 (LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS well

B. IF SURFACE WATER, THE SOURCE IS

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:

A. QUANTITY OF WATER CLAIMED 700 gallons per min PRESENTLY USED 700 gal. per minute ~~[illegible]~~ (CUBIC FEET PER SECOND OR GALLONS PER MINUTE)

B. ANNUAL QUANTITY CLAIMED 1000 acre feet per year PRESENTLY USED 1000 acre ft. per year (ACRE FEET PER YEAR)

C. IF FOR IRRIGATION, ACRES CLAIMED ---- PRESENTLY IRRIGATED None

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: all year

4. DATE OF FIRST PUTTING WATER TO USE: MONTH YEAR 1944

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: FEET AND

FEET FROM THE CORNER OF SECTION

BEING WITHIN OF SECTION ~~22~~ 23 T. 9 N., R. 23 E (E. OR W.) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT 10 BLOCK 45 OF

City of Grandview
(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED:

Section 23; S 1/2 Section 22; S 1/2 of the S 1/2 of Sec. 14, Township 9 North, Range 23, E.W.M.

COUNTY Yakima

7. PURPOSE(S) FOR WHICH WATER IS USED: City Domestic and industrial

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: appropriation

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

X Ronald A. Nolan

DATE June 19, 1974

IF CLAIM FILED BY DESIGNATED REPRESENTATIVE, PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW.

☐ ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE.

RETURN ALL THREE COPIES WITH CARBONS INTACT, ALONG WITH YOUR FEE TO:
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION
P.O. BOX 829 OLYMPIA, WASHINGTON 98504

ORIGINAL DWR

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG4-GWC791-A (YAKI-07-06)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD), Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology has **modified** the decision of the Board and the proposed change/transfer of water right is **approved** under the following conditions:

Summary of Ecology's Final Order

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	566	1,210	Continuous municipal supply

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Five (5) wells	

¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
SW	NE	23	9N	23 EWM	37	Yakima
NE	SW	13				
NW	SW	22				
NW	SE	15				
NE	NW	24				

AT A POINT LOCATED:
PARCEL NO.

S02 – 23092313468, S13 – 23091331002, S14 – 23092231508, Future Well C – 23091542411, Future Well D – 23092421001, respectively

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,

DEVELOPMENT SCHEDULE		
BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER TO PUT TO FULL USE BY THIS DATE:
begun	December 31, 2021	December 31, 2026

Ecology has **MODIFIED** the decision of the Board as follows:

1. References and statements to future well A and well B are DELETED and REPLACED with "future well C and well D" for ease of nomenclature for the portfolio of water rights and their sources.
2. Future well C and well D are authorized under Certificate No. CG4-GWC791-A@1 only if completed in the Wanapum aquifer.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Robert F. Barwin, Acting Section Manager
Water Resources Program
Central Region Office

RFB:BZ:gh
110835

Enclosures: *Your Right to Be Heard*
Construction Notice

By Certified Mail: 7007 2560 0001 9535 3137

cc: Janet Rajala, Department of Ecology, Easter Region Office (email pdf)
Sylvia Cervantes, Yakima County Water Conservancy Board
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____

Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-06 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June, 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board
Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board
Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board
Approve ☒ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board
Approve ☐ Deny ☐ Abstain ☐ Recuse ☐

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	791-A	August 15, 1947	YAKI-07-06

NAME: City of Grandview

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal
☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)_____

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	1,000	1,210 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
A well (Source S03)	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
23092321441	NE	SE	22	9N	23E	37	Yakima

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED
Area served by City of Grandview.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	1,000	1,210 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
5 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S02 - 23092313468	SW	NE	23	9N	23E	37	Yakima
S13 - 23091331002	NE	SW	13				
S14 - 23092231508	NW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	566	1,210 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
5 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S02 - 23092313468	SW	NE	23	9N	23E	37	Yakima
S13 - 23091331002	NE	SW	13				
S14 - 23092231508	NW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

DESCRIPTION OF PROPOSED WORKS

Three of the five additional points of withdrawal currently exist and are connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add two points of withdrawal under Groundwater Certificate G3-20381C. The application was accepted at an open public meeting and the board assigned application number YAKI-07-06. The application was modified on December 15, 2009 to add two additional points of withdrawal (Future Well A and Future Well B). In total, five additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right 791-A

Priority date: August 15, 1947

Water quantities: Qi: 1,000 gpm Qa: 1,210 acre-ft/yr primary

Source: A well

Point of withdrawal: 1,500 feet north and 900 feet west of the SE corner of Section 22, Township 9N, Range 23E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: Area served by City of Grandview.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

Water right certificate 791-A was issued to the City on October 12, 1951 with a priority date of August 15, 1947, authorizing the withdrawal of 1,000 gpm, 1,210 acre-ft/yr for municipal use. The authorized source is well source number S03, previously referred to as Well No. 4.

Seven Groundwater Certificates (1338-A, G3-20381C through G3-20384C, G4-24086C, and G4-25570C) were subsequently issued to the City as partially or entirely supplemental to the primary annual quantity authorized by certificate 791-A. Under Ecology Water Resources Program Policy-1040, *Use of Terms that Clarify Relationships Between Water Rights*, the term supplemental is no longer used. These certificates are interpreted as being alternate, non-additive to certificate 791-A.

Authorized sources for these certificates are S04 and replacement well S17 (1338-A), S02 (G3-20381C), S08 (G3-20382C), S11 (G3-20383C), S01 (G3-20384C), S10 (G4-25570C), and S12 and replacement well S18 (G4-24086C). Based on the relationship of these rights to certificate 791-A, the annual pumping from the above sources can be considered as exercising the primary annual right authorized by 791-A.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate well source S03 was originally capable of producing a Qi of 566 gpm. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source number S03 has recently produced up to 513 acre-ft/yr. In the years 1993, 1995 through 2000, and 2007 source S03 and the alternate, non-additive sources listed above produced a combined quantity of between 1,250 and 1,640 acre-ft, of which up to 1,210 acre-ft can be attributed to the primary annual right authorized by certificate 791-A. Based on this information, a Qi of 566 gpm and a primary Qa of 1,210 acre-ft/yr authorized by 791-A has been perfected.

Previous changes

There have been no previous changes on Certificate 791-A.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application, combined with other concurrent applications, is to change groundwater withdrawals of more than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

The City completed SEPA for the water right consolidation project as a whole. On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

No other pertinent information relative to the background of this water right was identified.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Three wells tap the Wanapum Basalt Formation and eleven wells tap the overlying Saddle Mountain Basalt Formation. The source well for certificate 791-A (S03) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Formation.

Under the proposed change applications, the existing wells within a given source would be added as additional points of withdrawal to each water right with a point of withdrawal from that source, allowing the City greater flexibility to utilize the water rights throughout its well field. The City has also requested to add two potential future well locations as additional points of withdrawal from the Wanapum Formation and to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation. Requested Wanapum Basalt Formation points of withdrawal for Certificate 791-A include well source numbers S02, S13, S14, and potential Future Well A and Future Well B. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Formation.

Other water rights appurtenant to the property

Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), requesting use of a well (source number S14) completed in the Wanapum Basalt Formation. Application G4-29972 is not subject to change and is not considered

further in this investigation, although well source S14 is proposed as an additional point of withdrawal under the change application for Certificate 791-A.

Eight certificated water rights authorize points of withdrawal from wells tapping the Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/yr)	Non-Additive Qa (acre-ft/yr)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Formation sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/yr)	Non-Additive Qa (acre-ft/yr)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13 (see text)	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

Permit G4-27784P authorizes three points of withdrawal, two of which are completed in the Wanapum Formation (S02 and S13), and one of which is completed in the Saddle Mountain Formation (S10). Under the proposed water right changes, only wells completed in the Wanapum Formation would be added as points of withdrawal to permit G4-27784P.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A and G3-20381C are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) completed in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates 1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C). The combined annual quantity of water that

can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C).

However, regardless of the potential maximum quantities that could be withdrawn from either source, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the sources, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the following findings:

1. Source well S03 was originally capable of producing 566 gpm.
2. Certificates 1338-A, G3-20381C through G3-20384C, G4-24086C, and G4-25570C are alternate, non-additive rights to certificate 791-A.
3. In the years 1993, 1995 through 2000, and 2007 the combined withdrawals from source S03 and the alternate, non-additive sources exceeded the primary Qa authorized under certificate 791-A of 1,210 acre-ft/yr.

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater for wells completed in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Wanapum Basalt Formation: S02, S13, and S14. Well sources interpreted to be completed in the Saddle Mountain Basalt Formation include S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and S04, which was decommissioned in 2003. As discussed above, well source S03 previously tapped both the Saddle Mountain and Wanapum Basalt Formations, but was modified in 2006 to tap only the Saddle Mountain.

Review of geologic reports indicate there are no geologic structures mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed,

east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Wanapum Basalt Formation as a single body of groundwater, the three City wells currently completed in the Wanapum Formation are in hydraulic continuity and tap the same source of public groundwater as each other and tap the same source of public groundwater originally tapped by well source S03, the authorized point of withdrawal for certificate 791-A. Completion of two proposed points of withdrawal (Future Well A and Future Well B) within the Wanapum Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Wanapum Basalt.

Potential for Impairment
The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Wanapum Aquifer. No water rights or wells tapping the Wanapum Aquifer were identified within two miles of the City's wells. The Wanapum Formation is relatively productive and, due to its depth and thickness, has available drawdown generally exceeding 800 feet. Based on these considerations, impairment of wells or other water rights due to adding points of withdrawal to the City's existing water rights for the Wanapum Formation is not considered likely.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 566 gpm and a primary Qa of 1,210 acre-feet/yr for municipal use

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that the three proposed additional points of withdrawal (S02, S13, and S14) tap the same body of public groundwater as originally tapped by the well (Source S03) authorized under Certificate 791-A. If Future Well A and Future Well B are completed in the Wanapum Basalt they would also tap the same body of public groundwater as originally tapped by the well source number S03.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

There will be no impairment to existing water rights.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION Based on the above investigation and conclusions, the Board's decision is to approve the additional points of withdrawal, located as follows:

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S02 - 23092313468	SW	NE	23	9N	23E
S13 - 23091331002	NE	SW	13	9N	23E
S14 - 23092231508	NW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized point of withdrawal (Source S03) is no longer authorized as a point of withdrawal for certificate 791-A.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

Three of the five additional points of withdrawal are currently in operation and connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 2 day of June, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer

ATTACHMENT 1

September 9, 2010

CITY OF GRANDVIEW
HISTORIC WATER PRODUCTION
(values are in acre-feet)

Source No.	Source Name	Previous Source Name	Year													
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

S. F. No. 7361—3-51—3M [illegible]

CERTIFICATE RECORD NO. 2 PAGE NO. 75-A

STATE OF WASHINGTON, COUNTY OF Yakima

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY That CITY OF GRANDVIEW

of Grandview, Washington, has made proof

to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the ground waters of a well

located within SW¼ of NE¼ of NE¼ of Sec. 22, Twp. 9 N., Rge. 23 E.W.M.

for the purpose of municipal supply

under and subject to provisions contained in Ground Water Permit No. [illegible] issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is herby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 2 at page 75-A; that the right hereby confirmed dates from August 15, 1947; that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 1000 gallons per minute; 1210 acre-feet per year. [illegible]

A description of the lands to which such ground water right is appurtenant, and the place where such water is put to beneficial use, is as follows:

City of Grandview, Yakima County, Washington.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG4-GWC1338-A@1 (YAKI-07-08)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD) and Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology **AFFIRMS** the decision of the Board. A summary table of the decision follows:

Summary of Department of Ecology's Final Order

MAXIMUM CFS	MAXIMUM GPM		MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE		
	600		784, alternate, non-additive	Continuous municipal supply		
SOURCE Thirteen (13) wells			TRIBUTARY OF (IF SURFACE WATER)			
AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
S01 – 23092321441	NE	NW	23	9 N.	23 EWM	37	Yakima
S03 – 23092241550	NE	SE	22				
S06 – 23092211011	NE	NE	22				
S07 – 23091233002	SW	SW	12				
S08 – 23092232448	NW	SW	22				
S10 – 23091331002	NE	SW	13				
S11 – 23092432016	NW	SW	24				
S12 – 23092299984	SW	SW	22				
S16 – 23091233002	SW	SW	12				
S17 – 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A – 23091542411	NW	SE	15				
Future Well B – 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD					
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.					
PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE EWM

If you have any questions or concerns on the above information, please call Breean Zimmerman, Department of Ecology, at (509) 454-7647.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Sincerely,

Robert F. Barwin
Acting Section Manager
Water Resources Program

RFB:BZ:gh
110830

Enclosure: *Your Right To Be Heard*
Construction Notice

By Certified Mail: 7007 2560 0001 9535 3137

cc: Sylvia Cervantes, County Water Conservancy Board
Janet Rajala, Department of Ecology, ERO (email/pdf)
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____
Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-08 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June, 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board

Approve ☐ Deny ☐ Abstain ☐ Recuse ☐

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	Certificate 1338-A	October 8, 1951	YAKI-07-08

NAME: City of Grandview

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal
☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)_____

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	600	784, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
A well (Source S17)	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
23092142403	NW	SE	21	9N	23E	37	Yakima

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED
City of Grandview, Yakima County, Washington.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	600	784, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
14 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S04 - 23092142400	NW	SE	21				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	600	784, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
13 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

DESCRIPTION OF PROPOSED WORKS

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add ten points of withdrawal under Groundwater Certificate 1338-A. The application was accepted at an open public meeting, and the board assigned application number YAKI-07-08. The application was modified on December 5, 2007 to add two additional points of withdrawal (source well S03 and Future Well A) and modified again on December 15, 2009 to add one additional point of withdrawal (Future Well B). In total, 13 additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Joe Morrice of Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right 1338-A

Priority date: October 8, 1951

Water quantities: Qi: 600 gpm Qa: 784 acre-ft/yr, non-additive to Certificate of Groundwater Right 791-A

Source: A well

Point of withdrawal: 2,000 feet north and 1,500 feet west of the SE corner of Section 21, Township 9N, Range 23E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: City of Grandview, Yakima County, Washington.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

Water right certificate 1338-A was issued to the City on January 25, 1953 with a priority date of October 8, 1951, authorizing the withdrawal of 600 gpm, 784 acre-ft/yr for municipal use. The original authorized source was well source number S04, previously referred to as Well No. 5. This well was decommissioned in 2003 and replaced in 2004 by well source number S17.

The annual quantity of 784 acre-ft/yr was issued as supplemental to Groundwater Certificate 791-A, which authorizes use of well source number S03. Under Ecology Water Resources Program Policy-1040, *Use of Terms that Clarify Relationships Between Water Rights*, the term supplemental is no longer used. The annual quantity authorized by certificate 1338-A is interpreted as being alternate, non-additive to Groundwater Certificate 791-A.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate well source S04 was originally equipped with a 100 hp pump capable of producing of 700 gpm. This well was in operation until 2003. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source number S04 has recently produced up to 383.8 acre-ft/yr prior to being decommissioned, and that replacement source S17 produced up to 294.2 acre-ft/yr after coming online in 2004. Based on this information, the Qi of 600 gpm authorized by Certificate 1338-A has been perfected.

Previous changes

There have been no previous changes on Certificate 1338-A.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application, combined with other concurrent applications, is to change groundwater withdrawals of more than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

The City completed SEPA for the water right consolidation project as a whole. On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

No other pertinent information relative to the background of this water right was identified.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Eleven wells, including the well authorized under Certificate 1338-A, tap the Saddle Mountain Basalt Formation and three wells tap the deeper Wanapum Basalt Formation. Under the proposed change applications, the existing wells within a given source would be added as additional points of withdrawal to each water right with a point of withdrawal from that source, allowing the City greater flexibility to utilize the water rights throughout its well field. The City has also requested to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation and to add two potential future well locations as additional points of withdrawal from the Wanapum Formation. The proposed points of withdrawal from the Saddle Mountain Formation are listed on the first page of this report.

Other water rights appurtenant to the property

Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), which is not subject to change and is not considered further in this investigation. Eight certificated water rights authorize points of withdrawal from wells tapping the Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one

permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Formation sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

Permit G4-27784P authorizes three points of withdrawal, two of which are completed in the Wanapum Formation (S02 and S13), and one of which is completed in the Saddle Mountain Formation (S10). One well (source number S03, Groundwater Certificate 791-A) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Formation. Under the proposed water right changes, only wells completed in the Wanapum Formation would be added as points of withdrawal to permit G4-27784P and certificate 791-A. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Formation, including Certificate 1338-A.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A and G3-20381C are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) completed in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates 1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C) . The combined annual quantity of water that

can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C).

However, regardless of the potential maximum quantities that could be withdrawn from either source, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the sources, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the following findings:

1. The original pump installed in source well S04 was capable of producing the authorized 600 gpm.
2. The annual quantity of 784 acre-ft/yr is alternate, non-additive to the primary rights authorized by certificate 791-A.

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Saddle Mountain Basalt Formation: S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and decommissioned source S04. Well sources interpreted to be completed in the Wanapum Basalt Formation include S02, S13, and S14.

Based on review of geologic reports, no geologic structures are mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed, east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Saddle Mountain Basalt Formation as a single body of groundwater, the twelve City wells completed in the Saddle Mountain Formation are in hydraulic continuity and tap the same source of public groundwater as each other. Completion of two proposed points of withdrawal (Future Well A and Future Well B) within the Saddle Mountain Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Saddle Mountain Basalt.

Potential for Impairment

The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Saddle Mountain Formation. Five certificated groundwater rights were identified within or adjacent to the City. Attributes of these rights are summarized below.

Water Right Document	Person	Priority Date	Purposes	Qi (gpm)	Qa (acre-ft/ year)
G4-22918C	VANCE BILL M	4/29/1974	Irrigation, single domestic	60	33
G4-22873C	Swynenburg Brothers	4/10/1974	Single domestic	15	1
G4-23567C	LIBBY ET AL	6/19/1974	Commercial and industrial	250	134
G4-27273C	DAILEY ELLIS F	1/27/1981	Irrigation, frost protection	60	2.81
G4-*00357	Oregon & WA Railroad & Navigation Co	1/1/1912	Railway, group domestic	150	24.63

Three of these rights (G4-23567C, G4-27273C, and G4-*00357) are located within the City's current service area. To the best of their knowledge, the City does not believe these three rights are currently active.

Over 100 well logs were identified within about ½ mile of the City's wells, including about 25 logs for wells apparently located within the City's service area. Available water right and well log information indicates that all nearby wells are relatively shallow, tapping the upper portions of the Saddle Mountain Formation above the Pomona Member.

Four of the City's existing wells are completed above the Pomona Member, including source numbers S01, S06, S08, and S11. Additionally, planned Future Well A and Future Well B could be completed entirely above the upper portions of the Pomona Member, depending on conditions encountered during drilling and construction of these wells. Based on the indication of some degree of hydraulic separation between the portions of the Saddle Mountain Formation above and below the Pomona Member and the completion of all nearby non-City wells above the Pomona Member, the additional points of withdrawal with the greatest potential to cause impairment are source numbers S01, S06, S08, S11, and the two planned future wells.

Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the upper Saddle Mountain Formation near source numbers S01, S06, S08, S11, and the two planned future wells. Based on this review, there is one apparent domestic well mapped within approximately 1,500 feet of source well S01 and 2,300 feet of source well S06, one apparent domestic well potentially within approximately 1,000 feet of source well S03, and two apparent domestic wells mapped within approximately 1,500 feet of source well S11. No domestic wells appear to be located within about ½ mile of source well S08. Additionally, there are two domestic wells mapped within about 1,000 feet of Future well A and one domestic well mapped within about 900 feet of Future Well B. The City's operation of the existing wells completed in the upper Saddle Mountain Formation has not resulted in any reported impairment or significant drawdown interference with other nearby wells.

The City's existing wells completed above the Pomona Member currently have authorized Qi's under the existing water rights sufficient to utilize the maximum physical capacity of these wells, based on reported capacity in the City's Water System Plan. Therefore, the instantaneous withdrawals from these wells are not expected to increase under the proposed water rights changes. Since impairment (associated with drawdown interference) is largely a function of maximum instantaneous withdrawal rather than total annual withdrawal, adding source numbers S01, S06, S08, and S11 as additional points of withdrawal to Certificate 1338-A is unlikely to result in impairment of other wells or water rights.

Completion of the planned future wells above the upper portions of the Pomona Member would allow increased Qi from the upper Saddle Mountain Formation at these well locations. The potential for a new withdrawal at each of these locations to result in impairment of nearby rights or wells was evaluated by estimating the drawdown at a distance of 900 feet from the future wells (the closest mapped distance to an apparent domestic well), conservatively assuming pumping at the maximum rate of 250 gpm from a single source with a 12-hour-on, 12-hour-off pumping schedule over a period of 30 days. The City's public works director indicated that cycling of the City's other Saddle Mountain Formation sources during periods of high demand is typically less than 12 hours of operation per day and that this represented a reasonably conservative scenario for peak use of the planned wells. Assuming a transmissivity of 535 ft^2/day, based on specific capacity tests for the City's wells, and a storage coefficient of 10^{-4}, the maximum estimated drawdown after 30 days at a well located 900 feet from one of the future wells is about 27 feet.

Based on thickness and depth to groundwater in the upper Saddle Mountain Formation, available drawdown for a fully penetrating well completed above the Pomona Member would be about 200 feet. The estimated 27 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed above the Pomona Member, including domestic wells operating under the water right permit exemption. This conclusion is further supported by the lack of reported drawdown interference or impairment of domestic wells located near the City's existing wells completed in the

upper Saddle Mountain Formation. Should withdrawals at one of the new points of withdrawal result in impairment of other wells or water rights the City will have the flexibility to adjust pumping schedules to minimize drawdown impacts.

One or both of the future wells could be completed in the lower Saddle Mountain Formation (from the lower portion of the Pomona Member to above the Wanapum Formation) allowing increased Qi from these locations. Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the lower Saddle Mountain Formation near the proposed future wells. This review was limited to wells completed to depths of between 300 and 800 feet, corresponding to the depths of the lower Saddle Mountain Formation in the area. A total of six wells were identified within two miles of the planned future wells, all located east of Future Well B. The closest domestic well is located about 1.25 miles away. Using the same pumping scenario and aquifer parameters as assumed for evaluation of impairment for wells completed in the upper Saddle Mountain Formation, the maximum estimated drawdown after 30 days at a well located 1.25 miles from Future Well B is about 16 feet.

Based on thickness and depth to groundwater in the lower Saddle Mountain Formation, available drawdown for a fully penetrating well completed below the upper Pomona Member would be at least 400 feet. The estimated 16 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed below the Pomona Member, including domestic wells operating under the water right permit exemption.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 600 gpm and a Qa of 784 acre-ft/yr alternate, non-additive to existing water right certificate 791-A

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that twelve of the proposed additional points of withdrawal tap the same body of public groundwater as the well (Source S04/S17) authorized under Certificate 1338-A.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

The Board found no indication that the additional points of withdrawal will cause impairment of other groundwater uses of the Saddle Mountain Formation.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION

Based on the above investigation and conclusions, the Board's decision is to approve the additional points of withdrawal, located as follows:

Continued

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S01 - 23092321441	NE	NW	23	9N	23E
S03 – 23092241550	NE	SE	22	9N	23E
S06 - 23092211011	NE	NE	22	9N	23E
S07 - 23091233002	SW	SW	12	9N	23E
S08 - 23092232448	NW	SW	22	9N	23E
S10 - 23091331002	NE	SW	13	9N	23E
S11 - 23092432016	NW	SW	24	9N	23E
S12 - 23092299984	SW	SW	22	9N	23E
S16 - 23091233002	SW	SW	12	9N	23E
S18 - 23092299984	SW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized point of withdrawal (Source S17) is retained without change in this decision.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

Planned points of withdrawal Future Wells A and B shall be constructed such that each well is completed entirely in either the upper or lower Saddle Mountain Formation, defined as above or below the upper portions of the Pomona Member.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

The maximum instantaneous withdrawals from planned points of withdrawal Future Wells A and B shall not exceed 250 gpm each. The maximum instantaneous withdrawals from existing points of withdrawal shall not exceed the rates approved in the original water right authorizations and subsequently perfected, as follows:

Source ID	Maximum Authorized Qi (gpm)
S01	400
S03	1,000
S04	600
S06	240
S07	325
S08	200
S10	500
S11	300
S12	190
S16	325
S17	600
S18	190

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview's municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 2 day of June, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer.

ATTACHMENT 1
CITY OF GRANDVIEW
HISTORIC WATER PRODUCTION
(values are in acre-feet)

September 9, 2010

Source No.	Source Name	Previous Source Name	Year													
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

1338

S. P. 5th 1161- 3 51 -3M 27753.

CERTIFICATE RECORD No. 3 PAGE No. 1338-A

STATE OF WASHINGTON, COUNTY OF Yakima

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY That CITY OF GRANDVIEW, WASHINGTON

has made proof

to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the ground waters of a well

located within Tract 124, Grandview Orchard Tracts, Sec. 21, Twp. 9 N., Rge. 23 E.W.M.

for the purpose of municipal supply

under and subject to provisions contained in Ground Water Permit No. 2122 issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is herby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 3 at page 1338-A; that the right hereby confirmed dates from October 8, 1951; that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 600 gallons per minute; 784 acre-feet per year. [illegible]

A description of the lands to which such ground water right is appurtenant, and the place where such water is put to beneficial use, is as follows:

City of Grandview, Yakima County, Washington.

May 3, 1971

Mr. Gordon Blechschmidt
City Attorney for Grandview
P. O. Box 489
Grandview, Washington 98930

Dear Mr. Blechschmidt:

Receipt is acknowledged of your letter of April 28, 1971 in which you have made inquiry regarding the water rights currently held by the City of Grandview. The writer will attempt to compile a listing of the water rights held by the city as each right relates to the city's well numbering system. Such tabulation is as follows:

(We have no record of well No. 1, but apparently the well at this location is now referred to as well No. 2)

Well No. 2--location: NE¼NW¼ Sec. 23, T. 9 N., R. 23 E.W.M.--no recorded water rights exist for the benefit of this well and the city should probably register this well in accordance with the provisions of Chapter 90.14 RCW in order to preserve whatever rights they may enjoy.

Well No. 3--location: SW¼NE¼ Sec. 23, T. 9 N., R. 23 E.W.M.--as in the case of well No. 2, we have no recorded water rights relating to this well and registration of such rights should be effected.

Well No. 4--location: NE¼SE¼ Sec. 22, T. 9 N., R. 23 E.W.M.--this well is covered by Ground Water Certificate No. 791 which provides for the appropriation of 1,000 gallons per minute.

Well No. 5--location: NW¼SE¼ Sec. 21, T. 9 N., R. 23 E.W.M.--this well is covered by Ground Water Certificate No. 1338 which authorizes the withdrawal of 600 gallons per minute.

Well No. 6--location: NE¼SE¼ Sec. 23, T. 9 N., R. 23 E.W.M.--this well was originally covered by Ground Water Permit No. 2770; however, such permit was cancelled because this well had been abandoned.

City springs--location: SW¼SW¼ Sec. 12, T. 9 N., R. 23 E.W.M.--diversion from the springs is covered by Surface Water Certificate No. 6113 which allows the diversion of 2.0 cubic feet per second during the summer months and 1.0 cubic feet per second during the winter months.

Well No. 7--location: NE¼NE¼ Sec. 22, T. 9 N., R. 23 E.W.M.--withdrawals from this well are covered by Ground Water Certificate No. 4455 such withdrawal being in the amount of 250 gallons per minute.

Well No. 8--Location: SW¼SW¼ Sec. 12, T. 9 N., R. 23 E.W.M.--this well is covered by Ground Water Certificate No. 4456 which allows the withdrawal of 325 gallons per minute.

This office has no record of any water rights being associated with wells No. 9 and 10. It is our understanding that these wells were constructed in 1964 and 1969 respectively. In view of the fact that withdrawals from these wells do not appear to pre-date the Ground Water Code, applications for permits for such withdrawals should be secured by the City of Grandview. We are enclosing two ground water application forms for your use and are sending under separate cover two registration forms.

Should you have any further questions, please contact this office.

Very truly yours,

WILLIAM R. SMITH, Geologist
Department of Ecology

WRS:as

Enclosures

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG3-20384C@1 (YAKI-07-09)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD) and Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology **AFFIRMS** the decision of the Board. A summary table of the decision follows:

Summary of Department of Ecology's Final Order

MAXIMUM CFS	MAXIMUM GPM	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	400	640, alternate, non-additive	Continuous municipal supply

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Thirteen (13) wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
S01 – 23092321441	NE	NW	23	9 N.	23 EWM	37	Yakima
S03 – 23092241550	NE	SE	22				
S06 – 23092211011	NE	NE	22				
S07 – 23091233002	SW	SW	12				
S08 – 23092232448	NW	SW	22				
S10 – 23091331002	NE	SW	13				
S11 – 23092432016	NW	SW	24				
S12 – 23092299984	SW	SW	22				
S16 – 23091233002	SW	SW	12				
S17 – 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A – 23091542411	NW	SE	15				
Future Well B – 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD					
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.					
PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE EWM

If you have any questions or concerns on the above information, please call Breean Zimmerman, Department of Ecology, at (509) 454-7647.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Sincerely,

Robert F. Barwin
Acting Section Manager
Water Resources Program

RFB:BZ:gh
110831

Enclosure: *Your Right To Be Heard*
Construction Notice

By Certified Mail: 7007 2560 0001 9535 3137

cc: Sylvia Cervantes, County Water Conservancy Board
Janet Rajala, Department of Ecology, ERO (email/pdf)
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____

Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-09 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June, 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board

Approve ☐ Deny ☐ Abstain ☐ Recuse ☐

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	Certificate G3-20384C	October 8, 1951	YAKI-07-09

NAME: City of Grandview

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal
☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)_____

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	400	640, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
A well (Source S01)	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
23092321441	NE	NW	23	9N	23E	37	Yakima

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED
City of Grandview, Yakima County, Washington.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	400	640, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
14 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S04 - 23092142400	NW	SE	21				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	400	640, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
13 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

DESCRIPTION OF PROPOSED WORKS

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add thirteen points of withdrawal under Groundwater Certificate G3-20384C. The application was accepted at an open public meeting, and the board assigned application number YAKI-07-09. The application was modified on December 5, 2007 to add two additional points of withdrawal (source well S03 and Future Well A) and modified again on December 15, 2009 to add one additional point of withdrawal (Future Well B). In total, 13 additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Joe Morrice of Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right G3-20384C

Priority date: July 27, 1972

Water quantities: Qi: 400 gpm Qa: 640 acre-ft/yr, non-additive to Certificates of Groundwater Right 791-A, 4455-A, and 4456-A

Source: A well

Point of withdrawal: 2,800 feet south and 2,480 feet east of the NW corner of Section 23, Township 9N, Range 23 E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: City of Grandview, Yakima County, Washington.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

A water right permit (G3-20384P) was issued to the City on December 14, 1973, authorizing the withdrawal of 400 gpm, 640 acre-ft/yr for municipal use. The authorized source is well source number S01, previously referred to as Well No. 2. Water right certificate G3-20384C was issued on December 27, 1974, authorizing the withdrawal of 400 gpm, 640 acre-ft/yr. This certificate was issued on the same day and with the same priority date as the City's water right certificate G3-20381C. Per the underlying permits, these certificates limited total rights from all City sources at that time to 2,898 acre-ft/yr. The City's primary rights prior to issuance of these certificates totaled 2,114 acre-ft/yr. Review of the water rights records indicates that 784 acre-ft/yr of primary right was included in certificate G3-20381C, for a total of 2,898 acre-ft/yr of primary rights. This means the 640 acre-ft/yr issued under certificate G3-20384C is an alternate, non-additive right to existing water right certificates 791-A, 4455-A, and 4456-A.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate well source S01 was originally equipped with a 50 hp pump capable of producing the authorized 400 gpm. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source number S01 has recently produced up to 290.5 acre-ft/yr. Based on this information, the Qi of 400 gpm authorized by G3-20384C has been perfected.

Previous changes

There have been no previous changes on Certificate G3-20384C.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application, combined with other concurrent applications, is to change groundwater withdrawals of more than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

The City completed SEPA for the water right consolidation project as a whole. On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

Claim No. 118946, held by the City, claims the right to use water authorized under G3-20384C. This claim will remain active in the event an adjudication occurs and the earlier priority date of the claim is confirmed by the court.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Eleven wells, including the well authorized under Certificate G3-20384C, tap the Saddle Mountain Basalt Formation and three wells tap the deeper Wanapum Basalt Formation. Under the proposed change applications, the existing wells within a given source would be added as additional points of withdrawal to each water right with a point of withdrawal from that source, allowing the City greater flexibility to utilize the water rights throughout its well field. The City has also requested to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation and to add two potential future well locations as additional points of withdrawal from the Wanapum Formation. The proposed points of withdrawal from the Saddle Mountain Formation are listed on the first page of this report.

Other water rights appurtenant to the property

Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), which is not subject to change and is

not considered further in this investigation. Eight certificated water rights authorize points of withdrawal from wells tapping the Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Formation sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

Permit G4-27784P authorizes three points of withdrawal, two of which are completed in the Wanapum Formation (S02 and S13), and one of which is completed in the Saddle Mountain Formation (S10). One well (source number S03, Groundwater Certificate 791-A) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Formation. Under the proposed water right changes, only wells completed in the Wanapum Formation would be added as points of withdrawal to permit G4-27784P and certificate 791-A. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Formation, including Certificate G3-20384C.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A and G3-20381C are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) completed in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates 1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C). The combined annual quantity of water that can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C).

However, regardless of the potential maximum quantities that could be withdrawn from either source, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the sources, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the following findings:

1. The pump installed in source well S01 was capable of producing the authorized 400 gpm.
2. The annual quantity of 640 acre-ft/yr is alternate, non-additive to the primary rights authorized by certificates 791-A, 4455-A, and 4456-A.

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Saddle Mountain Basalt Formation: S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and decommissioned source S04. Well sources interpreted to be completed in the Wanapum Basalt Formation include S02, S13, and S14.

Based on review of geologic reports, no geologic structures are mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed,

east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Saddle Mountain Basalt Formation as a single body of groundwater, the twelve City wells completed in the Saddle Mountain Formation are in hydraulic continuity and tap the same source of public groundwater as each other. Completion of two proposed points of withdrawal (Future Well A and Future Well B) within the Saddle Mountain Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Saddle Mountain Basalt.

Potential for Impairment

The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Saddle Mountain Formation. Five certificated groundwater rights were identified within or adjacent to the City. Attributes of these rights are summarized below.

Water Right Document	Person	Priority Date	Purposes	Qi (gpm)	Qa (acre-ft/ year)
G4-22918C	VANCE BILL M	4/29/1974	Irrigation, single domestic	60	33
G4-22873C	Swynenburg Brothers	4/10/1974	Single domestic	15	1
G4-23567C	LIBBY ET AL	6/19/1974	Commercial and industrial	250	134
G4-27273C	DAILEY ELLIS F	1/27/1981	Irrigation, frost protection	60	2.81
G4-*00357	Oregon & WA Railroad & Navigation Co	1/1/1912	Railway, group domestic	150	24.63

Three of these rights (G4-23567C, G4-27273C, and G4-*00357) are located within the City's current service area. To the best of their knowledge, the City does not believe these three rights are currently active.

Over 100 well logs were identified within about ½ mile of the City's wells, including about 25 logs for wells apparently located within the City's service area. Available water right and well log information indicates that all nearby wells are relatively shallow, tapping the upper portions of the Saddle Mountain Formation above the Pomona Member.

Four of the City's existing wells are completed above the Pomona Member, including source numbers S01, S06, S08, and S11. Additionally, planned Future Well A and Future Well B could be completed entirely above the upper portions of the Pomona Member, depending on conditions encountered during drilling and construction of these wells. Based on the indication of some degree of hydraulic separation between the portions of the Saddle Mountain Formation above and below the Pomona Member and the completion of all nearby non-City wells above the Pomona Member, the additional points of withdrawal with the greatest potential to cause impairment are source numbers S01 (existing point of withdrawal), S06, S08, S11, and the two planned future wells.

Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the upper Saddle Mountain Formation near source numbers S01, S06, S08, S11, and the two planned future wells. Based on this review, there is one apparent domestic well mapped within approximately 1,500 feet of source well S01 and 2,300 feet of source well S06, one apparent domestic well potentially within approximately 1,000 feet of source well S03, and two apparent domestic wells mapped within approximately 1,500 feet of source well S11. No domestic wells appear to be located within about ½ mile of source well S08. Additionally, there are two domestic wells mapped within about 1,000 feet of Future well A and one domestic well mapped within about 900 feet of Future Well B. The City's operation of the existing wells completed in the upper Saddle Mountain Formation has not resulted in any reported impairment or significant drawdown interference with other nearby wells.

The City's existing wells completed above the Pomona Member currently have authorized Qi's under the existing water rights sufficient to utilize the maximum physical capacity of these wells, based on reported capacity in the City's Water System Plan. Therefore, the instantaneous withdrawals from these wells are not expected to increase under the proposed water rights changes. Since impairment (associated with drawdown interference) is largely a function of maximum instantaneous withdrawal rather than total annual withdrawal, adding source numbers S06, S08, and S11 as additional points of withdrawal to Certificate G3-20384C is unlikely to result in impairment of other wells or water rights.

Completion of the planned future wells above the upper portions of the Pomona Member would allow increased Qi from the upper Saddle Mountain Formation at these well locations. The potential for a new withdrawal at each of these locations to result in impairment of nearby rights or wells was evaluated by estimating the drawdown at a distance of 900 feet from the future wells (the closest mapped distance to an apparent domestic well), conservatively assuming pumping at the maximum rate of 250 gpm from a single source with a 12-hour-on, 12-hour-off pumping schedule over a period of 30 days. The City's public works director indicated that cycling of the City's other Saddle Mountain Formation sources during periods of high demand is typically less than 12 hours of operation per day and that this represented a reasonably conservative scenario for peak use of the planned wells. Assuming a transmissivity of 535 ft^2/day, based on specific capacity tests for the City's wells, and a storage coefficient of 10^{-4}, the maximum estimated drawdown after 30 days at a well located 900 feet from one of the future wells is about 27 feet.

Based on thickness and depth to groundwater in the upper Saddle Mountain Formation, available drawdown for a fully penetrating well completed above the Pomona Member would be about 200 feet. The estimated 27 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed above the Pomona Member,

including domestic wells operating under the water right permit exemption. This conclusion is further supported by the lack of reported drawdown interference or impairment of domestic wells located near the City's existing wells completed in the upper Saddle Mountain Formation. Should withdrawals at one of the new points of withdrawal result in impairment of other wells or water rights the City will have the flexibility to adjust pumping schedules to minimize drawdown impacts.

One or both of the future wells could be completed in the lower Saddle Mountain Formation (from the lower portion of the Pomona Member to above the Wanapum Formation) allowing increased Qi from these locations. Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the lower Saddle Mountain Formation near the proposed future wells. This review was limited to wells completed to depths of between 300 and 800 feet, corresponding to the depths of the lower Saddle Mountain Formation in the area. A total of six wells were identified within two miles of the planned future wells, all located east of Future Well B. The closest domestic well is located about 1.25 miles away. Using the same pumping scenario and aquifer parameters as assumed for evaluation of impairment for wells completed in the upper Saddle Mountain Formation, the maximum estimated drawdown after 30 days at a well located 1.25 miles from Future Well B is about 16 feet.

Based on thickness and depth to groundwater in the lower Saddle Mountain Formation, available drawdown for a fully penetrating well completed below the upper Pomona Member would be at least 400 feet. The estimated 16 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed below the Pomona Member, including domestic wells operating under the water right permit exemption.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 400 gpm and a Qa of 640 acre-ft/yr alternate, non-additive to existing water right certificates 791-A, 4455-A, and 4456-A.

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that twelve of the proposed additional points of withdrawal tap the same body of public groundwater as the well (Source S01) authorized under Certificate G3-20384C.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

The Board found no indication that the additional points of withdrawal will cause impairment of other groundwater uses of the Saddle Mountain Formation.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION

Based on the above investigation and conclusions, the Board's decision is to approve the additional points of withdrawal, located as follows:

Continued

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S03 – 23092241550	NE	SE	22	9N	23E
S06 - 23092211011	NE	NE	22	9N	23E
S07 - 23091233002	SW	SW	12	9N	23E
S08 - 23092232448	NW	SW	22	9N	23E
S10 - 23091331002	NE	SW	13	9N	23E
S11 - 23092432016	NW	SW	24	9N	23E
S12 - 23092299984	SW	SW	22	9N	23E
S16 - 23091233002	SW	SW	12	9N	23E
S17 - 23092142403	NW	SE	21	9N	23E
S18 - 23092299984	SW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized point of withdrawal (Source S01) is retained without change in this decision.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

Planned points of withdrawal Future Wells A and B shall be constructed such that each well is completed entirely in either the upper or lower Saddle Mountain Formation, defined as above or below the upper portions of the Pomona Member.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

The maximum instantaneous withdrawals from planned points of withdrawal Future Wells A and B shall not exceed 250 gpm each. The maximum instantaneous withdrawals from existing points of withdrawal shall not exceed the rates approved in the original water right authorizations and subsequently perfected, as follows:

Source ID	Maximum Authorized Qi (gpm)
S01	400
S03	1,000
S04	600
S06	240
S07	325
S08	200
S10	500
S11	300
S12	190
S16	325
S17	600
S18	190

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview's municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 2 day of June, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer

ATTACHMENT 1

CITY OF GRANDVIEW

HISTORIC WATER PRODUCTION

(values are in acre-feet)

September 9, 2010

Source No.	Source Name	Previous Source Name	Year													
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

X

03-20384C	03-20384P	03-20384	July 27, 1972

CITY OF GRANDVIEW

114 Avenue "A"	Grandview	Washington	98930

PUBLIC WATER TO BE APPROPRIATED

a well

640 gallons per minute, 640 acre feet per year, continuously, for municipal supply.

LOCATION OF DIVERSION WITHDRAWAL

200 feet south and 160 feet west of north quarter corner of Sec. 23

NW¼NE¼NE¼	23	9	23 E	37	Yakima

RECORDED PLATTED PROPERTY

Depot Park, Grandview

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by City of Grandview

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION

WATER RIGHT CLAIM

RECEIVED
DEPT. OF ECOLOGY
JUN 20 1994 129377
CLAIM NUMBER (PHONE)

NAME CITY OF GRANDVIEW

ADDRESS City Hall

Grandview, Washington ZIP CODE 98930

1. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: ground water (SURFACE OR GROUND WATER)

W.R.I.A. 37 (LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS well

B. IF SURFACE WATER, THE SOURCE IS _____

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:

A. QUANTITY OF WATER CLAIMED 400 gpm (CUBIC FEET PER SECOND OR GALLONS PER MINUTE) PRESENTLY USED 400 gpm

B. ANNUAL QUANTITY CLAIMED 640 acre ft. (ACRE FEET PER YEAR) PRESENTLY USED 640 acre ft.

C. IF FOR IRRIGATION, ACRES CLAIMED - PRESENTLY IRRIGATED none

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: all year

4. DATE OF FIRST PUTTING WATER TO USE: MONTH _____ YEAR 1940

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: _____ FEET _____ AND _____ FEET _____ FROM THE _____ CORNER OF SECTION _____

BEING WITHIN _____ OF SECTION 23 T. 9 N., R. 23E (E. OR W.) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT _____ BLOCK _____ OF East 1/2 of Depot Park, CITY OF GRANDVIEW (GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED:

Sec. 23; S 1/2 Sec. 22; S 1/2 of the S 1/2 of Sec. 14, Twnp. 9 North, Range 23, E.W.M.

COUNTY Yakima

7. PURPOSE(S) FOR WHICH WATER IS USED: City Domestic and industrial

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: appropriation

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

X [signature]

DATE June 19, 1994

IF CLAIM FILED BY DESIGNATED REPRESENTATIVE, PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW.

☐ ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE.

RETURN ALL THREE COPIES WITH CARBONS INTACT, ALONG WITH YOUR FEE TO:
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION
P.O. BOX 829 OLYMPIA, WASHINGTON 98504

ORIGINAL DWR

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG4-GWC4455-A@1 (YAKI-07-11)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD) and Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology **AFFIRMS** the decision of the Board. A summary table of the decision follows:

Summary of Department of Ecology's Final Order

MAXIMUM CFS	MAXIMUM GPM	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	240	384	Continuous municipal supply

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Thirteen (13) wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
S01 – 23092321441	NE	NW	23	9 N.	23 EWM	37	Yakima
S03 – 23092241550	NE	SE	22				
S06 – 23092211011	NE	NE	22				
S07 – 23091233002	SW	SW	12				
S08 – 23092232448	NW	SW	22				
S10 – 23091331002	NE	SW	13				
S11 – 23092432016	NW	SW	24				
S12 – 23092299984	SW	SW	22				
S16 – 23091233002	SW	SW	12				
S17 – 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A – 23091542411	NW	SE	15				
Future Well B – 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE EWM

If you have any questions or concerns on the above information, please call Breean Zimmerman, Department of Ecology, at (509) 454-7647.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Sincerely,

Robert F. Barwin
Acting Section Manager
Water Resources Program

RFB:BZ:gh
110832

Enclosure: *Your Right To Be Heard*
Construction Notice

By Certified Mail: 7007 2560 0001 9535 3137

cc: Sylvia Cervantes, County Water Conservancy Board
Janet Rajala, Department of Ecology, ERO (email/pdf)
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____
Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-11 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June, 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board
Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board
Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board
Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board
Approve ☐ Deny ☐ Abstain ☐ Recuse ☐

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF
THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	Certificate 4455-A	August 14, 1962	YAKI-07-11

NAME
City of Grandview

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal
☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	240	384 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
A well (Source S06)	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
23092211011	NE	NE	22	9N	23E	37	Yakima

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED
City of Grandview, Yakima County, Washington.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	240	384 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
14 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S04 - 23092142400	NW	SE	21				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE,

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	240	384 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
13 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE

DESCRIPTION OF PROPOSED WORKS

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add thirteen points of withdrawal under Groundwater Certificate 4455-A. The application was accepted at an open public meeting, and the board assigned application number YAKI-07-11. The application was modified on December 5, 2007 to add two additional points of withdrawal (source well S03 and Future Well A) and modified again on December 15, 2009 to add one additional point of withdrawal (Future Well B). In total, 13 additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Joe Morrice of Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right 4455-A

Priority date: August 14, 1962

Water quantities: Qi: 240 gpm Qa: 384 acre-ft/yr

Source: A well

Point of withdrawal: 600 feet south and 40 feet west of the NE corner of Section 22, Township 9N, Range 23E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: City of Grandview, Yakima County, Washington.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

Water right certificate 4455-A was issued to the City on March 4, 1963 with a priority date of August 14, 1962, authorizing the withdrawal of 240 gpm, 384 acre-ft/yr for municipal use. The authorized source is well source number S06, previously referred to as Well No. 7.

Two Groundwater Certificates (G4-24086C and G4-25570C) were subsequently issued to the City as "supplemental to any and all existing rights". No primary Qa was authorized with these certificates. Under Ecology Water Resources Program Policy-1040, *Use of Terms that Clarify Relationships Between Water Rights*, the term supplemental is no longer used. Certificates G4-24086C and G4-25570C are interpreted as being alternate, non-additive to all existing primary annual rights, including Certificate 4455-A. Authorized sources for these certificates are S10 (G4-25570C) and S12 (G4-24086C). Source well S12 is currently inactive and was replaced by a new well, source S18, in 2006. Based on the relationship of G4-24086C and G4-25570C to preexisting rights, the annual pumping from sources S10 and S12 or S18 can be considered as exercising the primary annual right authorized by Certificate 4455-A.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate well source S06 was originally equipped with a 30 hp pump capable of producing of 295 gpm. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source number S06 has recently not been in production; however, source S10 has produced up to 617 acre-ft/yr and sources S12 or replacement well S18 have produced up to 196 acre-ft/yr. In the years 1993 and 1995 through 1999 sources S10 and S12 produced combined withdrawals exceeding the primary annual right of 384 acre-ft/yr authorized by Certificate 4455-A. Based on this information, the Qi of 240 gpm and the primary Qa of 384 acre-ft/yr authorized by Certificate 4455-A has been perfected.

Previous changes

There have been no previous changes on Certificate 4455-A.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application, combined with other concurrent applications, is to change groundwater withdrawals of more than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

The City completed SEPA for the water right consolidation project as a whole. On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

No other pertinent information relative to the background of this water right was identified.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Eleven wells, including the well authorized under Certificate 4455-A, tap the Saddle Mountain Basalt Formation and three wells tap the deeper Wanapum Basalt Formation. Under the proposed change applications, the existing wells within a given source would be added as additional points of withdrawal to each water right with a point of withdrawal from that source, allowing the City greater flexibility to utilize the water rights throughout its well field. One of the requested sources, S04, was decommissioned in 2003 and replaced with well source number S17. The City has also requested to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation and

to add two potential future well locations as additional points of withdrawal from the Wanapum Formation. The proposed points of withdrawal from the Saddle Mountain Formation are listed on the first page of this report.

Other water rights appurtenant to the property
Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), which is not subject to change and is not considered further in this investigation. Eight certificated water rights authorize points of withdrawal from wells tapping the Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Formation sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

Permit G4-27784P authorizes three points of withdrawal, two of which are completed in the Wanapum Formation (S02 and S13), and one of which is completed in the Saddle Mountain Formation (S10). One well (source number S03, Groundwater Certificate 791-A) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Formation. Under the proposed water right changes, only wells completed in the Wanapum Formation would be added as points of withdrawal to permit G4-27784P and certificate 791-A. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Formation, including Certificate 4455-A.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A and G3-20381C are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The

primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) competled in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates 1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C). The combined annual quantity of water that can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C).

However, regardlessof the potential maximum quantities that could be withdrawn from either source, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the sources, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the following findings:

1. The original pump installed in source well S06 was capable of producing the authorized 240 gpm.
2. Certificates G4-24086C and G4-25570C are alternate, non-additive rights to all previous water rights held by the City, including Certificate 4455-A.
3. In 1993 and 1995 through 1999 the combined annual withdrawal from the sources authorized by Certificates 4455-A, G4-24086C, and G4-25570C exceeded the 384 acre-ft/yr annual primary right authorized by Certificate 4455-A.

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Saddle Mountain Basalt Formation: S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and decommissioned source S04. Well sources interpreted to be completed in the Wanapum Basalt Formation include S02, S13, and S14.

Based on review of geologic reports, no geologic structures are mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed, east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Saddle Mountain Basalt Formation as a single body of groundwater, the twelve City wells completed in the Saddle Mountain Formation are in hydraulic continuity and tap the same source of public groundwater as each other. Completion of two proposed points of withdrawal (Future Well A and Future Well B) within the Saddle Mountain Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Saddle Mountain Basalt.

Potential for Impairment

The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Saddle Mountain Formation. Five certificated groundwater rights were identified within or adjacent to the City. Attributes of these rights are summarized below.

Water Right Document	Person	Priority Date	Purposes	Qi (gpm)	Qa (acre-ft/ year)
G4-22918C	VANCE BILL M	4/29/1974	Irrigation, single domestic	60	33
G4-22873C	Swynenburg Brothers	4/10/1974	Single domestic	15	1
G4-23567C	LIBBY ET AL	6/19/1974	Commercial and industrial	250	134
G4-27273C	DAILEY ELLIS F	1/27/1981	Irrigation, frost protection	60	2.81
G4-*00357	Oregon & WA Railroad & Navigation Co	1/1/1912	Railway, group domestic	150	24.63

Three of these rights (G4-23567C, G4-27273C, and G4-*00357) are located within the City's current service area. To the best of their knowledge, the City does not believe these three rights are currently active.

Over 100 well logs were identified within about ½ mile of the City's wells, including about 25 logs for wells apparently located within the City's service area. Available water right and well log information indicates that all nearby wells are relatively shallow, tapping the upper portions of the Saddle Mountain Formation above the Pomona Member.

Four of the City's existing wells are completed above the Pomona Member, including source numbers S01, S06 (existing point of withdrawal), S08, and S11. Additionally, planned Future Well A and Future Well B could be completed entirely above upper portions of the Pomona Member, depending on conditions encountered during drilling and construction of these wells. Based on the indication of some degree of hydraulic separation between the portions of the Saddle Mountain Formation above and below the Pomona Member and the completion of all nearby non-City wells above the Pomona Member, the additional points of withdrawal with the greatest potential to cause impairment are source numbers S01, S08, S11, and the two planned future wells.

Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the upper Saddle Mountain Formation near source numbers S01, S06, S08, S11, and the two planned future wells. Based on this review, there is one apparent domestic well mapped within approximately 1,500 feet of source well S01 and 2,300 feet of source well S06, one apparent domestic well potentially within approximately 1,000 feet of source well S03, and two apparent domestic wells mapped within approximately 1,500 feet of source well S11. No domestic wells appear to be located within about ½ mile of source well S08. Additionally, there are two domestic wells mapped within about 1,000 feet of Future well A and one domestic well mapped within about 900 feet of Future Well B. The City's operation of the existing wells completed in the upper Saddle Mountain Formation has not resulted in any reported impairment or significant drawdown interference with other nearby wells.

The City's existing wells completed above the Pomona Member currently have authorized Qi's under the existing water rights sufficient to utilize the maximum physical capacity of these wells, based on reported capacity in the City's Water System Plan. Therefore, the instantaneous withdrawals from these wells are not expected to increase under the proposed water rights changes. Since impairment (associated with drawdown interference) is largely a function of maximum instantaneous withdrawal rather than total annual withdrawal, adding source numbers S01 S08, and S11 as additional points of withdrawal to Certificate 4455-A is unlikely to result in impairment of other wells or water rights.

Completion of the planned future wells above the Pomona Member would allow increased Qi from the upper Saddle Mountain Aquifer at these well locations. The potential for a new withdrawal at each of these locations to result in impairment of nearby rights or wells was evaluated by estimating the drawdown at a distance of ¼ mile from the future wells, conservatively assuming pumping at the maximum rate of 250 gpm from a single source with a 12-hour-on, 12-hour-off pumping schedule over a period of 30 days. Assuming a transmissivity of 535 ft^2/day, based on specific capacity tests for the

City's wells, and a storage coefficient of 10^{-4}, the maximum estimated drawdown after 30 days at a well located ¼ mile from one of the future wells is about 22 feet.

Based on thickness and depth to groundwater in the upper Saddle Mountain Formation, available drawdown for a fully penetrating well completed above the Pomona Member would be about 200 feet. The estimated 27 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed above the Pomona Member, including domestic wells operating under the water right permit exemption. This conclusion is further supported by the lack of reported drawdown interference or impairment of domestic wells located near the City's existing wells completed in the upper Saddle Mountain Formation. Should withdrawals at one of the new points of withdrawal result in impairment of other wells or water rights the City will have the flexibility to adjust pumping schedules to minimize drawdown impacts.

One or both of the future wells could be completed in the lower Saddle Mountain Formation (from the lower portion of the Pomona Member to above the Wanapum Formation) allowing increased Qi from these locations. Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the lower Saddle Mountain Formation near the proposed future wells. This review was limited to wells completed to depths of between 300 and 800 feet, corresponding to the depths of the lower Saddle Mountain Formation in the area. A total of six wells were identified within two miles of the planned future wells, all located east of Future Well B. The closest domestic well is located about 1.25 miles away. Using the same pumping scenario and aquifer parameters as assumed for evaluation of impairment for wells completed in the upper Saddle Mountain Formation, the maximum estimated drawdown after 30 days at a well located 1.25 miles from Future Well B is about 16 feet.

Based on thickness and depth to groundwater in the lower Saddle Mountain Formation, available drawdown for a fully penetrating well completed below the upper Pomona Member would be at least 400 feet. The estimated 16 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed below the Pomona Member, including domestic wells operating under the water right permit exemption.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 240 gpm and a primary Qa of 384 acre-feet/yr for municipal use.

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that twelve of the proposed additional points of withdrawal tap the same body of public groundwater as the well (Source S06) authorized under Certificate 4455-A.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

The Board found no indication that the additional points of withdrawal will cause impairment of other groundwater uses of the Saddle Mountain Formation.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION

Based on the above investigation and conclusions, the Board's decision is to approve the additional points of withdrawal, located as follows:

Continued

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S01 - 23092321441	NE	NW	23	9N	23E
S03 - 23092241550	NE	SE	22	9N	23E
S07 - 23091233002	SW	SW	12	9N	23E
S08 - 23092232448	NW	SW	22	9N	23E
S10 - 23091331002	NE	SW	13	9N	23E
S11 - 23092432016	NW	SW	24	9N	23E
S12 - 23092299984	SW	SW	22	9N	23E
S16 - 23091233002	SW	SW	12	9N	23E
S17 - 23092142403	NW	SE	21	9N	23E
S18 - 23092299984	SW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized point of withdrawal (Source S06) is retained without change in this decision.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

Planned points of withdrawal Future Wells A and B shall be constructed such that each well is completed entirely in either the upper or lower Saddle Mountain Formation, defined as above or below the upper portions of the Pomona Member.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

The maximum instantaneous withdrawals from planned points of withdrawal Future Wells A and B shall not exceed 250 gpm each. The maximum instantaneous withdrawals from existing points of withdrawal shall not exceed the rates approved in the original water right authorizations and subsequently perfected, as follows:

Source ID	Maximum Authorized Qi (gpm)
S01	400
S03	1,000
S04	600
S06	240
S07	325
S08	200
S10	500
S11	300
S12	190
S16	325
S17	600
S18	190

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview's municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 7 day of June, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

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ATTACHMENT 1
CITY OF GRANDVIEW
HISTORIC WATER PRODUCTION
(values are in acre-feet)

September 9, 2010

Source No.	Source Name	Previous Source Name	Year													
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

CERTIFICATE RECORD NO. 9 PAGE NO. 6455-A

STATE OF WASHINGTON, COUNTY OF Yakima

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY That CITY OF GRANDVIEW, [illegible]

of _____, has made proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the ground waters of a WELL (No. 7)

located within NE¼NE¼

Sec. 22 Twp. 9 N., R. 23 E. W. M.

for the purpose of municipal supply

under and subject to provisions contained in Ground Water Permit No. 6103 issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 9 at page 6455-A;

the right hereby confirmed dates from August 14, 1962; that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 240 gallons per minute; 324 acre-feet per year for municipal supply.

Special provisions required by the Supervisor of Water Resources: _____

A description of the lands to which such ground water right is appurtenant:

City of Grandview, Yakima County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this 14th day of March, 19 63.

[signature]

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG4-GWC4456-A@1 (YAKI-07-12)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD) and Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology **AFFIRMS** the decision of the Board. A summary table of the decision follows:

Summary of Department of Ecology's Final Order

MAXIMUM CFS	MAXIMUM GPM	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	325	520	Continuous municipal supply

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Thirteen (13) wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
S01 – 23092321441	NE	NW	23	9 N.	23 EWM	37	Yakima
S03 – 23092241550	NE	SE	22				
S06 – 23092211011	NE	NE	22				
S07 – 23091233002	SW	SW	12				
S08 – 23092232448	NW	SW	22				
S10 – 23091331002	NE	SW	13				
S11 – 23092432016	NW	SW	24				
S12 – 23092299984	SW	SW	22				
S16 – 23091233002	SW	SW	12				
S17 – 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A – 23091542411	NW	SE	15				
Future Well B – 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE EWM

If you have any questions or concerns on the above information, please call Breean Zimmerman, Department of Ecology, at (509) 454-7647.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Sincerely,

Robert F. Barwin
Acting Section Manager
Water Resources Program

RFB:BZ:gh
110825

Enclosure: *Your Right To Be Heard*

By Certified Mail: 7007 2560 0001 9535 3137

cc: Sylvia Cervantes, County Water Conservancy Board
Janet Rajala, Department of Ecology, ERO (email/pdf)
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____
Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-12 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June, 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board

Approve ☑
Deny ☐
Abstain ☐
Recuse ☐

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board

Approve ☑
Deny ☐
Abstain ☐
Recuse ☐

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board

Approve ☒
Deny ☐
Abstain ☐
Recuse ☐

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board

Approve ☐
Deny ☐
Abstain ☐
Recuse ☐

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	Certificate 4456-A	August 14, 1962	YAKI-07-12

NAME: City of Grandview

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal ☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	325	520 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
A well (Source S07)	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
23091233002	SW	SW	12	9N	23E	37	Yakima

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED

City of Grandview, Yakima County, Washington.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	325	520 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
14 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S04 - 23092142400	NW	SE	21				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	325	520 primary	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
13 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

DESCRIPTION OF PROPOSED WORKS

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add thirteen points of withdrawal under Groundwater Certificate 4456-A. The application was accepted at an open public meeting, and the board assigned application number YAKI-07-12. The application was modified on December 5, 2007 to add two additional points of withdrawal (source well S03 and Future Well A) and modified again on December 15, 2009 to add one additional point of withdrawal (Future Well B). In total, 13 additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Joe Morrice of Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right 4456-A

Priority date: August 14, 1962

Water quantities: Qi: 325 gpm Qa: 520 acre-ft/yr

Source: A well

Point of withdrawal: 500 feet north and 250 feet east of the SW corner of Section 12, Township 9N, Range 23E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: City of Grandview, Yakima County, Washington.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

Water right certificate 4456-A was issued to the City on March 4, 1963 with a priority date of August 14, 1962, authorizing the withdrawal of 325 gpm, 520 acre-ft/yr for municipal use. The authorized source is well source number S07, previously referred to as Well No. 8.

Two Groundwater Certificates (G4-24086C and G4-25570C) were subsequently issued to the City as "supplemental to any and all existing rights". No primary Qa was authorized with these certificates. Under Ecology Water Resources Program Policy-1040, *Use of Terms that Clarify Relationships Between Water Rights*, the term supplemental is no longer used. Certificates G4-24086C and G4-25570C are interpreted as being alternate, non-additive to all existing primary annual rights, including Certificate 4456-A. Authorized sources for these certificates are S10 (G4-25570C) and S12 (G4-24086C). Source well S12 is currently inactive and was replaced by a new well, source S18, in 2006. Based on the relationship of G4-24086C and G4-25570C to preexisting rights, the annual pumping from sources S10 and S12 or S18 can be considered as exercising the primary annual right authorized by Certificate 4456-A.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate well source S07 was originally equipped with a 30 hp pump capable of producing 330 gpm. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source number S07 produced 355 acre-feet in 2005. Source S10 has produced up to 617 acre-ft/yr and sources S12 or S18 have produced up to 196 acre-ft/yr. In the years 1993 and 1995 through 1998 sources S07, S10, and S12 produced combined withdrawals exceeding the primary annual right of 520 acre-ft/yr authorized by Certificate 4456-A. Based on this information, the Qi of 325 gpm and the primary Qa of 520 acre-ft/yr authorized by Certificate 4456-A has been perfected.

Previous changes

There have been no previous changes on Certificate 4456-A.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application, combined with other concurrent applications, is to change groundwater withdrawals of more than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

The City completed SEPA for the water right consolidation project as a whole. On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

No other pertinent information relative to the background of this water right was identified.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION [See WAC 173-153-130(6)(c)]

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Eleven wells, including the well authorized under Certificate 4456-A, tap the Saddle Mountain Basalt Formation and three wells tap the deeper Wanapum Basalt Formation. Under the proposed change applications, the existing wells within a given source would be added as additional points of withdrawal to each water right with a point of withdrawal from that source, allowing the City greater flexibility to utilize the water rights throughout its well field. One of the requested sources, S04, was decommissioned in 2003 and replaced with well source number S17. The City has also requested to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation and to add two potential future well locations as additional points of withdrawal from the Wanapum Formation. The proposed points of withdrawal from the Saddle Mountain Formation are listed on the first page of this report.

Other water rights appurtenant to the property
Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), which is not subject to change and is not considered further in this investigation. Eight certificated water rights authorize points of withdrawal from wells tapping the Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Formation sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

Permit G4-27784P authorizes three points of withdrawal, two of which are completed in the Wanapum Formation (S02 and S13), and one of which is completed in the Saddle Mountain Formation (S10). One well (source number S03, Groundwater Certificate 791-A) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Formation. Under the proposed water right changes, only wells completed in the Wanapum Formation would be added as points of withdrawal to permit G4-27784P and certificate 791-A. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Formation, including Certificate 4456-A.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr) are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain

Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) completed in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates 1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C). The combined annual quantity of water that can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C).

However, regardless of the potential maximum quantities that could be withdrawn from either source, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the sources, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the following findings:

1. The original pump installed in source well S07 was capable of producing the authorized 325 gpm.
2. Certificates G4-24086C and G4-25570C are alternate, non-additive rights to all previous water rights held by the City, including Certificate 4456-A.
3. In 1993 and 1995 through 1998 the combined annual withdrawal from the sources authorized by Certificates 4456-A, G4-24086C, and G4-25570C exceeded the 520 acre-ft/yr annual primary right authorized by Certificate 4456-A.

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Saddle Mountain Basalt Formation: S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and decommissioned source S04. Well sources interpreted to be completed in the Wanapum Basalt Formation include S02, S13, and S14.

Based on review of geologic reports, no geologic structures are mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed, east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Saddle Mountain Basalt Formation as a single body of groundwater, the twelve City wells completed in the Saddle Mountain Formation are in hydraulic continuity and tap the same source of public groundwater as each other. Completion of two proposed points of withdrawal (Future Well A and Future Well B) within the Saddle Mountain Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Saddle Mountain Basalt.

Potential for Impairment

The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Saddle Mountain Formation. Five certificated groundwater rights were identified within or adjacent to the City. Attributes of these rights are summarized below.

Water Right Document	Person	Priority Date	Purposes	Qi (gpm)	Qa (acre-ft/ year)
G4-22918C	VANCE BILL M	4/29/1974	Irrigation, single domestic	60	33
G4-22873C	Swynenburg Brothers	4/10/1974	Single domestic	15	1
G4-23567C	LIBBY ET AL	6/19/1974	Commercial and industrial	250	134
G4-27273C	DAILEY ELLIS F	1/27/1981	Irrigation, frost protection	60	2.81
G4-*00357	Oregon & WA Railroad & Navigation Co	1/1/1912	Railway, group domestic	150	24.63

Three of these rights (G4-23567C, G4-27273C, and G4-*00357) are located within the City's current service area. To the best of their knowledge, the City does not believe these three rights are currently active.

Over 100 well logs were identified within about ½ mile of the City's wells, including about 25 logs for wells apparently located within the City's service area. Available water right and well log information indicates that all nearby wells are relatively shallow, tapping the upper portions of the Saddle Mountain Formation above the Pomona Member.

Four of the City's existing wells are completed above the Pomona Member, including source numbers S01, S06, S08, and S11. Additionally, planned Future Well A and Future Well B could be completed entirely above the upper portions of the Pomona Member, depending on conditions encountered during drilling and construction of these wells. Based on the indication of some degree of hydraulic separation between the portions of the Saddle Mountain Formation above and below the Pomona Member and the completion of all nearby non-City wells above the Pomona Member, the additional points of withdrawal with the greatest potential to cause impairment are source numbers S01, S06, S08, S11, and the two planned future wells.

Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the upper Saddle Mountain Formation near source numbers S01, S06, S08, S11, and the two planned future wells. Based on this review, there is one apparent domestic well mapped within approximately 1,500 feet of source well S01 and 2,300 feet of source well S06, one apparent domestic well potentially within approximately 1,000 feet of source well S03, and two apparent domestic wells mapped within approximately 1,500 feet of source well S11. No domestic wells appear to be located within about ½ mile of source well S08. Additionally, there are two domestic wells mapped within about 1,000 feet of Future well A and one domestic well mapped within about 900 feet of Future Well B. The City's operation of the existing wells completed in the upper Saddle Mountain Formation has not resulted in any reported impairment or significant drawdown interference with other nearby wells.

The City's existing wells completed above the Pomona Member currently have authorized Qi's under the existing water rights sufficient to utilize the maximum physical capacity of these wells, based on reported capacity in the City's Water System Plan. Therefore, the instantaneous withdrawals from these wells are not expected to increase under the proposed water rights changes. Since impairment (associated with drawdown interference) is largely a function of maximum instantaneous withdrawal rather than total annual withdrawal, adding source numbers S01, S06, S08, and S11 as additional points of withdrawal to Certificate 4455-A is unlikely to result in impairment of other wells or water rights.

Completion of the planned future wells above the upper portions of the Pomona Member would allow increased Qi from the upper Saddle Mountain Formation at these well locations. The potential for a new withdrawal at each of these locations to result in impairment of nearby rights or wells was evaluated by estimating the drawdown at a distance of 900 feet from the future wells (the closest mapped distance to an apparent domestic well), conservatively assuming pumping at the maximum rate of 250 gpm from a single source with a 12-hour-on, 12-hour-off pumping schedule over a period of 30 days. The City's public works director indicated that cycling of the City's other Saddle Mountain Formation sources during periods of high

demand is typically less than 12 hours of operation per day and that this represented a reasonably conservative scenario for peak use of the planned wells. Assuming a transmissivity of 535 ft^2/day, based on specific capacity tests for the City's wells, and a storage coefficient of 10^{-4}, the maximum estimated drawdown after 30 days at a well located 900 feet from one of the future wells is about 27 feet.

Based on thickness and depth to groundwater in the upper Saddle Mountain Formation, available drawdown for a fully penetrating well completed above the Pomona Member would be about 200 feet. The estimated 27 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed above the Pomona Member, including domestic wells operating under the water right permit exemption. This conclusion is further supported by the lack of reported drawdown interference or impairment of domestic wells located near the City's existing wells completed in the upper Saddle Mountain Formation. Should withdrawals at one of the new points of withdrawal result in impairment of other wells or water rights the City will have the flexibility to adjust pumping schedules to minimize drawdown impacts.

One or both of the future wells could be completed in the lower Saddle Mountain Formation (from the lower portion of the Pomona Member to above the Wanapum Formation) allowing increased Qi from these locations. Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the lower Saddle Mountain Formation near the proposed future wells. This review was limited to wells completed to depths of between 300 and 800 feet, corresponding to the depths of the lower Saddle Mountain Formation in the area. A total of six wells were identified within two miles of the planned future wells, all located east of Future Well B. The closest domestic well is located about 1.25 miles away. Using the same pumping scenario and aquifer parameters as assumed for evaluation of impairment for wells completed in the upper Saddle Mountain Formation, the maximum estimated drawdown after 30 days at a well located 1.25 miles from Future Well B is about 16 feet.

Based on thickness and depth to groundwater in the lower Saddle Mountain Formation, available drawdown for a fully penetrating well completed below the upper Pomona Member would be at least 400 feet. The estimated 16 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed below the Pomona Member, including domestic wells operating under the water right permit exemption.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 325 gpm and a primary Qa of 520 acre-feet/yr for municipal use.

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that twelve of the proposed additional points of withdrawal tap the same body of public groundwater as the well (Source S07) authorized under Certificate 4456-A.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

The Board found no indication that the additional points of withdrawal will cause impairment of other groundwater uses of the Saddle Mountain Formation.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION

Based on the above investigation and conclusions, the Board's decision is to approve the additional points of withdrawal, located as follows:

Continued

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S01 - 23092321441	NE	NW	23	9N	23E
S03 - 23092241550	NE	SE	22	9N	23E
S06 - 23092211011	NE	NE	22	9N	23E
S08 - 23092232448	NW	SW	22	9N	23E
S10 - 23091331002	NE	SW	13	9N	23E
S11 - 23092432016	NW	SW	24	9N	23E
S12 - 23092299984	SW	SW	22	9N	23E
S16 - 23091233002	SW	SW	12	9N	23E
S17 - 23092142403	NW	SE	21	9N	23E
S18 - 23092299984	SW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized point of withdrawal (Source S07) is retained without change in this decision.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

Planned points of withdrawal Future Wells A and B shall be constructed such that each well is completed entirely in either the upper or lower Saddle Mountain Formation, defined as above or below the upper portions of the Pomona Member.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

The maximum instantaneous withdrawals from planned points of withdrawal Future Wells A and B shall not exceed 250 gpm each. The maximum instantaneous withdrawals from existing points of withdrawal shall not exceed the rates approved in the original water right authorizations and subsequently perfected, as follows:

Source ID	Maximum Authorized Qi (gpm)
S01	400
S03	1,000
S04	600
S06	240
S07	325
S08	200
S10	500
S11	300
S12	190
S16	325
S17	600
S18	190

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview's municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 2 day of June, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer

ATTACHMENT 1

September 9, 2010

CITY OF GRANDVIEW
HISTORIC WATER PRODUCTION
(values are in acre-feet)

Source No.	Source Name	Previous Source Name	Year													
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

CERTIFICATE RECORD NO. 9 PAGE NO. 4456-A

STATE OF WASHINGTON, COUNTY OF Yakima

Certificate of Ground Water Right

Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.

THIS IS TO CERTIFY That CITY OF GRANDVIEW, WASHINGTON, has made proof

to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the ground waters of a well (No. 8)

located within NW¼

Sec. 12, Twp. 9 N., R. 23 E. W. M.,

for the purpose of municipal supply

under and subject to provisions contained in Ground Water Permit No. 6104 issued by the State Supervisor of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume 9 at page 4456-A;

that the right hereby confirmed dates from August 14, 1962; that the quantity of ground water under the right hereby confirmed for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 325 gallons per minute; 580 acre-feet per year for municipal supply.

Special provisions required by the Supervisor of Water Resources:

A description of the lands to which such ground water right is appurtenant

City of Grandview, Yakima County, Washington.

The right to the use of the ground water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG3-20382C@1 (YAKI-07-13)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD) and Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology **AFFIRMS** the decision of the Board. A summary table of the decision follows:

Summary of Department of Ecology's Final Order

MAXIMUM CFS	MAXIMUM GPM	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	200	322, alternate, non-additive	Continuous municipal supply

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Thirteen (13) wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
S01 – 23092321441	NE	NW	23	9 N.	23 EWM	37	Yakima
S03 – 23092241550	NE	SE	22				
S06 – 23092211011	NE	NE	22				
S07 – 23091233002	SW	SW	12				
S08 – 23092232448	NW	SW	22				
S10 – 23091331002	NE	SW	13				
S11 – 23092432016	NW	SW	24				
S12 – 23092299984	SW	SW	22				
S16 – 23091233002	SW	SW	12				
S17 – 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A – 23091542411	NW	SE	15				
Future Well B – 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD					
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.					
PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE EWM

If you have any questions or concerns on the above information, please call Breean Zimmerman, Department of Ecology, at (509) 454-7647.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Sincerely,

Robert F. Barwin
Acting Section Manager
Water Resources Program

RFB:BZ:gh
110826

Enclosure: *Your Right To Be Heard*

By Certified Mail: 7007 2560 0001 9535-3137

cc: Sylvia Cervantes, County Water Conservancy Board
Janet Rajala, Department of Ecology, ERO (email/pdf)
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____

Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-13 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June , 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board

Approve ☑
Deny ☐
Abstain ☐
Recuse ☐

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board

Approve ☑
Deny ☐
Abstain ☐
Recuse ☐

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board

Approve ☑
Deny ☐
Abstain ☐
Recuse ☐

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board

Approve ☐
Deny ☐
Abstain ☐
Recuse ☐

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	Certificate G3-20382C	October 8, 1951	YAKI-07-13

NAME: City of Grandview

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal
☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	200	322, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
A well (Source S08)	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY
23092232448	NW	SW	22	9N	23E	37	Yakima

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED
City of Grandview, Yakima County, Washington.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	200	322, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
14 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S04 - 23092142400	NW	SE	21				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	200	322, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
13 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

DESCRIPTION OF PROPOSED WORKS

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add thirteen points of withdrawal under Groundwater Certificate G3-20382C. The application was accepted at an open public meeting, and the board assigned application number YAKI-07-13. The application was modified on December 5, 2007 to add two additional points of withdrawal (source well S03 and Future Well A) and modified again on December 15, 2009 to add one additional point of withdrawal (Future Well B). In total, 13 additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Joe Morrice of Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right G3-20382C

Priority date: July 27, 1972

Water quantities: Qi: 200 gpm Qa: 322 acre-ft/yr, non-additive to Certificates of Groundwater Right 791-A, 4455-A, and 4456-A

Source: A well

Point of withdrawal: 1,383 feet north and 51 feet east of the SW corner of Section 22, Township 9N, Range 23E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: City of Grandview, Yakima County, Washington.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

A water right permit (G3-20382P) was issued to the City on December 14, 1973, authorizing the withdrawal of 400 gpm, 640 acre-ft/yr for municipal use. The authorized source is well source number S08, previously referred to as Well No. 9. Water right certificate G3-20382C was issued on December 27, 1974, authorizing the withdrawal of 200 gpm, 322 acre-ft/yr. This certificate was issued on the same day and with the same priority date as the City's water right certificate G3-20381C. These certificates limited total rights from all City sources at that time to 2,898 acre-ft/yr. The City's primary rights prior to issuance of these certificates totaled 2,114 acre-ft/yr. Review of the water rights records indicates that 784 acre-ft/yr of primary right was included in certificate G3-20381C, for a total of 2,898 acre-ft/yr of primary rights. This means the 322 acre-ft/yr issued under certificate G3-20382C is an alternate, non-additive right to existing water right certificates 791-A, 4455-A, and 4456-A.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate well source S08 was originally equipped with a 25 hp pump capable of producing the authorized Qi of 200 gpm. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source number S08 has recently produced up to 60.6 acre-ft/yr. Based on this information, the Qi of 200 gpm authorized by G3-20382C has been perfected.

Previous changes

There have been no previous changes on Certificate G3-20382C.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application, combined with other concurrent applications, is to change groundwater withdrawals of more than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

The City completed SEPA for the water right consolidation project as a whole. On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

Claim No. 118948, held by the City, claims the right to use water authorized under G3-20382C. This claim will remain active in the event an adjudication occurs and the earlier priority date of the claim is confirmed by the court.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Eleven wells, including the well authorized under Certificate G3-20382C, tap the Saddle Mountain Basalt Formation and three wells tap the deeper Wanapum Basalt Formation. Under the proposed change applications, the existing wells within a given source would be added as additional points of withdrawal to each water right with a point of withdrawal from that source, allowing the City greater flexibility to utilize the water rights throughout its well field. The City has also requested to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation and to add two potential future well locations as additional points of withdrawal from the Wanapum Formation. The proposed points of withdrawal from the Saddle Mountain Formation are listed on the first page of this report.

Other water rights appurtenant to the property

Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), which is not subject to change and is not considered further in this investigation. Eight certificated water rights authorize points of withdrawal from wells tapping the

Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Formation sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

Permit G4-27784P authorizes three points of withdrawal, two of which are completed in the Wanapum Formation (S02 and S13), and one of which is completed in the Saddle Mountain Formation (S10). One well (source number S03, Groundwater Certificate 791-A) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Formation. Under the proposed water right changes, only wells completed in the Wanapum Formation would be added as points of withdrawal to permit G4-27784P and certificate 791-A. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Formation, including Certificate G3-20382C.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A and G3-20381C are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) completed in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates

1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C). The combined annual quantity of water that can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C) .

However, regardlessof the potential maximum quantities that could be withdrawn from either aquifer, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the aquifers, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the following findings:

1. The pump installed in source well S08 was capable of producing the authorized 200 gpm.
2. The annual quantity of 322 acre-ft/yr is alternate, non-additive to the primary rights authorized by certificates 791-A, 4455-A, and 4456-A .

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Saddle Mountain Basalt Formation: S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and decommissioned source S04. Well sources interpreted to be completed in the Wanapum Basalt Formation include S02, S13, and S14.

Based on review of geologic reports, no geologic structures are mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed, east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Saddle Mountain Basalt Formation as a single body of groundwater, the twelve City wells completed in the Saddle Mountain Formation are in hydraulic continuity and tap the same source of public groundwater as each other. Completion of two proposed points of withdrawal (Future Well A and Future Well B) within the Saddle Mountain Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Saddle Mountain Basalt.

Potential for Impairment

The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Saddle Mountain Formation. Five certificated groundwater rights were identified within or adjacent to the City. Attributes of these rights are summarized below.

Water Right Document	Person	Priority Date	Purposes	Qi (gpm)	Qa (acre-ft/ year)
G4-22918C	VANCE BILL M	4/29/1974	Irrigation, single domestic	60	33
G4-22873C	Swynenburg Brothers	4/10/1974	Single domestic	15	1
G4-23567C	LIBBY ET AL	6/19/1974	Commercial and industrial	250	134
G4-27273C	DAILEY ELLIS F	1/27/1981	Irrigation, frost protection	60	2.81
G4-*00357	Oregon & WA Railroad & Navigation Co	1/1/1912	Railway, group domestic	150	24.63

Three of these rights (G4-23567C, G4-27273C, and G4-*00357) are located within the City's current service area. To the best of their knowledge, the City does not believe these three rights are currently active.

Over 100 well logs were identified within about ½ mile of the City's wells, including about 25 logs for wells apparently located within the City's service area. Available water right and well log information indicates that all nearby wells are relatively shallow, tapping the upper portions of the Saddle Mountain Formation above the Pomona Member.

Four of the City's existing wells are completed above the Pomona Member, including source numbers S01, S06, S08, and S11. Additionally, planned Future Well A and Future Well B could be completed entirely above the upper portions of the Pomona Member, depending on conditions encountered during drilling and construction of these wells. Based on the indication of some degree of hydraulic separation between the portions of the Saddle Mountain Formation above and below the Pomona Member and the completion of all nearby non-City wells above the Pomona Member, the additional points of withdrawal with the greatest potential to cause impairment are source numbers S01, S06, S08 (existing point of withdrawal), S11, and the two planned future wells.

Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the upper Saddle Mountain Formation near source numbers S01, S06, S08, S11, and the two planned future wells. Based on this review, there is one apparent domestic well mapped within approximately 1,500 feet of source well S01 and 2,300 feet of source well S06, one apparent domestic well potentially within approximately 1,000 feet of source well S03, and two apparent domestic wells mapped within approximately 1,500 feet of source well S11. No domestic wells appear to be located within about ½ mile of source well S08. Additionally, there are two domestic wells mapped within about 1,000 feet of Future well A and one domestic well mapped within about 900 feet of Future Well B. The City's operation of the existing wells completed in the upper Saddle Mountain Formation has not resulted in any reported impairment or significant drawdown interference with other nearby wells.

The City's existing wells completed above the Pomona Member currently have authorized Qi's under the existing water rights sufficient to utilize the maximum physical capacity of these wells, based on reported capacity in the City's Water System Plan. Therefore, the instantaneous withdrawals from these wells are not expected to increase under the proposed water rights changes. Since impairment (associated with drawdown interference) is largely a function of maximum instantaneous withdrawal rather than total annual withdrawal, adding source numbers S01, S06, and S11 as additional points of withdrawal to Certificate G3-20382C is unlikely to result in impairment of other wells or water rights.

Completion of the planned future wells above the upper portions of the Pomona Member would allow increased Qi from the upper Saddle Mountain Formation at these well locations. The potential for a new withdrawal at each of these locations to result in impairment of nearby rights or wells was evaluated by estimating the drawdown at a distance of 900 feet from the future wells (the closest mapped distance to an apparent domestic well), conservatively assuming pumping at the maximum rate of 250 gpm from a single source with a 12-hour-on, 12-hour-off pumping schedule over a period of 30 days. The City's public works director indicated that cycling of the City's other Saddle Mountain Formation sources during periods of high demand is typically less than 12 hours of operation per day and that this represented a reasonably conservative scenario for peak use of the planned wells. Assuming a transmissivity of 535 ft^2/day, based on specific capacity tests for the City's wells, and a storage coefficient of 10^{-4}, the maximum estimated drawdown after 30 days at a well located 900 feet from one of the future wells is about 27 feet.

Based on thickness and depth to groundwater in the upper Saddle Mountain Formation, available drawdown for a fully penetrating well completed above the Pomona Member would be about 200 feet. The estimated 27 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed above the Pomona Member, including domestic wells operating under the water right permit exemption. This conclusion is further supported by the lack of reported drawdown interference or impairment of domestic wells located near the City's existing wells completed in the

upper Saddle Mountain Formation. Should withdrawals at one of the new points of withdrawal result in impairment of other wells or water rights the City will have the flexibility to adjust pumping schedules to minimize drawdown impacts.

One or both of the future wells could be completed in the lower Saddle Mountain Formation (from the lower portion of the Pomona Member to above the Wanapum Formation) allowing increased Qi from these locations. Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the lower Saddle Mountain Formation near the proposed future wells. This review was limited to wells completed to depths of between 300 and 800 feet, corresponding to the depths of the lower Saddle Mountain Formation in the area. A total of six wells were identified within two miles of the planned future wells, all located east of Future Well B. The closest domestic well is located about 1.25 miles away. Using the same pumping scenario and aquifer parameters as assumed for evaluation of impairment for wells completed in the upper Saddle Mountain Formation, the maximum estimated drawdown after 30 days at a well located 1.25 miles from Future Well B is about 16 feet.

Based on thickness and depth to groundwater in the lower Saddle Mountain Formation, available drawdown for a fully penetrating well completed below the upper Pomona Member would be at least 400 feet. The estimated 16 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed below the Pomona Member, including domestic wells operating under the water right permit exemption.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 200 gpm and a Qa of 322 acre-ft/yr alternate, non-additive to existing water right certificates 791-A, 4455-A, and 4456-A.

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that twelve of the proposed additional points of withdrawal tap the same body of public groundwater as the well (Source S08) authorized under Certificate G3-20382C.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

The Board found no indication that the additional points of withdrawal will cause impairment of other groundwater uses of the Saddle Mountain Formation.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION

Based on the above investigation and conclusions, the Board's decision is to approve the additional points of withdrawal, located as follows:

Continued

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S01 - 23092321441	NE	NW	23	9N	23E
S03 – 23092241550	NE	SE	22	9N	23E
S06 - 23092211011	NE	NE	22	9N	23E
S07 - 23091233002	SW	SW	12	9N	23E
S10 - 23091331002	NE	SW	13	9N	23E
S11 - 23092432016	NW	SW	24	9N	23E
S12 - 23092299984	SW	SW	22	9N	23E
S16 - 23091233002	SW	SW	12	9N	23E
S17 - 23092142403	NW	SE	21	9N	23E
S18 - 23092299984	SW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized point of withdrawal (Source S08) is retained without change in this decision.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

Planned points of withdrawal Future Wells A and B shall be constructed such that each well is completed entirely in either the upper or lower Saddle Mountain Formation, defined as above or below the upper portions of the Pomona Member.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

The maximum instantaneous withdrawals from planned points of withdrawal Future Wells A and B shall not exceed 250 gpm each. The maximum instantaneous withdrawals from existing points of withdrawal shall not exceed the rates approved in the original water right authorizations and subsequently perfected, as follows:

Source ID	Maximum Authorized Qi (gpm)
S01	400
S03	1,000
S04	600
S06	240
S07	325
S08	200
S10	500
S11	300
S12	190
S16	325
S17	600
S18	190

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview's municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 2 day of June, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer

ATTACHMENT 1
CITY OF GRANDVIEW
HISTORIC WATER PRODUCTION
(values are in acre-feet)

September 9, 2010

Source No.	Source Name	Previous Source Name	Year													
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

03-20382C	03-20382F	03-20382	July 27, 1972

CITY OF GRANDVIEW

114 Avenues "A"	Grandview	Washington	98930

PUBLIC WATER TO BE APPROPRIATED

a well (no. 9)

200	322

200 gallons per minute, 322 acre feet per year, continuously, for municipal supply

LOCATION OF DIVERSION WITHDRAWAL

1259 feet south and 31 feet east of W¼ corner of Sec. 22

[illegible]	22	9	23 E	39	Yakima

RECORDED PLATTED PROPERTY

Tract 99 of Grandview Orchard Tracts

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by City of Grandview.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION

WATER RIGHT CLAIM

NAME City of Grandview

ADDRESS City Hall

Grandview, Washington ZIP CODE 98930

RECEIVED
DEPARTMENT OF ECOLOGY
JUN 20 1974 129379
CASH OTHER NONE

1. SOURCE FROM WHICH THE RIGHT TO TAKE AND MAKE USE OF WATER IS CLAIMED: ground water (SURFACE OR GROUND WATER)

W.R.I.A. 37 (LEAVE BLANK)

A. IF GROUND WATER, THE SOURCE IS well

B. IF SURFACE WATER, THE SOURCE IS

3. THE QUANTITIES OF WATER AND TIMES OF USE CLAIMED:

A. QUANTITY OF WATER CLAIMED 400 gpm (CUBIC FEET PER SECOND OR GALLONS PER MINUTE) PRESENTLY USED 400 gpm

B. ANNUAL QUANTITY CLAIMED 640 acre feet per year (ACRE FEET PER YEAR) PRESENTLY USED 640 acre ft. per yr.

C. IF FOR IRRIGATION, ACRES CLAIMED ---- PRESENTLY IRRIGATED none

D. TIME(S) DURING EACH YEAR WHEN WATER IS USED: all times

4. DATE OF FIRST PUTTING WATER TO USE: MONTH YEAR 1964

5. LOCATION OF THE POINT(S) OF DIVERSION/WITHDRAWAL: 1257 feet FEET South AND 51 FEET east FROM THE west quarter CORNER OF SECTION 22

BEING WITHIN 22 OF SECTION T. 9 N., R. 23 (E. OR W.) W.M.

IF THIS IS WITHIN THE LIMITS OF A RECORDED PLATTED PROPERTY, LOT BLOCK OF

(GIVE NAME OF PLAT OR ADDITION)

6. LEGAL DESCRIPTION OF LANDS ON WHICH THE WATER IS USED:

Sec. 23; S 1/2 Sec. 22; S 1/2 of S 1/2 of Sec. 14, Twnp. 9 North, Range 23, E.W.M.

COUNTY Yakima

7. PURPOSE(S) FOR WHICH WATER IS USED: City Domestic and industrial

8. THE LEGAL DOCTRINE(S) UPON WHICH THE RIGHT OF CLAIM IS BASED: Appropriation

[redacted]

I HEREBY SWEAR THAT THE ABOVE INFORMATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

[signature]

DATE June 19, 1974

IF CLAIM FILED BY DESIGNATED REPRESENTATIVE, PRINT OR TYPE FULL NAME AND MAILING ADDRESS OF AGENT BELOW.

ADDITIONAL INFORMATION RELATING TO WATER QUALITY AND/OR WELL CONSTRUCTION IS AVAILABLE.

RETURN ALL THREE COPIES WITH CARBONS INTACT, ALONG WITH YOUR FEE TO:
DEPARTMENT OF ECOLOGY
WATER RIGHT CLAIMS REGISTRATION
P.O. BOX 829 OLYMPIA, WASHINGTON 98504

ORIGINAL DWR

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG4-25570C (YAKI-07-14)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD) and Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology **AFFIRMS** the decision of the Board. A summary table of the decision follows:

Summary of Department of Ecology's Final Order

MAXIMUM CFS	MAXIMUM GPM	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	500	0	Continuous municipal supply

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Thirteen (13) wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
S01 – 23092321441	NE	NW	23	9 N.	23 EWM	37	Yakima
S03 – 23092241550	NE	SE	22				
S06 – 23092211011	NE	NE	22				
S07 – 23091233002	SW	SW	12				
S08 – 23092232448	NW	SW	22				
S10 – 23091331002	NE	SW	13				
S11 – 23092432016	NW	SW	24				
S12 – 23092299984	SW	SW	22				
S16 – 23091233002	SW	SW	12				
S17 – 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A – 23091542411	NW	SE	15				
Future Well B – 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE EWM

If you have any questions or concerns on the above information, please call Breean Zimmerman, Department of Ecology, at (509) 454-7647.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Sincerely,

Robert F. Barwin
Acting Section Manager
Water Resources Program

RFB:BZ:gh
110827

Enclosure: *Your Right To Be Heard*

By Certified Mail: 7007 2560 0001 9535 3137

cc: Sylvia Cervantes, County Water Conservancy Board
Janet Rajala, Department of Ecology, ERO (email/pdf)
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____

Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-14 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June, 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board

Approve ☒ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board

Approve ☐ Deny ☐ Abstain ☐ Recuse ☐

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	Certificate G4-25570C	October 13, 1977	YAKI-07-14

NAME: City of Grandview

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal ☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)_____

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	500	0	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
A well (Source S10)	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
23091331002	NE	SW	13	9N	23E	37	Yakima

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED
City of Grandview, Yakima County, Washington.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	500	0	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
14 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S04 - 23092142400	NW	SE	21				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	500	0	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
13 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE

DESCRIPTION OF PROPOSED WORKS

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add thirteen points of withdrawal under Groundwater Certificate G4-25570C. The application was accepted at an open public meeting, and the board assigned application number YAKI-07-14. The application was modified on December 5, 2007 to add two additional points of withdrawal (source well S03 and Future Well A) and modified again on December 15, 2009 to add one additional point of withdrawal (Future Well B). In total, 13 additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Joe Morrice of Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right G4-25570C

Priority date: October 13, 1977

Water quantities: Qi: 500 gpm Qa: 0 acre-ft/yr

Source: A well

Point of withdrawal: 2,340 feet north and 1,740 feet east of the SW corner of Section 13, Township 9N, Range 23 E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: City of Grandview, Yakima County, Washington.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

A water right permit (G4-25570P) was issued to the City on May 31, 1978, authorizing the withdrawal of 1,000 gpm, 500 acre-ft/yr for municipal use. A water right certificate was issued on February 26, 1980, listing an instantaneous withdrawal of 500 gpm, and an annual withdrawal of 0 acre-ft/yr, with the provision of "the approval being supplemental to any and all existing rights. The annual acre-foot authorization under all existing rights for the City of Grandview shall not exceed 6,230 acre-feet per year." The authorized source is well source number S10, previously referred to as Well No. 13.

Under Ecology Water Resources Program Policy-1040, *Use of Terms that Clarify Relationships Between Water Rights*, the term supplemental is no longer used. Certificate G4-25570C is interpreted to be an alternate source to any and all existing primary rights at the time it was issued. Existing primary rights at that time included certificate numbers 791-A, 4455-A, 4456-A, and a portion of G3-20381C, with a total Qa of 2,898 acre-ft/yr.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate well source S10 was originally capable of producing 573 gpm. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source number S10 has recently produced up to 617 acre-ft/yr. Based on this information, the Qi of 500 gpm authorized by G4-25570C has been perfected.

Previous changes

There have been no previous changes on Certificate G4-25570C.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application, combined with other concurrent applications, is to change a groundwater withdrawal of more than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

The City completed SEPA for the water right consolidation project as a whole. On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

No other pertinent information relative to the background of this water right was identified.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Eleven wells, including the well authorized under Certificate G4-25570C, tap the Saddle Mountain Basalt Formation and three wells tap the deeper Wanapum Basalt Formation. Under the proposed change applications, the existing wells within a given source would be added as additional points of withdrawal to each water right with a point of withdrawal from that source, allowing the City greater flexibility to utilize the water rights throughout its well field. The City has also requested to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation and to add two potential future well locations as additional points of withdrawal from the Wanapum Formation. The proposed points of withdrawal from the Saddle Mountain Formation are listed on the first page of this report.

Other water rights appurtenant to the property

Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), which is not subject to change and is not considered further in this investigation. Eight certificated water rights authorize points of withdrawal from wells tapping the

Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Formation sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

Permit G4-27784P authorizes three points of withdrawal, two of which are completed in the Wanapum Formation (S02 and S13), and one of which is completed in the Saddle Mountain Formation (S10). One well (source number S03, Groundwater Certificate 791-A) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Formation. Under the proposed water right changes, only wells completed in the Wanapum Formation would be added as points of withdrawal to permit G4-27784P and certificate 791-A. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Formation, including Certificate G4-25570C.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A and G3-20381C are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) competed in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates

1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C). The combined annual quantity of water that can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C).

However, regardless of the potential maximum quantities that could be withdrawn from either source, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the sources, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the finding that source well S10 was capable of producing the authorized 500 gpm.

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Saddle Mountain Basalt Formation: S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and decommissioned source S04. Well sources interpreted to be completed in the Wanapum Basalt Formation include S02, S13, and S14.

Based on review of geologic reports, no geologic structures are mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed, east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Saddle Mountain Basalt Formation as a single body of groundwater, the twelve City wells completed in the Saddle Mountain Formation are in hydraulic continuity and tap the same source of public groundwater as each other. Completion of two proposed points of withdrawal (Future Well A and

Future Well B) within the Saddle Mountain Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Saddle Mountain Basalt.

Potential for Impairment

The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Saddle Mountain Formation. Five certificated groundwater rights were identified within or adjacent to the City. Attributes of these rights are summarized below.

Water Right Document	Person	Priority Date	Purposes	Qi (gpm)	Qa (acre-ft/ year)
G4-22918C	VANCE BILL M	4/29/1974	Irrigation, single domestic	60	33
G4-22873C	Swynenburg Brothers	4/10/1974	Single domestic	15	1
G4-23567C	LIBBY ET AL	6/19/1974	Commercial and industrial	250	134
G4-27273C	DAILEY ELLIS F	1/27/1981	Irrigation, frost protection	60	2.81
G4-*00357	Oregon & WA Railroad & Navigation Co	1/1/1912	Railway, group domestic	150	24.63

Three of these rights (G4-23567C, G4-27273C, and G4-*00357) are located within the City's current service area. To the best of their knowledge, the City does not believe these three rights are currently active.

Over 100 well logs were identified within about ½ mile of the City's wells, including about 25 logs for wells apparently located within the City's service area. Available water right and well log information indicates that all nearby wells are relatively shallow, tapping the upper portions of the Saddle Mountain Formation above the Pomona Member.

Four of the City's existing wells are completed above the Pomona Member, including source numbers S01, S06, S08, and S11. Additionally, planned Future Well A and Future Well B could be completed entirely above the upper portions of the Pomona Member, depending on conditions encountered during drilling and construction of these wells. Based on the indication of some degree of hydraulic separation between the portions of the Saddle Mountain Formation above and below the Pomona Member and the completion of all nearby non-City wells above the Pomona Member, the additional points of withdrawal with the greatest potential to cause impairment are source numbers S01, S06, S08, S11, and the two planned future wells.

Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the upper Saddle Mountain Formation near source numbers S01, S06, S08, S11, and the two planned future wells. Based on this review, there is one apparent domestic well mapped within approximately 1,500 feet of source well S01 and 2,300 feet of source well S06, one apparent domestic well potentially within approximately 1,000 feet of source well S03, and two apparent domestic wells mapped within approximately 1,500 feet of source well S11. No domestic wells appear to be located within about ½ mile of source well S08. Additionally, there are two domestic wells mapped within about 1,000 feet of Future well A and one domestic well mapped within about 900 feet of Future Well B. The City's operation of the existing wells completed in the upper Saddle Mountain Formation has not resulted in any reported impairment or significant drawdown interference with other nearby wells.

The City's existing wells completed above the Pomona Member currently have authorized Qi's under the existing water rights sufficient to utilize the maximum physical capacity of these wells, based on reported capacity in the City's Water System Plan. Therefore, the instantaneous withdrawals from these wells are not expected to increase under the proposed water rights changes. Since impairment (associated with drawdown interference) is largely a function of maximum instantaneous withdrawal rather than total annual withdrawal, adding source numbers S01, S06, S08, and S11 as additional points of withdrawal to Certificate G4-25570C is unlikely to result in impairment of other wells or water rights.

Completion of the planned future wells above the upper portions of the Pomona Member would allow increased Qi from the upper Saddle Mountain Formation at these well locations. The potential for a new withdrawal at each of these locations to result in impairment of nearby rights or wells was evaluated by estimating the drawdown at a distance of 900 feet from the future wells (the closest mapped distance to an apparent domestic well), conservatively assuming pumping at the maximum rate of 250 gpm from a single source with a 12-hour-on, 12-hour-off pumping schedule over a period of 30 days. The City's public works director indicated that cycling of the City's other Saddle Mountain Formation sources during periods of high demand is typically less than 12 hours of operation per day and that this represented a reasonably conservative scenario for peak use of the planned wells. Assuming a transmissivity of 535 ft^2/day, based on specific capacity tests for the City's wells, and a storage coefficient of 10^{-4}, the maximum estimated drawdown after 30 days at a well located 900 feet from one of the future wells is about 27 feet.

Based on thickness and depth to groundwater in the upper Saddle Mountain Formation, available drawdown for a fully penetrating well completed above the Pomona Member would be about 200 feet. The estimated 27 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed above the Pomona Member, including domestic wells operating under the water right permit exemption. This conclusion is further supported by the lack of reported drawdown interference or impairment of domestic wells located near the City's existing wells completed in the upper Saddle Mountain Formation. Should withdrawals at one of the new points of withdrawal result in impairment of other wells or water rights the City will have the flexibility to adjust pumping schedules to minimize drawdown impacts.

One or both of the future wells could be completed in the lower Saddle Mountain Formation (from the lower portion of the Pomona Member to above the Wanapum Formation) allowing increased Qi from these locations. Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the lower Saddle Mountain Formation near the proposed future wells. This review was limited to wells completed to depths of between 300 and 800 feet, corresponding to the depths of the lower Saddle Mountain Formation in the area. A total of six wells were identified within two miles of the planned future wells, all located east of Future Well B. The closest domestic well is located about 1.25 miles away. Using the same pumping scenario and aquifer parameters as assumed for evaluation of impairment for wells completed in the upper Saddle Mountain Formation, the maximum estimated drawdown after 30 days at a well located 1.25 miles from Future Well B is about 16 feet.

Based on thickness and depth to groundwater in the lower Saddle Mountain Formation, available drawdown for a fully penetrating well completed below the upper Pomona Member would be at least 400 feet. The estimated 16 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed below the Pomona Member, including domestic wells operating under the water right permit exemption.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 500 gpm as an alternate source to existing water right certificates 791-A, 4455-A, 4456-A, and G3-20381C for municipal use.

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that twelve of the proposed additional points of withdrawal tap the same body of public groundwater as the well (Source S10) authorized under Certificate G4-25570C.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

The Board found no indication that the additional points of withdrawal will cause impairment of other groundwater uses of the Saddle Mountain Formation.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION
Based on the above investigation and conclusions, the Board's decision is to approve the additional points of withdrawal, located as follows:

Continued

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S01 - 23092321441	NE	NW	23	9N	23E
S03 – 23092241550	NE	SE	22	9N	23E
S06 - 23092211011	NE	NE	22	9N	23E
S07 - 23091233002	SW	SW	12	9N	23E
S08 - 23092232448	NW	SW	22	9N	23E
S11 - 23092432016	NW	SW	24	9N	23E
S12 - 23092299984	SW	SW	22	9N	23E
S16 – 23091233002	SW	SW	12	9N	23E
S17 - 23092142403	NW	SE	21	9N	23E
S18 - 23092299984	SW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized point of withdrawal (Source S10) is retained without change in this decision.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

Planned points of withdrawal Future Wells A and B shall be constructed such that each well is completed entirely in either the upper or lower Saddle Mountain Formation, defined as above or below the upper portions of the Pomona Member.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

The maximum instantaneous withdrawals from planned points of withdrawal Future Wells A and B shall not exceed 250 gpm each. The maximum instantaneous withdrawals from existing points of withdrawal shall not exceed the rates approved in the original water right authorizations and subsequently perfected, as follows:

Source ID	Maximum Authorized Qi (gpm)
S01	400
S03	1,000
S04	600
S06	240
S07	325
S08	200
S10	500
S11	300
S12	190
S16	325
S17	600
S18	190

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview's municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 2 day of June, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer

ATTACHMENT 1
CITY OF GRANDVIEW
HISTORIC WATER PRODUCTION
(values are in acre-feet)

September 9, 2010

Source No.	Source Name	Previous Source Name	Year													
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

[ ] Surface Water

[X] Ground Water

...1977 | G4-22570 | ...G4-22570P | ...G4-22570C

CITY OF GRANDVIEW

207 West Second | Grandview, | Washington | 98930

PUBLIC WATER TO BE APPROPRIATED

... well

500 | ...

To be used continuously for a municipal supply.

LOCATION OF DIVERSION WITHDRAWAL

... feet south and 900 feet west of the center of Section 13.

	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	W.R.I.A.	COUNTY
... NE¼ SW¼	13	9	23 E	37	Yakima

RECORDED PLATTED PROPERTY

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Grandview.

[illegible] G.P.H. [illegible]

[illegible] additional [illegible]

Following is a list of the well permits and/or certificates and other data on file in the office of wells presently serving the city of Providence.

Well No.	Certificate/Permit No.	G.P.M.	As Reported Actual G.P.M.	AF/YR
1-2	63-20384-C	400	100	640
3	63-20381-C	700	850	1120
4	791-A	1000	450	1610
5	1338-A	600	250	784
6	CANCELLED		110	
7	4455-A	240	320	384
8	4456-A	325	No data	520
9	63-20382-C	200	60	322
10	63-20383-C	300	240	480
11	63-20385-C	40	No data	64
12	64-24086-C	500	190	306
	Totals:	4305	2570	6230

General information indicates approximately [illegible] gallons of water were used [illegible] for the categories [illegible] data from [illegible] CRPEN FRICKE, CONSULTING ENGINEERS for the [illegible] INDICATES AN [illegible] PERCENTAGE OF 11% IN INDUSTRIAL CONSUMPTION OF WATER FOR THE FIRST 6 MONTHS OF [illegible] WITH PROJECTED USE OF 490,000,000 GALLONS OF WATER FOR ALL CATEGORIES FOR [illegible]

REPORT OF EXAMINATION

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG3-20383C@1 (YAKI-07-15)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD) and Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology **AFFIRMS** the decision of the Board. A summary table of the decision follows:

Summary of Department of Ecology's Final Order

MAXIMUM CFS	MAXIMUM GPM	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	300	480, alternate, non-additive	Continuous municipal supply

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Thirteen (13) wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
S01 – 23092321441	NE	NW	23	9 N.	23 EWM	37	Yakima
S03 – 23092241550	NE	SE	22				
S06 – 23092211011	NE	NE	22				
S07 – 23091233002	SW	SW	12				
S08 – 23092232448	NW	SW	22				
S10 – 23091331002	NE	SW	13				
S11 – 23092432016	NW	SW	24				
S12 – 23092299984	SW	SW	22				
S16 – 23091233002	SW	SW	12				
S17 – 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A – 23091542411	NW	SE	15				
Future Well B – 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD					
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.					
PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE EWM

If you have any questions or concerns on the above information, please call Breean Zimmerman, Department of Ecology, at (509) 454-7647.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Sincerely,

Robert F. Barwin
Acting Section Manager
Water Resources Program

RFB:BZ:gh
110828

Enclosure: *Your Right To Be Heard*

By Certified Mail: 7007 2560 0001 9535 3137

cc: Sylvia Cervantes, County Water Conservancy Board
Janet Rajala, Department of Ecology, ERO (email/pdf)
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____

Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-15 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June, 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board

Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board

Approve ☐ Deny ☐ Abstain ☐ Recuse ☐

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	Certificate G3-20383C	October 8, 1951	YAKI-07-15

NAME			
City of Grandview			
ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal
☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)_____

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE			
	300	480, alternate, non-additive	Municipal supply, continuous			
SOURCE			TRIBUTARY OF (IF SURFACE WATER)			
A well (Source S11)						
AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY
23092432016	NW	SW	24	9N	23E	37	Yakima
LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED							
City of Grandview, Yakima County, Washington.							
PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE		

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE			
	300	480, alternate, non-additive	Municipal supply, continuous			
SOURCE			TRIBUTARY OF (IF SURFACE WATER)			
14 wells						

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S04 - 23092142400	NW	SE	21				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED					
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.					
PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	300	480, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
13 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

DESCRIPTION OF PROPOSED WORKS

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add thirteen points of withdrawal under Groundwater Certificate G3-20383C. The application was accepted at an open public meeting, and the board assigned application number YAKI-07-15. The application was modified on December 5, 2007 to add two additional points of withdrawal (source well S03 and Future Well A) and modified again on December 15, 2009 to add one additional point of withdrawal (Future Well B). In total, 13 additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Joe Morrice of Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right G3-20383C

Priority date: July 27, 1972

Water quantities: Qi: 300 gpm Qa: 480 acre-ft/yr, non-additive to Certificates of Groundwater Right 791-A, 4455-A, and 4456-A

Source: A well

Point of withdrawal: 2,592 feet north and 635 feet east of the SW corner of Section 24, Township 9N, Range 23 E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: City of Grandview, Yakima County, Washington.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

A water right permit (G3-20383P) was issued to the City on December 14, 1973, authorizing the withdrawal of 300 gpm, 480 acre-ft/yr for municipal use. The authorized source is well source number S11, previously referred to as Well No. 10. Water right certificate G3-20383C was issued on December 27, 1974, authorizing the withdrawal of 300 gpm, 480 acre-ft/yr. This certificate was issued on the same day and with the same priority date as the City's water right certificate G3-20381C. Per the underlying permits, these certificates limited total rights from all City sources at that time to 2,898 acre-ft/yr. The City's primary rights prior to issuance of these certificates totaled 2,114 acre-ft/yr. Review of the water rights records indicates that 784 acre-ft/yr of primary right was included in certificate G3-20381C, for a total of 2,898 acre-ft/yr of primary rights. This means the 480 acre-ft/yr issued under certificate G3-20383C is an alternate, non-additive right to existing water right certificates 791-A, 4455-A, and 4456-A.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate well source S11 was originally equipped with a 50 hp pump capable of producing 550 gpm. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source number S11 has recently produced up to 93 acre-ft/yr. Based on this information, the Qi of 300 gpm authorized by G3-20383C has been perfected.

Previous changes

There have been no previous changes on Certificate G3-20383C.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application, combined with other concurrent applications, is to change groundwater withdrawals of more than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

The City completed SEPA for the water right consolidation project as a whole. On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

No other pertinent information relative to the background of this water right was identified.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Eleven wells, including the well authorized under Certificate G3-20383C, tap the Saddle Mountain Basalt Formation and three wells tap the deeper Wanapum Basalt Formation. Under the proposed change applications, the existing wells within a given source would be added as additional points of withdrawal to each water right with a point of withdrawal from that source, allowing the City greater flexibility to utilize the water rights throughout its well field. The City has also requested to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation and to add two potential future well locations as additional points of withdrawal from the Wanapum Formation. The proposed points of withdrawal from the Saddle Mountain Formation are listed on the first page of this report.

Other water rights appurtenant to the property

Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), which is not subject to change and is not considered further in this investigation. Eight certificated water rights authorize points of withdrawal from wells tapping the

Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Aquifer sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

Permit G4-27784P authorizes three points of withdrawal, two of which are completed in the Wanapum Formation (S02 and S13), and one of which is completed in the Saddle Mountain Formation (S10). One well (source number S03, Groundwater Certificate 791-A) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Formation. Under the proposed water right changes, only wells completed in the Wanapum Formation would be added as points of withdrawal to permit G4-27784P and certificate 791-A. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Formation, including Certificate G3-20383C.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A and G3-20381C are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) competled in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates

1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C). The combined annual quantity of water that can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C).

However, regardless of the potential maximum quantities that could be withdrawn from either source, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the sources, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the following findings:

1. The original pump installed in source well S11 was capable of producing the authorized 300 gpm.
2. The annual quantity of 480 acre-ft/yr is alternate, non-additive to the primary rights authorized by certificates 791-A, 4455-A, and 4456-A.

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Saddle Mountain Basalt Formation: S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and decommissioned source S04. Well sources interpreted to be completed in the Wanapum Basalt Formation include S02, S13, and S14.

Based on review of geologic reports, no geologic structures are mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed, east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Saddle Mountain Basalt Formation as a single body of groundwater, the twelve City wells completed in the Saddle Mountain Formation are in hydraulic continuity and tap the same source of public groundwater as each other. Completion of two proposed points of withdrawal (Future Well A and Future Well B) within the Saddle Mountain Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Saddle Mountain Basalt.

Potential for Impairment

The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Saddle Mountain Formation. Five certificated groundwater rights were identified within or adjacent to the City. Attributes of these rights are summarized below.

Water Right Document	Person	Priority Date	Purposes	Qi (gpm)	Qa (acre-ft/ year)
G4-22918C	VANCE BILL M	4/29/1974	Irrigation, single domestic	60	33
G4-22873C	Swynenburg Brothers	4/10/1974	Single domestic	15	1
G4-23567C	LIBBY ET AL	6/19/1974	Commercial and industrial	250	134
G4-27273C	DAILEY ELLIS F	1/27/1981	Irrigation, frost protection	60	2.81
G4-*00357	Oregon & WA Railroad & Navigation Co	1/1/1912	Railway, group domestic	150	24.63

Three of these rights (G4-23567C, G4-27273C, and G4-*00357) are located within the City's current service area. To the best of their knowledge, the City does not believe these three rights are currently active.

Over 100 well logs were identified within about ½ mile of the City's wells, including about 25 logs for wells apparently located within the City's service area. Available water right and well log information indicates that all nearby wells are relatively shallow, tapping the upper portions of the Saddle Mountain Formation above the Pomona Member.

Four of the City's existing wells are completed above the Pomona Member, including source numbers S01, S06, S08, and S11. Additionally, planned Future Well A and Future Well B could be completed entirely above the upper portions of the Pomona Member, depending on conditions encountered during drilling and construction of these wells. Based on the indication of some degree of hydraulic separation between the portions of the Saddle Mountain Formation above and below the Pomona Member and the completion of all nearby non-City wells above the Pomona Member, the additional points of withdrawal with the greatest potential to cause impairment are source numbers S01, S06, S08, S11 (existing point of withdrawal), and the two planned future wells.

Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the upper Saddle Mountain Formation near source numbers S01, S06, S08, S11, and the two planned future wells. Based on this review, there is one apparent domestic well mapped within approximately 1,500 feet of source well S01 and 2,300 feet of source well S06, one apparent domestic well potentially within approximately 1,000 feet of source well S03, and two apparent domestic wells mapped within approximately 1,500 feet of source well S11. No domestic wells appear to be located within about ½ mile of source well S08. Additionally, there are two domestic wells mapped within about 1,000 feet of Future well A and one domestic well mapped within about 900 feet of Future Well B. The City's operation of the existing wells completed in the upper Saddle Mountain Formation has not resulted in any reported impairment or significant drawdown interference with other nearby wells.

The City's existing wells completed above the Pomona Member currently have authorized Qi's under the existing water rights sufficient to utilize the maximum physical capacity of these wells, based on reported capacity in the City's Water System Plan. Therefore, the instantaneous withdrawals from these wells are not expected to increase under the proposed water rights changes. Since impairment (associated with drawdown interference) is largely a function of maximum instantaneous withdrawal rather than total annual withdrawal, adding source numbers S01, S06, and S08 as additional points of withdrawal to Certificate G3-20383C is unlikely to result in impairment of other wells or water rights.

Completion of the planned future wells above the upper portions of the Pomona Member would result allow Qi from the upper Saddle Mountain Formation at these well locations. The potential for a new withdrawal at each of these locations to result in impairment of nearby rights or wells was evaluated by estimating the drawdown at a distance of 900 feet from the future wells (the closest mapped distance to an apparent domestic well), conservatively assuming pumping at the maximum rate of 250 gpm from a single source with a 12-hour-on, 12-hour-off pumping schedule over a period of 30 days. The City's public works director indicated that cycling of the City's other Saddle Mountain Formation sources during periods of high demand is typically less than 12 hours of operation per day and that this represented a reasonably conservative scenario for peak use of the planned wells. Assuming a transmissivity of 535 ft^2/day, based on specific capacity tests for the City's wells, and a storage coefficient of 10^{-4}, the maximum estimated drawdown after 30 days at a well located 900 feet from one of the future wells is about 27 feet.

Based on thickness and depth to groundwater in the upper Saddle Mountain Formation, available drawdown for a fully penetrating well completed above the Pomona Member would be about 200 feet. The estimated 27 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed above the Pomona Member, including domestic wells operating under the water right permit exemption. This conclusion is further supported by the lack of reported drawdown interference or impairment of domestic wells located near the City's existing wells completed in the

upper Saddle Mountain Formation. Should withdrawals at one of the new points of withdrawal result in impairment of other wells or water rights the City will have the flexibility to adjust pumping schedules to minimize drawdown impacts.

One or both of the future wells could be completed in the lower Saddle Mountain Formation (from the lower portion of the Pomona Member to above the Wanapum Formation) allowing increased Qi from these locations. Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the lower Saddle Mountain Formation near the proposed future wells. This review was limited to wells completed to depths of between 300 and 800 feet, corresponding to the depths of the lower Saddle Mountain Formation in the area. A total of six wells were identified within two miles of the planned future wells, all located east of Future Well B. The closest domestic well is located about 1.25 miles away. Using the same pumping scenario and aquifer parameters as assumed for evaluation of impairment for wells completed in the upper Saddle Mountain Formation, the maximum estimated drawdown after 30 days at a well located 1.25 miles from Future Well B is about 16 feet.

Based on thickness and depth to groundwater in the lower Saddle Mountain Formation, available drawdown for a fully penetrating well completed below the upper Pomona Member would be at least 400 feet. The estimated 16 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed below the Pomona Member, including domestic wells operating under the water right permit exemption.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 300 gpm and a Qa of 480 acre-ft/yr alternate, non-additive to existing water right certificates 791-A, 4455-A, and 4456-A.

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that twelve of the proposed additional points of withdrawal tap the same body of public groundwater as the well (Source S11) authorized under Certificate G3-20383C.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

The Board found no indication that the additional points of withdrawal will cause impairment of other groundwater uses of the Saddle Mountain Formation.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION

Based on the above investigation and conclusions, the Board's decision is to approve the additional points of withdrawal, located as follows:

Continued

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S01 - 23092321441	NE	NW	23	9N	23E
S03 – 23092241550	NE	SE	22	9N	23E
S06 - 23092211011	NE	NE	22	9N	23E
S07 - 23091233002	SW	SW	12	9N	23E
S08 - 23092232448	NW	SW	22	9N	23E
S10 - 23091331002	NE	SW	13	9N	23E
S12 - 23092299984	SW	SW	22	9N	23E
S16 - 23091233002	SW	SW	12	9N	23E
S17 - 23092142403	NW	SE	21	9N	23E
S18 - 23092299984	SW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized point of withdrawal (Source S11) is retained without change in this decision.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

Planned points of withdrawal Future Wells A and B shall be constructed such that each well is completed entirely in either the upper or lower Saddle Mountain Formation, defined as above or below the upper portions of the Pomona Member.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

The maximum instantaneous withdrawals from planned points of withdrawal Future Wells A and B shall not exceed 250 gpm each. The maximum instantaneous withdrawals from existing points of withdrawal shall not exceed the rates approved in the original water right authorizations and subsequently perfected, as follows:

Source ID	Maximum Authorized Qi (gpm)
S01	400
S03	1,000
S04	600
S06	240
S07	325
S08	200
S10	500
S11	300
S12	190
S16	325
S17	600
S18	190

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview's municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 12 day of Jan, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer

ATTACHMENT 1
CITY OF GRANDVIEW
HISTORIC WATER PRODUCTION
(values are in acre-feet)

September 9, 2010

Source No.	Source Name	Previous Source Name	Year													
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

G3-20383C	G3-20383P	G3-20383	July 27, 1972

CITY OF GRANDVIEW

114 Avenue "A"	Grandview	Washington	98930

PUBLIC WATER TO BE APPROPRIATED

a well (no. 10)

300	480

300 gallons per minute, 480 acre feet per year, continuously, for municipal supply.

LOCATION OF DIVERSION WITHDRAWAL

48 feet south and 635 feet east from W¼ corner of Sec. 24

WITHDRAWAL	24	9	23 E	37	Yakima

RECORDED PLATTED PROPERTY

LEGAL DESCRIPTION OF PROPERTY WATER TO BE USED ON

Area served by City of Grandview.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 W Yakima Ave, Ste 200 • Yakima, WA 98902-3452 • (509) 575-2490

August 17, 2011

City of Grandview
207 West 2nd Street
Grandview, WA 98930-1630

RE: Water Right Change Application No. CG4-24086C@1 (YAKI-07-16)

In accordance with RCW 90.80.080 the Department of Ecology (Ecology) has reviewed the Record of Decision (ROD) and Report of Examination (ROE), and all comments, protests, objections and other relevant information submitted by the Yakima County Water Conservancy Board (the Board) for the above referenced application for change.

Ecology **AFFIRMS** the decision of the Board. A summary table of the decision follows:

Summary of Department of Ecology's Final Order

MAXIMUM CFS	MAXIMUM GPM	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	190	306, alternate, non-additive	Continuous municipal supply

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
Thirteen (13) wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP	RANGE	WRIA	COUNTY
S01 – 23092321441	NE	NW	23	9 N.	23 EWM	37	Yakima
S03 – 23092241550	NE	SE	22				
S06 – 23092211011	NE	NE	22				
S07 – 23091233002	SW	SW	12				
S08 – 23092232448	NW	SW	22				
S10 – 23091331002	NE	SW	13				
S11 – 23092432016	NW	SW	24				
S12 – 23092299984	SW	SW	22				
S16 – 23091233002	SW	SW	12				
S17 – 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A – 23091542411	NW	SE	15				
Future Well B – 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD					
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.					
PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE EWM

If you have any questions or concerns on the above information, please call Breean Zimmerman, Department of Ecology, at (509) 454-7647.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this decision. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this decision:

- File your appeal and a copy of this decision with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this decision on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey WA 98503 **Pollution Control Hearings Board** 1111 Israel Road SW, Ste 301 Tumwater WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

Please send a copy of your appeal to:

Robert F. Barwin
Department of Ecology
Central Regional Office
15 W Yakima Avenue Ste 200
Yakima WA 98902-3452

For additional information visit the Environmental Hearings Office Website: http://www.eho.wa.gov
To find laws and agency rules visit the Washington State Legislature Website: http://www.leg.wa.gov/CodeReviser

Sincerely,

Robert F. Barwin
Acting Section Manager
Water Resources Program

RFB:BZ:gh
110829

Enclosure: *Your Right To Be Heard*
Construction Notice

By Certified Mail: 7007 2560 0001 9535 3137

cc: Sylvia Cervantes, County Water Conservancy Board
Janet Rajala, Department of Ecology, ERO (email/pdf)
Phillip Rigdon, Director, Natural Resources Division, Yakama Nation

For Ecology Use Only

Received:

Reviewed by: _____

Date Reviewed: _____

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
Record of Decision

Applicant: City of Grandview Application Number: YAKI-07-16 (11 applications)

This record of decision was made by a majority of the board at an open public meeting of the Yakima County Water Conservancy Board held on the 2nd day of June, 2011.

x Approval:

The Yakima County Water Conservancy Board hereby **grants** conditional approval for the water right transfer described and conditioned within the report of examination dated the 2nd day of June, 2011 and submits this record of decision and report of examination to the Department of Ecology for final review.

☐ **Denial:**

The Yakima County Water Conservancy Board hereby **denies** conditional approval for the water right transfer as described within the report of examination on the _____ day of _____, 2011 and submits this record of decision to the Department of Ecology for final review.

Signed:

_____ Date: 06-02-11
Jeff Stevens, Chair
Yakima County Water Conservancy Board
Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Dave Brown, Member
Yakima County Water Conservancy Board
Approve ☑ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: 06-02-11
Mark Reynolds, Member
Yakima County Water Conservancy Board
Approve ☒ Deny ☐ Abstain ☐ Recuse ☐

_____ Date: _____
Dave England, Alternate Voting Member
Yakima County Water Conservancy Board
Approve ☐ Deny ☐ Abstain ☐ Recuse ☐

Hand delivered to the Department of Ecology Central Regional Office of Ecology, hand-delivered, and other interested parties on _____.

Yakima County
WATER CONSERVANCY BOARD
Application for Change/Transfer
OF A RIGHT TO THE BENEFICIAL USE OF THE PUBLIC WATERS OF THE STATE OF WASHINGTON

Report of Examination

NOTE TO APPLICANT: Pursuant to WAC 173-153-130(8), the applicant is not permitted to proceed to act on the proposal until Ecology makes a final decision affirming, in whole or in part, the board's recommendation. It is advised that the applicant not proceed until the appeal period of Ecology's decision is complete.

NOTE TO AUTHOR: *Read the instructions for completing a water conservancy board report of examination. Use the F11 key to move through the form.*

☐ Surface Water ☒ Ground Water

DATE APPLICATION RECEIVED	WATER RIGHT DOCUMENT NUMBER	WATER RIGHT PRIORITY DATE	BOARD-ASSIGNED CHANGE APPLICATION NUMBER
April 7, 2007	Certificate G4-24086C	October 8, 1951	YAKI-07-16

NAME			
City of Grandview			
ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
207 West Second Street	Grandview	WA	98930

Changes Proposed: ☐ Change purpose ☐ Add purpose ☐ Add irrigated acres ☐ Change point of diversion/withdrawal
☒ Add point of diversion/withdrawal ☐ Change place of use ☐ Other (Temporary, Trust, Interties, etc.)

SEPA
The board has reviewed the provisions of the State Environmental Policy Act of 1971, Chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC and has determined the application is: ☐ Exempt ☒ Not exempt

BACKGROUND AND DECISION SUMMARY

Existing Right (Tentative Determination)

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	190	306, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
A well (Source S12)	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
23092299984	SW	SW	22	9N	23E	37	Yakima

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS USED
City of Grandview, Yakima County, Washington.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Proposed Use

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	190	306, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
14 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S04 - 23092142400	NW	SE	21				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED
The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE.

Board's Decision on the Application

MAXIMUM CUB FT/ SECOND	MAXIMUM GAL/MINUTE	MAXIMUM ACRE-FT/YR	TYPE OF USE, PERIOD OF USE
	190	306, alternate, non-additive	Municipal supply, continuous

SOURCE	TRIBUTARY OF (IF SURFACE WATER)
13 wells	

AT A POINT LOCATED: PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE	WRIA	COUNTY.
S01 - 23092321441	NE	NW	23	9N	23E	37	Yakima
S03 - 23092241550	NE	SE	22				
S06 - 23092211011	NE	NE	22				
S07 - 23091233002	SW	SW	12				
S08 - 23092232448	NW	SW	22				
S10 - 23091331002	NE	SW	13				
S11 - 23092432016	NW	SW	24				
S12 - 23092299984	SW	SW	22				
S16 - 23091233002	SW	SW	12				
S17 - 23092142403	NW	SE	21				
S18 - 23092299984	SW	SW	22				
Future Well A - 23091542411	NW	SE	15				
Future Well B - 23092421001	NE	NW	24				

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED AS APPROVED BY THE BOARD

The place of use of this water right is the service area described in the current Water System Plan approved by the Washington State Department of Health. RCW 90.03.386 may have the effect of revising the place of use of this water right if the criteria in section RCW 90.03.386(2) are not met.

PARCEL NO.	¼	¼	SECTION	TOWNSHIP N.	RANGE

DESCRIPTION OF PROPOSED WORKS

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and will also be connected to the City of Grandview water supply system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	COMPLETE CHANGE AND PUT WATER TO FULL USE BY THIS DATE:
Begun	December 31, 2021	December 31, 2026

REPORT

BACKGROUND

On April 7, 2007 the City of Grandview, Washington (City) filed an application for change to add thirteen points of withdrawal under Groundwater Certificate G4-24086C. The application was accepted at an open public meeting, and the board assigned application number YAKI-07-16. The application was modified on December 5, 2007 to add two additional points of withdrawal (source well S03 and Future Well A) and modified again on December 15, 2009 to add one additional point of withdrawal (Future Well B). In total, 13 additional points of withdrawal were requested through the original and modified applications.

This report was drafted by Joe Morrice of Aspect Consulting, LLC, consultant for the applicant, to document the Board's investigation and decision.

Attributes of the water right as currently documented

Name on certificate: City of Grandview

Water right document number: Certificate of Groundwater Right G4-24086C

Priority date: August 22, 1975

Water quantities: Qi: 190 gpm Qa: 306 acre-ft/yr, non-additive to Certificates of Groundwater Right 791-A, 4455-A, 4456-A, and G3-20381C

Source: A well

Point of withdrawal: 900 feet north and 800 feet east of the SW corner of Section 22, Township 9N, Range 23 E.W.M.

Purpose of use: Municipal supply

Period of use: Continuous

Place of use: City of Grandview, Yakima County, Washington.

Existing provisions: None

Tentative determination of the water right

The tentative determination is provided on the front page of this report.

History of water use

A water right permit (G4-24086P) was issued to the City on November 21, 1975, authorizing the withdrawal of 190 gpm, 306 acre-ft/yr for municipal use. A water right certificate was issued on September 19, 1977 with the same quantities authorized in the permit. The original authorized source is well source number S12, previously referred to as Well No. 11. In 2006 replacement well source S18 was constructed and source S12 was taken out of production.

The Report of Examination on which the permit was based recommended that the authorized quantities be "an alternate and supplemental supply to the permits and certificates of water right noted above." The listed water rights included certificate numbers 791-A, 1338-A, 4455-A, 4456-A, and G3-20381C through G3-20384C. Under Ecology Water Resources Program Policy-1040, *Use of Terms that Clarify Relationships Between Water Rights*, the term supplemental is no longer used. The annual quantity authorized by G4-24086C is interpreted to be alternate, non-additive to the existing primary rights authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Water right certificates 1338-A and G3-20382C through G3-20384C do not include any primary annual quantities.

Review of the City's records by the City engineer (Huibregtse, Louman Associates, Inc.) indicate replacement well source S18 is capable of producing 204 gpm. Review of the City's production data from 1993 through 2007 (Attachment 1) indicate source number S12 or replacement well S18 have recently produced up to 195.8 acre-ft/yr. Based on this information, the Qi of 190 gpm authorized by G4-24086C has been perfected.

Previous changes

There have been no previous changes on Certificate G4-24086C.

SEPA

The board has reviewed the proposed project relative to the provisions of the State Environmental Policy Act (SEPA) of 1971, chapter 43.21C RCW and the SEPA rules, chapter 197-11 WAC. Because the application, combined with other concurrent applications, is to change groundwater withdrawals of more than 2,250 gpm, it is not categorically exempt from SEPA (WAC 197-11-800(4)).

The City completed SEPA for the water right consolidation project as a whole. On February 13, 2008, the City (SEPA lead agency) issued a Determination of Non-Significance for the proposed project. This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

Other

No other pertinent information relative to the background of this water right was identified.

COMMENT AND PROTESTS

Public notice of the application was given in the Yakima Herald-Republic on April 1 and April 7, 2008. Protest period ended on May 7, 2008. A revised public notice, correcting the location of Future Well A and adding Future Well B, was published in the Yakima Herald-Republic and the Grandview Herald on April 20 and April 27, 2011.

There were no protests received during either 30 day protest period. In addition, no oral and written comments were received at an open public meeting of the board or other means as designated by the board.

INVESTIGATION

The following information was obtained from a site inspection conducted by Jeff Stevens and Dave England in April 2007 and Mark Reynolds in September 2009, technical reports, research of department records, and conversations with the applicant and/or other interested parties. A report documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes was submitted by the Applicant's consultant (Aspect Consulting, 2009). On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens.

Proposed project plans and specifications

This is one of eleven water right change applications filed with the Board by the City of Grandview requesting to add points of withdrawal to their existing water rights. No changes to the purpose of use, place of use, or period of use were requested.

The City currently operates eleven active wells and one emergency well and maintains two inactive wells. These existing wells each tap one of two distinct groundwater sources. Eleven wells, including the well authorized under Certificate G4-24086C, tap the Saddle Mountain Basalt Formation and three wells tap the deeper Wanapum Basalt Formation. Under the proposed change applications, the existing wells within a given source would be added as additional points of withdrawal to each water right with a point of withdrawal from that source, allowing the City greater flexibility to utilize the water rights throughout its well field. The City has also requested to add two potential future well locations as additional points of withdrawal from the Saddle Mountain Formation and to add two potential future well locations as additional points of withdrawal from the Wanapum Formation. The proposed points of withdrawal from the Saddle Mountain Formation are listed on the first page of this report.

Other water rights appurtenant to the property

Including the subject water right, the City holds ten certificated groundwater rights and one groundwater right permit for municipal use. The City also holds one pending groundwater right application (G4-29972), which is not subject to change and is not considered further in this investigation. Eight certificated water rights authorize points of withdrawal from wells tapping the Saddle Mountain Formation. These rights authorize a combined Qa of 904 acre-ft/yr in primary rights, a combined Qa of 2,532 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 2,755 gpm. Two water right certificates and one permit authorize points of withdrawal from wells tapping the Wanapum Formation. These rights authorize a combined Qa of 3,736 acre-ft/yr in primary rights, a combined Qa of 336 acre-ft/yr in alternate, non-additive rights, and a maximum combined Qi of 4,200 gpm. Attributes of the City's rights are summarized in the following tables.

Saddle Mountain Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Rights for Non-Additive Qa
1338-A	S17	10/8/1951	600	0	784	791-A
4455-A	S06	8/14/1962	240	384	0	
4456-A	S07 S16	8/14/1962	325	520	0	
G3-20382C	S08	7/27/1972	200	0	322	791-A, 4455-A, 4456-A
G3-20383C	S11	7/27/1972	300	0	480	791-A, 4455-A, 4456-A
G3-20384C	S01	7/27/1972	400	0	640	791-A, 4455-A, 4456-A
G4-24086C	S12 S18	8/22/1975	190	0	306	791-A, 4455-A, 4456-A, G3-20381C
G4-25570C	S10	10/13/1977	500	0	0	791-A, 4455-A, 4456-A, G3-20381C

Note: the total non-additive Qa for Saddle Mountain Formation water rights is 2,532 acre-ft/yr. These non-additive quantities are associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on the primary Qa authorized by certificates 791-A (1,210 acre-feet/yr) and G3-20381C (784 acre-feet/yr), up to 1,994 acre-feet/yr of primary Qa associated with these Wanapum Formation sources could be exercised using the non-additive rights associated with Saddle Mountain Formation sources.

Wanapum Formation Sources and Water Rights

Water Right Document	Authorized Source No.	Priority Date	Qi (gpm)	Primary Qa (acre-ft/ year)	Non-Additive Qa (acre-ft/ year)	Primary Right for Non-Additive Qa
791-A	S03 (see text)	8/15/1947	1,000	1,210	0	
G3-20381C	S02	7/27/1972	700	784	336	791-A, 4455-A, 4456-A
G4-27784P	S02, S10, S13	12/21/1981	2,500	1,742	0	
G4-29972	S14	4/12/1989	No permit has been issued for this application.			

Note: the non-additive Qa of 336 acre-feet/yr authorized by certificate G3-20381C is associated with primary water rights from both Saddle Mountain and Wanapum Formation sources. Exercise of the non-additive Qa is limited to the primary Qa authorized in the underlying water rights. Relying on a portion of the primary Qa authorized by certificates 4455-A (384 acre-feet/yr) and/or 4456-A (520 acre-feet/yr), up to 336 acre-feet/yr of primary Qa associated with these Saddle Mountain Formation sources could be exercised using the non-additive right Wanapum Formation source authorized by certificate G3-20381C.

Permit G4-27784P authorizes three points of withdrawal, two of which are completed in the Wanapum Formation (S02 and S13), and one of which is completed in the Saddle Mountain Formation (S10). One well (source number S03, Groundwater Certificate 791-A) originally tapped both the Wanapum and Saddle Mountain Formations, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Formation. Under the proposed water right changes, only wells completed in the Wanapum Formation would be added as points of withdrawal to permit G4-27784P and certificate 791-A. The well source S03 would no longer be a point of withdrawal for certificate 791-A and would be added as a point of withdrawal to other water rights authorizing withdrawals from the Saddle Mountain Formation, including Certificate G4-24086C.

Six of the City's water rights associated with Saddle Mountain Formation sources authorize annual quantities that are interpreted as being alternate, non-additive to previously issued water rights. The annual quantity authorized by certificate 1338-A is non-additive to the primary annual quantity authorized by certificate 791-A. The annual quantities authorized by certificates G3-20382C, G3-20383C, and G3-20384C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The annual quantities authorized by certificates G4-24086C and G4-25570C are non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C. Of note, the combined primary annual rights of 1,994 acre-ft/yr authorized by certificates 791-A and G3-20381C are from sources completed in the Wanapum Formation. Based on the previous water right authorizations by Ecology, the City is able to exercise these primary rights from non-additive sources completed in the Saddle Mountain Formation.

One of the City's water rights associated with the Wanapum Formation (G3-20381C) authorizes an annual quantity that is in part alternate, non-additive to the primary annual quantities authorized by certificates 791-A, 4455-A, and 4456-A. The primary annual rights authorized by certificates 4455-A and 4456-A are from sources completed in the Saddle Mountain Formation. Based on Ecology's approval of a portion of G3-20381C as alternate, non-additive to certificates 4455-A and 4456-A, the City is able to exercise up to 336 acre-ft/yr of primary rights associated with certificates 4455-A and 4456-A using a well (source S02) completed in the Wanapum Formation.

The combined annual quantity of water that can be withdrawn from the Saddle Mountain Formation is equal to 904 acre-feet/yr of primary Qa (certificates 4455-A and 4456-A) plus 1,994 acre-feet/yr of alternate, non-additive Qa (certificates 1338-A, G3-20382C, G3-20383C, G3-20384C, G4-24086C and G4-25570C). The combined annual quantity of water that can be withdrawn from the Wanapum Formation is equal to 3,736 acre-feet/yr of primary Qa (certificates 791-A and G3-20381C and permit G4-27784P) plus 336 acre-feet/yr of alternate, non-additive Qa (certificate G3-20381C).

However, regardless of the potential maximum quantities that could be withdrawn from either source, the combined primary water rights of 4,640 acre-ft/yr could not be exceeded. Under the proposed water right changes neither the maximum annual quantity that could be withdrawn from each of the sources, nor the combined annual quantity of 4,640 acre-ft/yr would change from what is currently authorized.

Public Interest

The proposed transfer is subject to RCW 90.44.100 and therefore, cannot be detrimental to the public interest, including impacts on any watershed planning activities. The Board received no comments, protests, or other indications that the proposed change would be detrimental to the public interest.

Tentative Determination

In order to make a water right change decision, the Board must make a tentative determination on the validity and extent of the right. The Board has made the tentative determination as displayed upon the first page of this report. The Board's tentative determination was based upon the following findings:

1. Replacement well S18 is capable of producing 204 gpm.
2. The annual quantity of 306 acre-ft/yr is alternate, non-additive to the primary rights authorized by certificates 791-A, 4455-A, 4456-A, and G3-20381C .

Geologic, Hydrogeologic, or other scientific investigations
The Board considered a technical report submitted by the Applicant's consultant (Aspect Consulting, 2009) documenting the groundwater source for each of the City's wells and evaluating the potential for impairment due to the proposed water right changes. On January 5, 2010 the potential for impairment was further discussed between the Applicant, the Applicant's consultant, John Kirk of the Department of Ecology, and Board members Dave Brown and Jeff Stevens. The following sections summarize the same source of public groundwater and impairment evaluations.

Same Source of Public Groundwater
Construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the body of groundwater in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum Formation) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the formations that could impede groundwater flow and limit hydraulic continuity between points of withdrawal.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). The Saddle Mountain Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountain Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountain Basalt Formation.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs. The Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs.

Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered by Ecology to be a single source managed as a single body of groundwater. Depth to water in the Saddle Mountain Formation depends on depth of completion. Depth to water in wells completed above the Pomona Member are typically less than 50 to 100 feet below ground surface and depth to water in wells completed below the Pomona Member are typically 100 to 200 feet below ground surface. Although managed as a single body of groundwater, the depth to groundwater observations indicate some hydraulic separation between the upper and lower parts of the formation.

The Wanapum Basalt Formation is also considered to be a single source managed as a single body of groundwater. Depth to groundwater in this formation is on the order of 200 feet below ground surface.

Based on the review of well construction logs and geologic conditions, the following well sources were interpreted to be completed in the Saddle Mountain Basalt Formation: S01, S03, S06, S07, S08, S10, S11, S12, S16, S17, S18, and decommissioned source S04. Well sources interpreted to be completed in the Wanapum Basalt Formation include S02, S13, and S14.

Based on review of geologic reports, no geologic structures are mapped in the area of the City's wells. Additionally, an evaluation of the correlation of the basalt flows and interbeds between the City's wells did not show any offset that would be

expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is an small, unnamed, east-west trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Saddle Mountain Basalt Formation as a single body of groundwater, the twelve City wells completed in the Saddle Mountain Formation are in hydraulic continuity and tap the same source of public groundwater as each other. Completion of two proposed points of withdrawal (Future Well A and Future Well B) within the Saddle Mountain Basalt Formation would also be in hydraulic continuity and tap the same source of public groundwater as existing City wells completed in the Saddle Mountain Basalt.

Potential for Impairment

The Department of Ecology water rights and well log databases were queried to identify wells near the City of Grandview that tap the Saddle Mountain Formation. Five certificated groundwater rights were identified within or adjacent to the City. Attributes of these rights are summarized below.

Water Right Document	Person	Priority Date	Purposes	Qi (gpm)	Qa (acre-ft/ year)
G4-22918C	VANCE BILL M	4/29/1974	Irrigation, single domestic	60	33
G4-22873C	Swynenburg Brothers	4/10/1974	Single domestic	15	1
G4-23567C	LIBBY ET AL	6/19/1974	Commercial and industrial	250	134
G4-27273C	DAILEY ELLIS F	1/27/1981	Irrigation, frost protection	60	2.81
G4-*00357	Oregon & WA Railroad & Navigation Co	1/1/1912	Railway, group domestic	150	24.63

Three of these rights (G4-23567C, G4-27273C, and G4-*00357) are located within the City's current service area. To the best of their knowledge, the City does not believe these three rights are currently active.

Over 100 well logs were identified within about ½ mile of the City's wells, including about 25 logs for wells apparently located within the City's service area. Available water right and well log information indicates that all nearby wells are relatively shallow, tapping the upper portions of the Saddle Mountain Formation above the Pomona Member.

Four of the City's existing wells are completed above the Pomona Member, including source numbers S01, S06, S08, and S11. Additionally, planned Future Well A and Future Well B could be completed entirely above the upper portions of the Pomona Member, depending on conditions encountered during drilling and construction of these wells. Based on the indication of some degree of hydraulic separation between the portions of the Saddle Mountain Formation above and below the Pomona Member and the completion of all nearby non-City wells above the Pomona Member, the additional points of withdrawal with the greatest potential to cause impairment are source numbers S01, S06, S08, S11, and the two planned future wells.

Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the upper Saddle Mountain Formation near source numbers S01, S06, S08, S11, and the two planned future wells. Based on this review, there is one apparent domestic well mapped within approximately 1,500 feet of source well S01 and 2,300 feet of source well S06, one apparent domestic well potentially within approximately 1,000 feet of source well S03, and two apparent domestic wells mapped within approximately 1,500 feet of source well S11. No domestic wells appear to be located within about ½ mile of source well S08. Additionally, there are two domestic wells mapped within about 1,000 feet of Future well A and one domestic well mapped within about 900 feet of Future Well B. The City's operation of the existing wells completed in the upper Saddle Mountain Formation has not resulted in any reported impairment or significant drawdown interference with other nearby wells.

The City's existing wells completed above the Pomona Member currently have authorized Qi's under the existing water rights sufficient to utilize the maximum physical capacity of these wells, based on reported capacity in the City's Water System Plan. Therefore, the instantaneous withdrawals from these wells are not expected to increase under the proposed water rights changes. Since impairment (associated with drawdown interference) is largely a function of maximum instantaneous withdrawal rather than total annual withdrawal, adding source numbers S01, S06, S08, and S11 as additional points of withdrawal to Certificate G4-24086C is unlikely to result in impairment of other wells or water rights.

Completion of the planned future wells above the upper portions of the Pomona Member would allow increased Qi from the upper Saddle Mountain Formation at these well locations. The potential for a new withdrawal at each of these locations to result in impairment of nearby rights or wells was evaluated by estimating the drawdown at a distance of 900 feet from the future wells (the closest mapped distance to an apparent domestic well), conservatively assuming pumping at the maximum rate of 250 gpm from a single source with a 12-hour-on, 12-hour-off pumping schedule over a period of 30 days. The City's public works director indicated that cycling of the City's other Saddle Mountain Formation sources during periods of high demand is typically less than 12 hours of operation per day and that this represented a reasonably conservative scenario for peak use of the planned wells. Assuming a transmissivity of 535 ft^2/day, based on specific capacity tests for the City's wells, and a storage coefficient of 10^{-4}, the maximum estimated drawdown after 30 days at a well located 900 feet from one of the future wells is about 27 feet.

Based on thickness and depth to groundwater in the upper Saddle Mountain Formation, available drawdown for a fully penetrating well completed above the Pomona Member would be about 200 feet. The estimated 27 feet of drawdown due to

pumping the future wells would not cause impairment of a fully penetrating well completed above the Pomona Member, including domestic wells operating under the water right permit exemption. This conclusion is further supported by the lack of reported drawdown interference or impairment of domestic wells located near the City's existing wells completed in the upper Saddle Mountain Formation. Should withdrawals at one of the new points of withdrawal result in impairment of other wells or water rights the City will have the flexibility to adjust pumping schedules to minimize drawdown impacts.

One or both of the future wells could be completed in the lower Saddle Mountain Formation (from the lower portion of the Pomona Member to above the Wanapum Formation) allowing increased Qi from these locations. Mapped quarter-quarter section locations and address and parcel number data in the Ecology well log database was reviewed to identify potential domestic wells completed in the lower Saddle Mountain Formation near the proposed future wells. This review was limited to wells completed to depths of between 300 and 800 feet, corresponding to the depths of the lower Saddle Mountain Formation in the area. A total of six wells were identified within two miles of the planned future wells, all located east of Future Well B. The closest domestic well is located about 1.25 miles away. Using the same pumping scenario and aquifer parameters as assumed for evaluation of impairment for wells completed in the upper Saddle Mountain Formation, the maximum estimated drawdown after 30 days at a well located 1.25 miles from Future Well B is about 16 feet.

Based on thickness and depth to groundwater in the lower Saddle Mountain Formation, available drawdown for a fully penetrating well completed below the upper Pomona Member would be at least 400 feet. The estimated 16 feet of drawdown due to pumping the future wells would not cause impairment of a fully penetrating well completed below the Pomona Member, including domestic wells operating under the water right permit exemption.

Other

No other pertinent information relative to the investigation of this water right was identified

CONCLUSIONS

Tentative determination (validity and extent of the right)

The Board finds that a valid water right exists for a Qi of 190 gpm and a Qa of 306 acre-ft/yr alternate, non-additive to existing water right certificates 791-A, 4455-A, 4456-A, and G3-20381C.

Relinquishment or abandonment concerns

The Board found no evidence of relinquishment or abandonment of the water right under consideration.

Hydraulic analysis

The Board found that twelve of the proposed additional points of withdrawal tap the same body of public groundwater as the original well and replacement well (Sources S12 and S18) authorized under Certificate G4-24086C.

Consideration of comments and protests

No protests or comments were received concerning the proposed change.

Impairment

The Board found no indication that the additional points of withdrawal will cause impairment of other groundwater uses of the Saddle Mountain Formation.

Public Interest

The proposed change will not be detrimental to the public interest.

Other

The board also considered the previous provisions associated with the water right as identified in the background section of this report when making its decision.

DECISION

Based on the above investigation and conclusions, the Board's decision is to approve the additional points of withdrawal, located as follows:

Source ID and Parcel Number	¼	¼	SECTION	TOWNSHIP N.	RANGE
S01 - 23092321441	NE	NW	23	9N	23E
S03 – 23092241550	NE	SE	22	9N	23E
S06 - 23092211011	NE	NE	22	9N	23E
S07 - 23091233002	SW	SW	12	9N	23E
S08 - 23092232448	NW	SW	22	9N	23E
S10 - 23091331002	NE	SW	13	9N	23E
S11 - 23092432016	NW	SW	24	9N	23E
S16 - 23091233002	SW	SW	12	9N	23E
S17 - 23092142403	NW	SE	21	9N	23E
S18 - 23092299984	SW	SW	22	9N	23E
Future Well A - 23091542411	NW	SE	15	9N	23E
Future Well B - 23092421001	NE	NW	24	9N	23E

The original authorized points of withdrawal (Sources S12 and S18) are retained without change in this decision.

PROVISIONS

Conditions and limitations

If it can be shown that the requested change has a detrimental effect on existing rights, it shall be the responsibility of the water right holder to mitigate for this impact and/or alter or cease withdrawal of water.

Planned points of withdrawal Future Wells A and B shall be constructed such that each well is completed entirely in either the upper or lower Saddle Mountain Formation, defined as above or below the upper portions of the Pomona Member.

The amount of water granted is a maximum limit that shall not be exceeded and the water user shall be entitled only to that amount of water within the specified limit that is beneficially used and required.

The maximum instantaneous withdrawals from planned points of withdrawal Future Wells A and B shall not exceed 250 gpm each. The maximum instantaneous withdrawals from existing points of withdrawal shall not exceed the rates approved in the original water right authorizations and subsequently perfected, as follows:

Source ID	Maximum Authorized Qi (gpm)
S01	400
S03	1,000
S04	600
S06	240
S07	325
S08	200
S10	500
S11	300
S12	190
S16	325
S17	600
S18	190

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", Chapter 173-173 WAC. Water use data shall be recorded weekly; flow rates and totalizer readings shall be recorded weekly.

The maximum rate of diversion/withdrawal and the annual total volume shall be submitted to Ecology by January 31st of each calendar year. The following information shall be included with each submittal of water use data: (1) owner; (2) contact name if different; (3) mailing address; (4) daytime phone number; (5) WRIA; (6) Permit/Certificate No.; (7) source name; (8) annual quantity used including units of measurement; (9) maximum rate of diversion, including units of measurement, (10) weekly meter readings including units of measurement, (11) peak monthly flow including units of measurement, (12) purpose of use, and (13) well tag number. In the future, Ecology may require additional parameters to be reported or to be reported on a more frequent basis. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

Chapter 173-173 WAC describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition Ecology for modification to some of the requirements. Installation, operation, and maintenance requirements are enclosed as a document entitled "Water Measurement Device Installation and Operation Requirements".

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times, to the records of water use that are kept to meet the above conditions, and to inspect at reasonable times any measuring device used to meet the above conditions.

Installation and maintenance of an access port as described in Chapter 173-600 is required. An airline and gauge may be installed in addition to the access port.

Construction Schedule

Ten of the 12 additional points of withdrawal currently exist and are connected to the City of Grandview's municipal water supply system. Two additional points of withdrawal (Future Well A and Future Well B) are planned and shall be completed by December 31, 2021.

The undersigned board commissioner certifies that he/she understands the board is responsible "to ensure that all relevant issues identified during its evaluation of the application, or which are raised by any commenting party during the board's evaluation process, are thoroughly evaluated and discussed in the board's deliberations. These discussions must be fully documented in the report of examination." [WAC 173-153-130(5)] The undersigned therefore, certifies that he/she, having reviewed the report of examination, knows and understands the content of this report and concurs with the report's conclusions.

Signed at Yakima, Washington
This 12 day of June, 2011

Jeff Stevens, Chairman
Yakima County Water Conservancy Board

If you have special accommodation needs or require this form in alternate format, please contact 360-407-6607 (Voice) or 711 (TTY) or 1-800-833-6388 (TTY).

Ecology is an equal opportunity employer

ATTACHMENT 1
CITY OF GRANDVIEW
HISTORIC WATER PRODUCTION
(values are in acre-feet)

September 9, 2010

Source No.	Source Name	Previous Source Name	Year													
			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
S01	West Main	City Shop	290.5		289.8	267.5	231.6	207.9	265.3	110.8			232.7	212.9	216.1	256.1	211.4
S02	Balcom & Moe		113.7		25.6	83.1	16.1	44.1	155.6	170.8			129.8	124.5	180.1	26.1	349.0
S03	Velma	Hillcrest	445.1		436.2	431.6	503.7	511.2	512.5	513.1			487.8	453.6	13.8	57.6	278.5
S04	Orchard Tracts		153.7		368.4	383.8	332.5	290.9	214.3	110.1			0.0	0.0	44.7	0.0	0.0
S17	Ashael Curtis															294.2	112.3
S06	Euclid	Safeway	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.5	0.0	0.0	0.0
S07	Olmstead A	Springs A	196.5		0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	355.3	0.0	0.0
S16	Olmstead B	Springs B														455.5	392.0
S08	Appleway	Cohu	0.0		0.0	0.0	0.0	0.0	0.0	0.0			60.6	29.6	0.0	0.0	0.0
S11	Highland	Highland B	0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.6	66.1	45.4	84.1	93.0
S12	Pecan A		0.0		0.0	0.0	0.0	0.0	0.0	0.0			80.1	68.2	34.1	0.0	0.0
S18	Pecan B															10.7	195.8
S10	N. Willoughby		475.0		587.5	617.0	597.6	532.1	405.5	345.0			40.0	148.1	41.1	3.4	400.6
S13	S. Willoughby		382.0		329.1	156.6	395.4	655.1	614.6	585.0			796.4	962.4	819.4	419.4	0.8
S14	Butternut		217.8		316.9	89.4	211.1	266.4	209.2	317.4			318.9	218.2	387.7	371.7	241.4

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

CERTIFICATE OF WATER RIGHT

☐ Surface Water (Issued in accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the Department of Ecology.)

☒ Ground Water (Issued in accordance with the provisions of Chapter 263, Laws of Washington for 1945, and amendments thereto, and the rules and regulations of the Department of Ecology.)

PRIORITY DATE	APPLICATION NUMBER	PERMIT NUMBER	CERTIFICATE NUMBER
August 22, 1975	G4-24086	G4-24086P	G4-24035C

NAME
CITY OF GRANDVIEW

ADDRESS (STREET) (CITY) (STATE) (ZIP CODE)
114 Avenue A Grandview Washington 98930

This is to certify that the herein named applicant has made proof to the satisfaction of the Department of Ecology of a right to the use of the public waters of the State of Washington as herein defined, and under and specifically subject to the provisions contained in the Permit issued by the Department of Ecology, and that said right to the use of said waters has been perfected in accordance with the laws of the State of Washington, and is hereby confirmed by the Department of Ecology and entered of record as shown.

PUBLIC WATER TO BE APPROPRIATED

SOURCE
A well
(TRIBUTARY OF (IF SURFACE WATERS))

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE-FEET PER YEAR
	190	306

QUANTITY, TYPE OF USE, PERIOD OF USE
To be used for municipal supply continuously.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
400 feet east and 900 feet north from the northwest corner of Section 22.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, E. OR W.M.	W.R.I.A.	COUNTY
NW¼NW¼	22	9	23 E.	37	Yakima

RECORDED PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)

LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED

Area served by the City of Grandview.

State of Washington
Department of Ecology

APPLICATION FOR PERMIT
TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON

☐ SURFACE WATER ☒ GROUND WATER

RECEIVED
APR 12 1989
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

$10.00 MINIMUM STATUTORY EXAMINATION FEE REQUIRED WITH APPLICATION

(GRAY BOXES FOR OFFICE USE ONLY)

APPLICATION NO.	W.R.I.A.	COUNTY	PRIORITY DATE	TIME	ACCEPTED
G 429972	37	Yakima	4-12-89		SMB

APPLICANT'S NAME – PLEASE PRINT: (City of Grandview) | BUSINESS TEL. 882-9200 | HOME TEL.

ADDRESS (STREET): 207 West Second | (CITY): (Grandview) | (STATE): WA | (ZIP CODE): 98930

DATE & PLACE OF INCORPORATION IF APPLICANT IS A CORPORATION:

1. SOURCE OF SUPPLY

IF SURFACE WATER	IF GROUND WATER
SOURCE (NAME OF STREAM, LAKE, SPRING, ETC.) (IF UNNAMED, SO STATE)	SOURCE (WELL, TUNNEL, INFILTRATION TRENCH, ETC.): (Well #15)
TRIBUTARY	SIZE AND DEPTH: 16" Diameter x 1100 feet deep.

2. USE

USE TO WHICH WATER IS TO BE APPLIED (DOMESTIC SUPPLY, IRRIGATION, MINING, MANUFACTURING, ETC.)

ENTER QUANTITY OF WATER REQUESTED USING UNITS OF:	CUBIC FEET PER SECOND CFS	OR	GALLONS PER MINUTE	ACRE FEET PER YEAR
(continuous municipal supply)			1500 GPM	2420

TIMES DURING YEAR WATER WILL BE REQUIRED: All year.

IF IRRIGATION, NUMBER OF ACRES	IF DOMESTIC USE, NUMBER OF UNITS BY TYPE, E.G. 1-HOME, 1-MOBILE HOME, 2-CAMPSITES, ETC.	IF MUNICIPAL USE, ESTIMATED POPULATION 20 YEARS FROM TODAY
		9300

DATE PROJECT WAS OR WILL BE STARTED	DATE PROJECT WAS OR WILL BE COMPLETED
April 1989	December 1989

3. LOCATION OF POINT OF DIVERSION/WITHDRAWAL

3A. IF IN PLATTED PROPERTY

LOT	BLOCK	OF (GIVE NAME OF PLAT OR ADDITION)	SECTION	TOWN	RANGE	ALSO, PLEASE ENCLOSE A COPY OF THE PLAT AND MARK THE POINT(S) OF WITHDRAWAL OR DIVERSION
D		Short Plat 0-55	22	9	23	

(NE¼ SW½ (should SW¼ JBR 8-10-89) Yakima County)

3B. IF NOT IN PLATTED PROPERTY

ON ACCOMPANYING SECTION MAPS, ACCURATELY MARK AND IDENTIFY EACH POINT OF DIVERSION. SHOW NORTH-SOUTH AND EAST-WEST DISTANCES FROM NEAREST SECTION CORNER OR PROPERTY CORNER.

ALSO, ENTER BELOW THE DISTANCES FROM THE NEAREST SECTION OR PROPERTY CORNER TO THE DIVERSION OR WITHDRAWAL.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE (E. OR W.) W.M.	COUNTY

4. DO YOU OWN THE LAND ON WHICH THIS SOURCE IS LOCATED. IF NOT, INSERT NAME & ADDRESS OF OWNER

Yes.

5. LEGAL DESCRIPTION OF PROPERTY *ON WHICH WATER IS TO BE USED*

ATTACH A COPY OF THE LEGAL DESCRIPTION OF THE PROPERTY (ON WHICH THE WATER WILL BE USED) TAKEN FROM A REAL ESTATE CONTRACT, PROPERTY DEED OR TITLE INSURANCE POLICY. OR, COPY CAREFULLY IN THE SPACE BELOW.

Parcel "D," Book 0-55.

? City is POU

APPLICATION

ECY-040-1-14
Rev. 3/81

WHAT IS YOUR INTEREST IN THE PROPERTY ON WHICH WATER IS TO BE USED (PROPERTY OWNER, LESSEE, CONT PURCHASER, ETC.)

Municipal purveyor to City of Grandview water customers.

ARE THERE ANY EXISTING WATER RIGHTS RELATED TO THE LAND ON WHICH THE WATER IS TO BE USED (INCLUDING WATER PROVIDED BY IRRIGATION DISTRICTS OR DITCH COMPANIES.) [X] YES [ ] NO

IF YES, FROM WHAT SOURCE (i.e. SURFACE OR GROUND WATER) AND UNDER WHAT AUTHORITY

Existing water rights for other City wells.

6. DESCRIPTION OF SYSTEM PROPOSED OR INSTALLED

(FOR EXAMPLE: SIZE OF PUMP, CAPACITY OF PUMP, PUMP MOTOR HORSE POWER, PIPE DIAMETER, NUMBER OF SPRINKLERS, ETC.)

The proposed well project will include an estimated 16" diameter x 1100 feet deep well, a 1500 gpm deepwell turbine pump, new aeration treatment equipment, new 1500 gpm booster pump, new pumphouse and treatment building with associated valves, fittings, piping, and electrical controls, and approximately 700 LF of new 12" transmission main connecting to existing City of Grandview water system piping.

REMARKS

7.

IF 10 ACRE-FEET OR MORE OF WATER IS TO BE STORED AND/OR IF THE WATER DEPTH WILL BE 10 FEET OR MORE AT THE DEEPEST POINT, A STORAGE PERMIT MUST BE FILED IN ADDITION TO THIS PERMIT. THESE FORMS CAN BE SECURED, TOGETHER WITH INSTRUCTIONS, FROM THE DEPARTMENT OF ECOLOGY.

SIGNATURES

City Supervisor
APPLICANT'S SIGNATURE

City of Grandview
LEGAL LANDOWNERS NAME (PLEASE PRINT)

City Supervisor
LEGAL LANDOWNER'S SIGNATURE

207 West Second, Grandview, WA 98930
LEGAL LANDOWNER'S ADDRESS

FOR OFFICE USE ONLY

STATE OF WASHINGTON } ss.
DEPARTMENT OF ECOLOGY }

This is to certify that I have examined this application together with the accompanying maps and data, and am returning it for correction or completion as follows: .....

.....

.....

In order to retain its priority date, this application must be returned to the Department of Ecology, with corrections, on or before....., 19.....

Witness my hand this.....*day of*....., 19.....

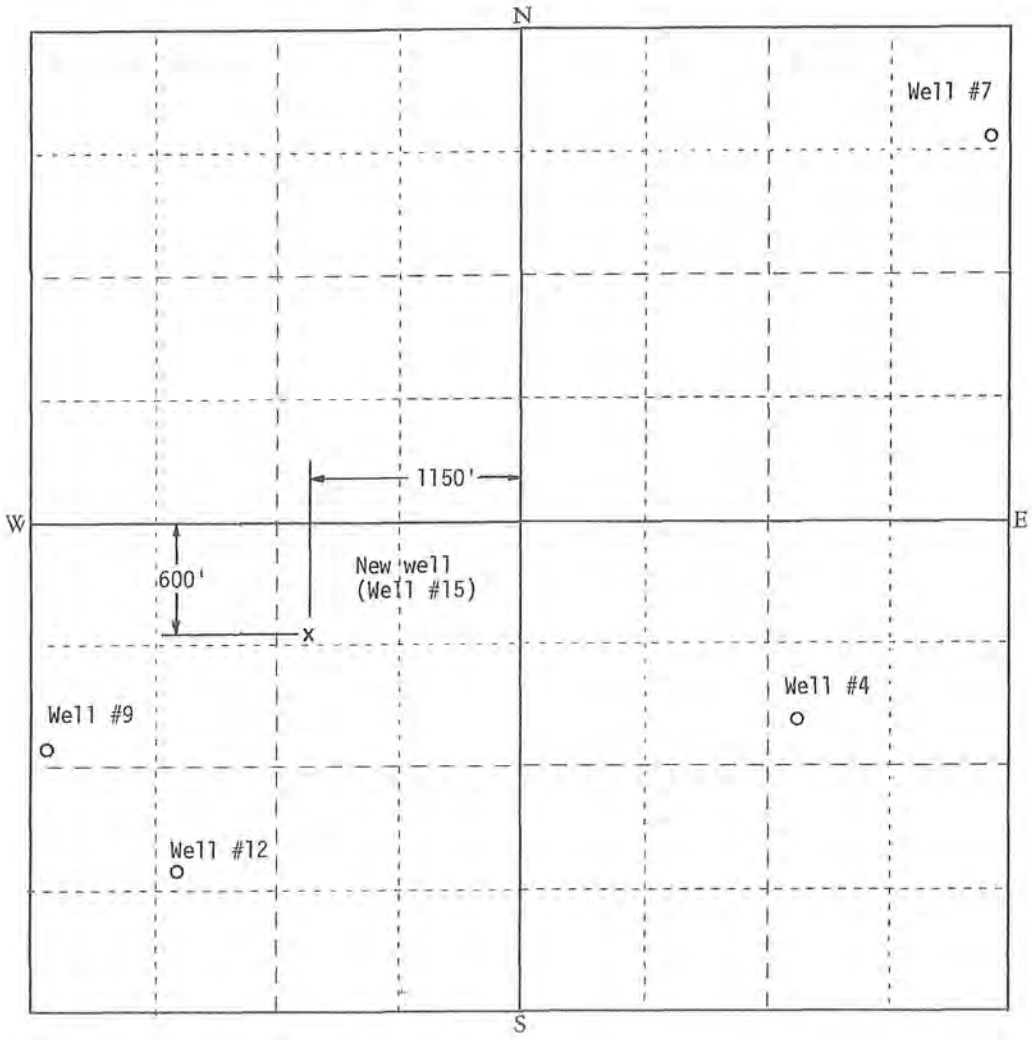
.....
Department of Ecology

ECY-040-1-14
Rev. 3/81

SECTION MAP

129972

Sec. 22 Twp. 9 N. R. 23



Scale: 1 inch = 800 feet (each small square = 10 acres)

Show by a cross (X) the location of point of diversion (surface water source) or point of withdrawal (ground water source). For ground water applications, show by a circle (O) the locations of other wells or works within a quarter of a mile.

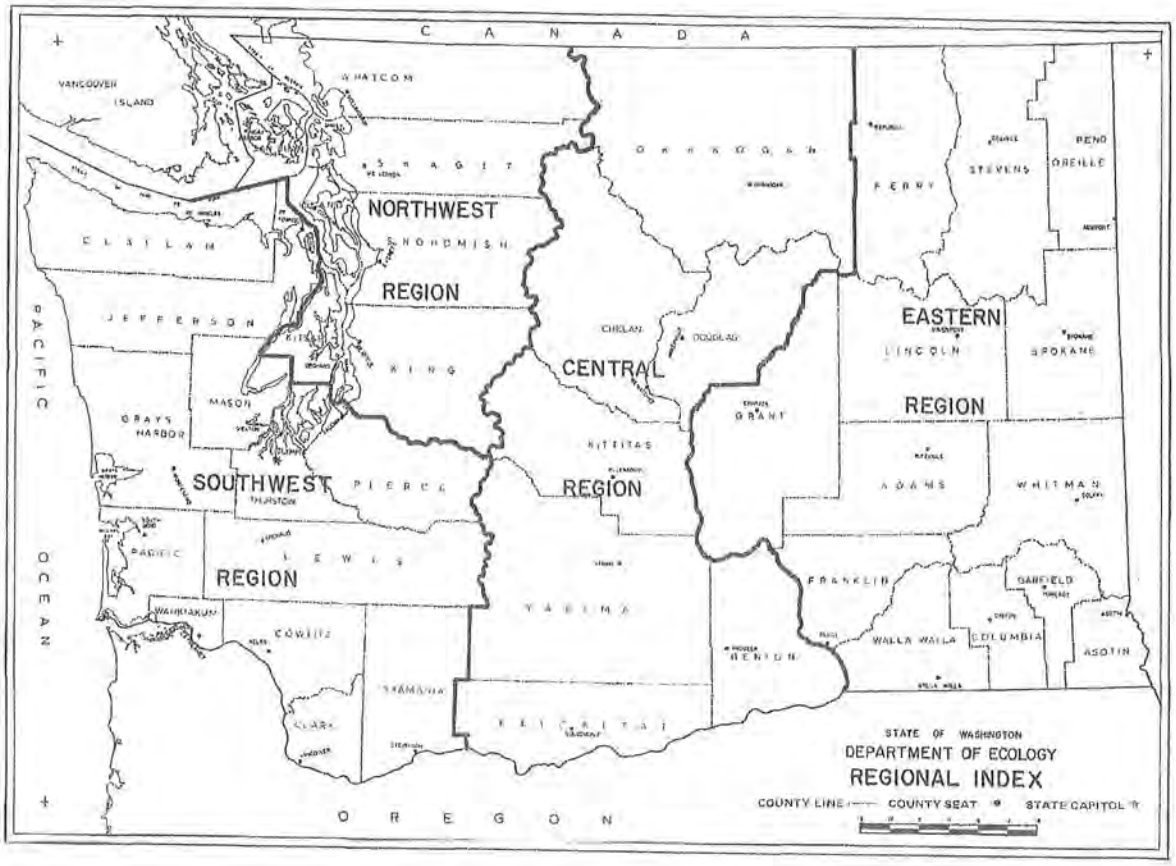
Indicate traveling directions from nearest town in space below.

Within the City of Grandview corporate limits.

Detach here

Fold along scale

Detach this scale at the perforation, fold excess paper under or cut off excess by cutting along the scale line. This scale corresponds to the SECTION MAP above. You can read feet directly from this scale to outline property and locate points of diversion or withdrawal on the SECTION MAP. Enclose this map along with the application and $10.00 examination fee.



Your water right application will be processed by the Regional Office of the Department of Ecology having jurisdiction in the area in which your water works are located. **Please submit your completed application form, maps, sketches and $10.00 examination fee to the appropriate Regional Office.**

Northest Regional Office
4350 150th Avenue N.E.
Redmond, Washington 98052
Tel. (206) 885-1900

Central Regional Office
3601 West Washington
Yakima, Washington 98903
Tel. (509) 575-2800

Southwest Regional Office
7272 Cleanwater Lane
Olympia, Washington 98504
Tel. (206) 753-2309

Eastern Regional Office
103 East Indiana Avenue
Spokane, Washington 99207
Tel. (509) 456-2926

The appropriate Regional Office will be happy to answer any further questions you may have.

15.
SAME BODY OF PUBLIC GROUNDWATER AND IMPAIRMENT ANALYSES MEMORANDUM - 8/25/2009

HLA
Engineering and Land Surveying, Inc.

Aspect consulting
earth+water

MEMORANDUM

Project No.: 090014

August 25, 2009

To: Mr. Jeff Louman, Huibregtse, Louman Associates, Inc.

From:

Joe Morrice, LHG
Senior Hydrogeologist

Timothy J. Flynn, LHG, CGWP
Principal Hydrogeologist

Re: City of Grandview Water Rights – Same Body of Public Groundwater and Impairment Analyses

Introduction

The City of Grandview (City) filed eleven water right change applications with the Yakima County Conservancy Board requesting to add points of withdrawal to their existing water rights. The City currently operates eleven active wells and one emergency well and maintains two inactive wells. Each of the existing wells taps one of two aquifers - the shallower Saddle Mountain Aquifer or the deeper Wanapum Aquifer. Under the proposed change applications, the existing wells within a given aquifer would be added as additional points of withdrawal to each water right associated with that aquifer, allowing the City greater flexibility to utilize the water rights throughout its well field. The City has also requested to add a potential future well location as an additional point of withdrawal from the Saddle Mountain Aquifer, and is considering a second future well location.

In order to add points of withdrawal to existing water rights there are two main criteria to be addressed. The first criterion is that the existing and additional points of withdrawal within

each aquifer be in hydraulic continuity and tap the same body of public groundwater. The second criterion is that exercise of the water rights at the additional points of withdrawal will not impair existing water rights.

Based on interpretation of hydrostratigraphic conditions, as presented below in the same body of groundwater evaluation, eleven of the City's wells are completed in the Saddle Mountain Basalt Formation and three are completed in the Wanapum Basalt Formation. These formations are typically treated as individual aquifers. No geologic structures were identified that would limit hydraulic continuity between wells completed in the same aquifer. Based on this interpretation, all of the City's wells completed in the Saddle Mountain Basalt Formation tap the same source of public groundwater. Similarly, all of the City's wells completed in the Wanapum Basalt Formation tap the same source of public groundwater.

As discussed below in the impairment analysis, based on the Washington State Department of Ecology (Ecology) water rights database there are five nearby water rights tapping the Saddle Mountain Aquifer that could be affected by the proposed water right changes. Note that the status of these existing water rights is not known, however for purposes of the impairment analysis we have assumed that these rights are valid. Under a worst-case (peak) pumping scenario, assuming the City's wells are all operating at their maximum capacities, an increase in interference drawdown of approximately 30 to 50 feet is estimated at nearby wells in the Saddle Mountain Aquifer. Assuming the nearby impacted well is also operating at its maximum capacity, the maximum estimated total drawdown in a nearby well is 267 feet. This is less than half the typical saturated thickness of the Saddle Mountain Aquifer in the Grandview area, and would not be considered impairment of existing rights.

There are no nearby water rights or wells tapping the deeper Wanapum Aquifer. The proposed changes to the City's water rights from this aquifer are not expected to cause impairment of existing rights.

Summary of Existing Wells and Water Rights

Locations of existing and proposed wells completed in the Saddle Mountain and Wanapum aquifers are shown on Figure 1. A summary of the City's wells and associated water rights in each aquifer is provided on Table 1. One well (Velma, source number S03) originally tapped both the Wanapum and Saddle Mountain aquifers, but was retrofitted by decommissioning the lower 600 feet so that it now only taps the shallower Saddle Mountain Aquifer. Under the proposed water right changes, the water right associated with the Velma well (water right number 791-A) would be limited to withdrawals from the City wells completed in the Wanapum Aquifer. The Velma well would be added as a point of withdrawal to water rights authorizing withdrawals from the Saddle Mountain Aquifer.

Eleven wells, including emergency and inactive wells and the Velma well, currently tap the Saddle Mountain Aquifer (Table 1). A twelfth well (Orchard Tracts, source number S04) was decommissioned in 2003 and replaced by the Asahel Curtis well (source number S17). Up to two additional points of withdrawal (future wells 1 and 2) are also proposed for the Saddle Mountain Aquifer. There are eight water rights associated with wells withdrawing from the Saddle Mountain Aquifer. These water rights authorize a combined total annual withdrawal

(Qa) of 940 acre-feet per year (afy) and a maximum instantaneous withdrawal (Qi) of 2,755 gallons per minute (gpm).

Three wells currently tap the Wanapum Aquifer (Table 1). Water rights associated with these wells, including right number 791-A formerly exercised at the Velma well, authorize a combined Qa of 904 afy and a Qi of 2,755 gpm.

Same Body of Groundwater Evaluation

As-built construction logs for the City's wells were reviewed in conjunction with geologic reports for the area (Tolan, 1989; Washington Department of Natural Resources, 2000) to identify the aquifer in which each of the City's wells is completed (i.e., Saddle Mountain or Wanapum) and to evaluate whether there are any geologic structures (e.g., faults and folds) within the aquifers that could impede groundwater flow and limit hydraulic continuity between points of withdrawal. As shown on Table 1, eleven of the City's existing wells are interpreted to be completed in the Saddle Mountain Aquifer and three wells are interpreted to be completed in the Wanapum Aquifer.

The City's wells are completed in either the Saddle Mountain Basalt Formation or the Wanapum Basalt Formation of the Columbia River Basalt Group (CRBG). Figure 2 presents a generalized stratigraphic sequence of the CRBG. Figures 3 and 4 present cross sections of the interpreted hydrostratigraphy in the vicinity of Grandview and geologic units tapped by the City's wells.

The Miocene-age Saddle Mountains Basalt Formation is present in the Grandview area at a thickness of approximately 550 to 600 feet. From youngest to oldest, the following members of the Saddle Mountains Basalt Formation are present in the area: Elephant Mountain Member, Pomona Member, and the Umatilla Member. The Rattlesnake Ridge and Cold Creek sedimentary interbeds of the Ellensburg Formation are also interpreted to be present within the Saddle Mountains Basalt Formation. Typically, the Saddle Mountain Basalt Formation, including sedimentary interbeds, is considered to be a single aquifer.

The Mabton sedimentary interbed of the Ellensburg Formation underlies the Saddle Mountain Basalt Formation. This interbed is present at a thickness of approximately 50 to 100 feet throughout the area and is described primarily as clay and claystone on well construction logs.

The Miocene-age Wanapum Basalt Formation underlies the Mabton interbed, and is encountered at depths generally greater than 650 feet below ground surface. The thickness of the Wanapum Basalt Formation in the area is unknown, as the deepest wells do not penetrate the full thickness of the unit. No sedimentary interbeds were identified based on information contained in the well construction logs. Similar to the Saddle Mountain Basalt Formation, the Wanapum Basalt Formation is considered to be a single aquifer.

Based on review of geologic reports, no geologic structures are mapped in the area of the City's wells. Additionally, the correlation of the basalt flows and interbeds between the City's wells does not show any offset that would be expected if there were faulting of folding of bedrock in the area. The nearest mapped geologic structure is a small, unnamed, east-west

trending anticline exposed at ground surface about three miles north of the City. Based on the location and orientation of this anticline, it is not expected to affect aquifer conditions beneath the City.

Based on the lack of geologic structures and the typical treatment of the Saddle Mountain Basalt Formation as a single aquifer, the eleven City wells completed in the Saddle Mountain Aquifer (Table 1) are in hydraulic continuity and all tap the same source of public groundwater. For similar reasons, the three City wells completed in the Wanapum Aquifer (Table 1) are also in hydraulic continuity and all tap the same source of public groundwater.

Impairment Analysis

This section presents an evaluation of the potential for adverse impacts to nearby wells and groundwater rights due to the proposed changes to the City's water rights. Although the proposed changes would not increase the Qa from a given aquifer, they would allow increased Qi at individual points of withdrawal, including two potential new points of withdrawal in the Saddle Mountain Aquifer. The existing active wells in the Saddle Mountain Aquifer have authorized Qi that exceed their individual source capacities. Therefore, the primary effect of the water right consolidation will be to allow use of a portion of excess available Qi at three additional points of withdrawal – including up to two proposed future wells and the Velma Well.

The following sections identify nearby wells and groundwater rights that could be impacted and, based on the hydraulic characteristics of the aquifer, estimates the change in interference drawdown from current conditions under worst-case future pumping scenarios. Using these estimates, the potential for impairment in nearby wells due to withdrawals from additional points of withdrawal in the City's water system is evaluated.

This evaluation was only performed for wells completed in the Saddle Mountain Aquifer. The Wanapum Aquifer is more productive than the Saddle Mountain Aquifer and, due to its depth and thickness, has greater available drawdown, resulting in less potential for impairment. Other than the City's wells, no water rights or wells tapping the Wanapum Aquifer were identified within two miles of the City's wells. Based on these considerations, impairment of wells or other water rights due to adding points of withdrawal to the City's existing water rights for the Wanapum Aquifer is not considered likely.

Nearby Wells and Water Rights

Figure 1 shows locations existing water rights and apparent domestic wells in or near the City of Grandview, identified in the Washington Department of Ecology's well log and water rights databases. Review of well log and water right information indicates that all of these sources tap the Saddle Mountain Aquifer.

Information on the nearby water rights is summarized in Table 2. Three of these rights (G4-23567C, G4-27273C, and G4-*00357) are located within the City's current service area. To the best of their knowledge, the City does not think these rights are currently active. However, for the purposes of this analysis these rights were assumed to be active and in good standing.

Incremental Change in Drawdown

The potential for impairment of the water rights in the Saddle Mountain Aquifer was evaluated by estimating the incremental change in drawdown (i.e., the increase in drawdown interference between current pumping conditions and potential future pumping conditions) due to the proposed water rights changes. The incremental change in drawdown was estimated at the location of each of the five water rights identified in Table 2, by:

1. Calculating drawdown at each water right expected under current system operations;
2. Calculating drawdown at each water right under potential future pumping conditions; and
3. Subtracting the estimated drawdown under current operations from the estimated drawdown under potential future pumping conditions to get the incremental change in drawdown.

The drawdown (dh) at a given distance from a well can be calculated based on the following equation (Driscoll, 1986):

$$dh = \frac{264Q}{T} \log \frac{0.3Tt}{r^2 S}$$

where: dh = drawdown (feet)

Q = pumping rate (gpm)

T = aquifer transmissivity (gpd/ft)

t = time of continuous pumping (days)

r = distance from well (feet)

S = aquifer storage coefficient (dimensionless)

Assuming the transmissivity and storage coefficient do not change due to drawdown, the total drawdown at one of the nearby wells is equal to the sum of the individual drawdown effects from each of the City's wells in the same aquifer.

Aquifer Parameters

Transmissivity was estimated based on the average specific capacity (yield divided by drawdown) of about 2 gpm per foot of drawdown (gpm/ft) for the City's wells completed in the Saddle Mountain Aquifer. Based on Jacob's equation for a confined aquifer, the transmissivity of the aquifer can be estimated from the specific capacity using the following equation (Driscoll, 1986):

$$T = \frac{2000Q}{s}$$

where: T = aquifer transmissivity (gallons per day per foot [gpd/ft])

Q = pumping rate (gpm)

s = drawdown in well (feet)

Based on the above equation, the transmissivity of the aquifer in the vicinity of DWA Well No. 2 is estimated to be approximately 4,000 gpd/ft, or about 535 feet squared per day (ft^2/day).

An estimate of the storage coefficient is also required to estimate drawdown. Aquifer test data sufficient to estimate a storage coefficient were not available. A storage coefficient value of $1x10^{-4}$ was assumed for this analysis.

Pumping Scenarios

Three pumping scenarios were developed to evaluate the potential effects of the proposed water rights changes. These include two average annual pumping scenarios to evaluate the potential effects of shifting production from existing wells authorized to withdraw from the Saddle Mountain Aquifer to new points of withdrawal (i.e., the Velma well and the two proposed future wells). A peak month pumping scenario was also developed to evaluate impacts assuming all the City's active and proposed wells are operating at their maximum capacities at the same time. Well capacities assumed in this analysis were selected as the current capacities listed in the City's Water System Plan. The capacity of the proposed future wells was assumed to be 250 gpm.

Average Annual Pumping Scenarios

Two pumping scenarios evaluating average annual use were developed. Pumping rates under these scenarios were selected so that the Qa would be fully utilized each year. For the current condition it was assumed that all active wells (not the emergency or inactive wells) operate on average about 45 percent of the time or at 45 percent of their physical capacity, which equates to a total Qi and Qa of 560 gpm and 904 afy, respectively (see top half of Tables 3 and 4). The two worst-case future pumping conditions were evaluated assuming:

1) The Velma well (S03) and proposed Future Well 1 operate continuously at their maximum capacities and operation of the other existing wells is reduced so that the Qi and Qa still equal 560 gpm and 904 afy, respectively (Table 3). Future Well 2 is assumed not to operate. Capacity of the Velma well is 175 gpm and the Future Well 1 is assumed to have a capacity of 250 gpm. This scenario represents worst-case future pumping impacts to wells located near the Velma Well and Future Well 1.

2) Future Well 2 operates continuously at a maximum assumed capacity of 250 gpm and operation of the other existing wells is reduced so that the Qi and Qa still equal 560 gpm and 904 afy, respectively (Table 4). Future Well 1 and the Velma Well are assumed to not operate. This scenario represents worst-case future pumping impacts to wells located near Future Well 2.

For these scenarios, estimated total drawdown at nearby wells under the assumed current conditions ranges from 64 to 85 feet below static water levels (top half of Tables 3 and 4). For the assumed future condition in the first scenario, drawdown interference is estimated to

increase by 17 feet at four of the nearby wells, and decrease by 3 feet at the fifth well (Table 3). For the assumed future condition in the second scenario, drawdown is estimated to increase by up to 11 feet at three of the nearby wells, and decrease by up to 19 feet at the other two wells (Table 4). Estimated maximum total interference drawdown under either of the future conditions is less than 100 feet.

Peak Month Pumping Scenario

The third scenario considered a peak month of pumping, where all wells are operating at their maximum capacities. For the current condition it was assumed that all existing, active wells are pumped for a one month period at their maximum capacities (top half of Table 5). The future conditions assumed that all active wells plus the Velma and two future wells operate at maximum capacities. In this scenario the Qi increases from 1,245 gpm under current conditions to 1,920 gpm under the future conditions.

After one month of peak pumping, estimated total interference drawdown ranges from 53 to 100 feet under the current conditions. Under future conditions, estimated total interference drawdown ranges from 90 to 153 feet, with an incremental change in interference drawdown of 31 to 57 feet (Table 5).

Operating and Total Drawdown at Nearby Wells

Operating drawdown at nearby wells (i.e., drawdown at a well due to pumping of that well) was estimated using the average specific capacity of the Saddle Mountain Aquifer of 2 gpm/ft and the authorized Qi of the nearby water rights. Operating drawdown is summarized on Table 6 and ranges from less than 10 up to 125 feet. Table 6 also presents the interference drawdown from the City's wells estimated under the peak month pumping scenario. Adding the operating and interference drawdown gives the worst-case total drawdown at each nearby well. In this case, the well for water right G4-23567C is estimated to have a total drawdown of up to 267 feet, assuming this well and all the City's wells in the Saddle Mountain Aquifer are operating continuously at full capacity for one month.

Potential for Impairment

Washington State water law does not consider interference drawdown to be an impairment of existing water rights, unless the affected well fully penetrates the aquifer and can no longer produce its allocation. The saturated thickness of the Saddle Mountain Aquifer in the vicinity of the City of Grandview is generally about 500 to 600 feet. As discussed above, under the proposed change and for average pumping conditions the drawdown at nearby wells due to operation of the City's wells is estimated to increase by up to 19 feet, with total drawdown of less than 100 feet. The worst case (peak monthly pumping scenario) estimated interference drawdown to increase by up to 57 feet, assuming all the City's wells in the Saddle Mountain Aquifer are operating at full capacity. The total interference drawdown under the peak pumping scenario is about 150 feet. Including operating drawdown during peak use, the worst-case total drawdown is 267 feet in nearby wells, which is approximately half the available saturated thickness. The potential increase in interference drawdown resulting from the proposed change will not impair existing water right holders from fully exercising their rights.

Attachments

Table 1 – City of Grandview Water Rights and Sources
Table 2 – Nearby Water Rights
Table 3 – Estimated Drawdown at Nearby Water Rights – Average Annual Pumping, Maximum Future Use at Velma Well and Future Well 1
Table 4 – Estimated Drawdown at Nearby Water Rights – Average Annual Pumping, Maximum Future Use at Future Well 2
Table 5 – Estimated Drawdown at Nearby Water Rights – Peak Month Pumping
Table 6 – Maximum Interference and Operating Drawdown at Nearby Water Rights
Figure 1 – Well and Cross Section Location Map
Figure 2 – Stratigraphic Units of the Columbia River Basalt Group
Figure 3 – Cross Section AA'
Figure 4 – Cross Section BB'

References

Tolan, T.L., Reidel, S.P., Beeson, M.H., Anderson, J.L., Fecht, K.R., and Swanson, D.A., 1989, Revisions to the estimates of the areal extent and volume of the Columbia River Basalt Group, in, Reidel, S.P. and Hooper, P.R., eds., Volcanism and Tectonism in the Columbia River Flood-Basalt Province: Geological Society of America Special Paper 239, p. 1-20.

Washington Department of Natural Resources, 2000, 1:100,000-Scale Digital Geology of Washington State, Division of Geology and Earth Resources, August 10, 2000.

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Table 1 - City of Grandview Water Rights and Sources

City of Grandview, Washington
Project 090014

Saddle Mountain Aquifer Sources and Water Rights

Source No.	Name	Water Right	Priority Date	Qi (gpm)	Primary Qa (afy)	Nonadditive Qa (afy)	Primary Right for Nonadditive Qa	Notes
S04 S17	Orchard Tracts Asahel Curtis	1338-A	10/8/1951	600	0	784	791-A	Decommissioned in 2003 Replacement well for S04
S06	Safeway	4455-A	8/14/1962	240	384	0		Emergency source
S07 S16	Springs A Springs B	4456-A	8/14/1962	325	520	0		
S08	Cohu	G3-20382C	7/27/1972	200	0	322	791-A	Inactive
S11	Highland	G3-20383C	7/27/1972	300	0	480	791-A	
S01	Old City Shop	G3-20384C	7/27/1972	400	0	640	791-A	
S12 S18	Pecan A Pecan B	G4-24086C	8/22/1975	190	0	306	All previous rights	Inactive
S10	North Willoughby	G4-25570C	10/13/1977	500	0	0	All previous rights	
S03	Velma							Currently taps only Saddle Mountain, to be added as POW to other Saddle Mountain rights
Future Well 1 Future Well 2								Planned future points of withdrawal

Wanapum Aquifer Sources and Water Rights

Source No.	Name	Water Right	Priority Date	Qi (gpm)	Primary Qa (afy)	Nonadditive Qa (afy)	Primary Right for Nonadditive Qa	Notes
S03	Velma	791-A	8/15/1947	1,000	1,210	0		No longer taps the Wanapum. Rights to be transferred to other wells completed in the Wanapum.
S02	Balcom & Moe	G3-20381C	7/27/1972	700	784	336	791-A	
S13	South Willoughby	G4-22784P	12/21/1981	2,500	1,742	0		
S14	Butternut	G4-29972	4/12/1989					Application filed for Qi of 1,500 gpm, Qa of 2,420 afy, no permit issued.

Note: S03 (Velma) originally tapped both the Wanapum and Saddle Mountain Aquifers. This well was retrofitted in 2005 and currently taps only the Saddle Mountain Aquifer.

Table 2 - Nearby Water Rights

City of Grandview, Washington
Project 090014

Water Right Number	Person	Priority Date	Purposes	Qi (gpm)	Qa (afy)
G4-22918C	VANCE BILL M	4/29/1974	Irrigation, single domestic	60	33
G4-22873C	Swynenburg Brothers	4/10/1974	Single domestic	15	1
G4-23567C	LIBBY ET AL	6/19/1974	Commercial and industrial	250	134
G4-27273C	DAILEY ELLIS F	1/27/1981	Irrigation, frost protection	60	2.81
G4-*00357	Oregon & WA Railroad & Navigation Co	1/1/1912	Railway, group domestic	150	24.63

Table 3 - Estimated Drawdown at Nearby Water Rights - Average Annual Pumping
Maximum Future Use at Velma Well and Future Well 1

City of Grandview, Washington
Project 090014

Current Conditions

Source No.	Name	Authorized Qi (gpm)	Capacity (gpm)	Average Qi (gpm)	Qa (afy)	Drawdown in Feet at: G4-22918C	G4-22873C	G4-23567C	G4-27273C	G4-*00357
S04	Orchard Tracts	600	Decommissioned	0	0	0	0	0	0	0
S17	Asahel Curtis		160	72	116	18	12	9	8	8
S06	Safeway	240	Emergency source	0	0	0	0	0	0	0
S07	Springs A	325	165	74	120	6	7	9	9	10
S16	Springs B		90	41	65	3	4	5	5	5
S08	Cohu	200	Inactive	0	0	0	0	0	0	0
S11	Highland	300	60	27	44	3	3	4	5	5
S01	Old City Shop	400	180	81	131	9	9	17	17	20
S12	Pecan A	190	Inactive	0	0	0	0	0	0	0
S18	Pecan B		180	81	131	16	12	11	10	10
S10	North Willoughby	500	410	185	298	16	17	24	24	28
S03	Velma		0	0	0	0	0	0	0	0
Future Well 1			0	0	0	0	0	0	0	0
Future Well 2			0	0	0	0	0	0	0	0
Totals		**2,755**	**1,245**	**560**	**904**	**71**	**64**	**78**	**77**	**85**

Future Conditions

Source No.	Name	Authorized Qi (gpm)	Capacity (gpm)	Average Qi (gpm)	Qa (afy)	Drawdown in Feet at: G4-22918C	G4-22873C	G4-23567C	G4-27273C	G4-*00357
S04	Orchard Tracts	600	Decommissioned	0	0	0	0	0	0	0
S17	Asahel Curtis		160	42	67	10	7	5	5	4
S06	Safeway	240	Emergency source	0	0	0	0	0	0	0
S07	Springs A	325	165	0	0	0	0	0	0	0
S16	Springs B		90	0	0	0	0	0	0	0
S08	Cohu	200	Inactive	0	0	0	0	0	0	0
S11	Highland	300	60	0	0	0	0	0	0	0
S01	Old City Shop	400	180	47	75	5	5	10	10	12
S12	Pecan A	190	Inactive	0	0	0	0	0	0	0
S18	Pecan B		180	47	75	9	7	6	6	6
S10	North Willoughby	500	410	0	0	0	0	0	0	0
S03	Velma		175	175	282	25	23	30	29	26
Future Well 1			250	250	403	31	38	42	34	35
Future Well 2			250	0	0	0	0	0	0	0
Totals		**2,755**	**1,920**	**560**	**904**	**81**	**81**	**93**	**83**	**82**

Incremental Change in Drawdown in Feet	**10**	**17**	**15**	**6**	**-3**

Input Parameters

Transmissivity	**535 ft2/d**
Storage	**1.00E-04 unitless**
Time	**365 days**

Table 4 - Estimated Drawdown at Nearby Water Rights - Average Annual Pumping
Maximum Future Use at Future Well 2

City of Grandview, Washington
Project 090014

Current Conditions

Source No.	Name	Authorized Qi (gpm)	Capacity (gpm)	Average Qi (gpm)	Qa (afy)	Drawdown in Feet at: G4-22918C	G4-22873C	G4-23567C	G4-27273C	G4-*00357
S04	Orchard Tracts	600	Decommissioned	0	0	0	0	0	0	0
S17	Asahel Curtis		160	72	116	18	12	9	8	8
S06	Safeway	240	Emergency source	0	0	0	0	0	0	0
S07	Springs A	325	165	74	120	6	7	9	9	10
S16	Springs B		90	41	65	3	4	5	5	5
S08	Cohu	200	Inactive	0	0	0	0	0	0	0
S11	Highland	300	60	27	44	3	3	4	5	5
S01	Old City Shop	400	180	81	131	9	9	17	17	20
S12	Pecan A	190	Inactive	0	0	0	0	0	0	0
S18	Pecan B		180	81	131	16	12	11	10	10
S10	North Willoughby	500	410	185	298	16	17	24	24	28
S03	Velma		0	0	0	0	0	0	0	0
Future Well 1			0	0	0	0	0	0	0	0
Future Well 2			0	0	0	0	0	0	0	0
Totals		**2,755**	**1,245**	**560**	**904**	**71**	**64**	**78**	**77**	**85**

Future Conditions

Source No.	Name	Authorized Qi (gpm)	Capacity (gpm)	Average Qi (gpm)	Qa (afy)	Drawdown in Feet at: G4-22918C	G4-22873C	G4-23567C	G4-27273C	G4-*00357
S04	Orchard Tracts	600	Decommissioned	0	0	0	0	0	0	0
S17	Asahel Curtis		160	0	0	0	0	0	0	0
S06	Safeway	240	Emergency source	0	0	0	0	0	0	0
S07	Springs A	325	165	12	19	1	1	1	1	2
S16	Springs B		90	6	10	1	1	1	1	1
S08	Cohu	200	Inactive	0	0	0	0	0	0	0
S11	Highland	300	60	27	44	3	3	4	5	5
S01	Old City Shop	400	180	81	131	9	9	17	17	20
S12	Pecan A	190	Inactive	0	0	0	0	0	0	0
S18	Pecan B		180	0	0	0	0	0	0	0
S10	North Willoughby	500	410	185	298	16	17	24	24	28
S03	Velma		175	0	0	0	0	0	0	0
Future Well 1			250	0	0	0	0	0	0	0
Future Well 2			250	250	403	23	24	34	38	42
Totals		**2,755**	**1,920**	**560**	**904**	**52**	**55**	**80**	**86**	**96**

Incremental Change in Drawdown in Feet	**-19**	**-9**	**2**	**9**	**11**

Input Parameters

Transmissivity	**535 ft2/d**
Storage	**1.00E-04 unitless**
Time	**365 days**

Table 5 - Estimated Drawdown at Nearby Water Rights - Peak Month Pumping

City of Grandview, Washington
Project 090014

Current Conditions

Source No.	Name	Authorized Qi (gpm)	Capacity (gpm)	Average Qi (gpm)	Qa (af)	Drawdown in Feet at: G4-22918C	G4-22873C	G4-23567C	G4-27273C	G4-*00357
S04	Orchard Tracts	600	Decommissioned	0	0	0	0	0	0	0
S17	Asahel Curtis		160	160	21	28	15	8	7	6
S06	Safeway	240	Emergency source	0	0	0	0	0	0	0
S07	Springs A	325	165	165	22	2	4	8	7	10
S16	Springs B		90	90	12	1	2	5	4	5
S08	Cohu	200	Inactive	0	0	0	0	0	0	0
S11	Highland	300	60	60	8	2	2	4	6	6
S01	Old City Shop	400	180	180	24	7	8	24	24	31
S12	Pecan A	190	Inactive	0	0	0	0	0	0	0
S18	Pecan B		180	180	24	23	13	11	10	9
S10	North Willoughby	500	410	410	54	6	9	24	25	32
S03	Velma		0	0	0	0	0	0	0	0
Future Well 1			0	0	0	0	0	0	0	0
Future Well 2			0	0	0	0	0	0	0	0
Totals		**2,755**	**1,245**	**1,245**	**165**	**69**	**53**	**85**	**83**	**100**

Future Conditions

Source No.	Name	Authorized Qi (gpm)	Capacity (gpm)	Average Qi (gpm)	Qa (af)	Drawdown in Feet at: G4-22918C	G4-22873C	G4-23567C	G4-27273C	G4-*00357
S04	Orchard Tracts	600	Decommissioned	0	0	0	0	0	0	0
S17	Asahel Curtis		160	160	21	28	15	8	7	6
S06	Safeway	240	Emergency source	0	0	0	0	0	0	0
S07	Springs A	325	165	165	22	2	4	8	7	10
S16	Springs B		90	90	12	1	2	5	4	5
S08	Cohu	200	Inactive	0	0	0	0	0	0	0
S11	Highland	300	60	60	8	2	2	4	6	6
S01	Old City Shop	400	180	180	24	7	8	24	24	31
S12	Pecan A	190	Inactive	0	0	0	0	0	0	0
S18	Pecan B		180	180	24	23	13	11	10	9
S10	North Willoughby	500	410	410	54	6	9	24	25	32
S03	Velma		175	175	23	13	11	17	17	13
Future Well 1			250	250	0	13	21	24	16	17
Future Well 2			250	250	0	5	6	16	21	24
Totals		**2,755**	**1,920**	**1,920**	**188**	**100**	**90**	**142**	**136**	**153**

Incremental Change in Drawdown in Feet	**31**	**37**	**57**	**53**	**53**

Input Parameters

Transmissivity	**535 ft2/d**
Storage	**1.00E-04 unitless**
Time	**30 days**

Table 6 - Maximum Interference and Operating Drawdown at Nearby Water Rights

City of Grandview, Washington
Project 090014

Water Right Number	G4-22918C	G4-22873C	G4-23567C	G4-27273C	G4-*00357
Qi (gpm)	60	15	250	60	150
Operating Drawdown (feet)	30	7.5	125	30	75
Peak Month Drawdown (feet)	100	90	142	136	153
Total Drawdown (feet)	130	97.5	267	166	228

Operating drawdown estimated based on average specific capacity of 2 gpm/ft measured in the City of Grandview wells completed in the Saddle Mountain Aquifer.

B

A'

Durant

Bentitz

S07/S16

S10

S13

Future Well 1

G4-22873C

S06

S01

G4-*00357

G4-23567C

Future Well 2

S02

G4-27273C

S11

S17

S04

S14

S03

G4-22918C

S08

S12/S18

Mohr

A

B'

N

W

E

S

0 750 1500 3000

SCALE BAR

LEGEND

City of Grandview Municipal Water Supply Wells

- Saddle Mountain Basalt Aquifer
- Wanapum Basalt Aquifer

Private Water Rights and Domestic Wells

- Domestic Well, Saddle Mountain Basalt Aquifer
- Water Right, Saddle Mountain Basalt Aquifer

FUTURE SERVICE AREA

CITY LIMITS

*From Hulbregtse, Louman Associates, Inc., 2008.

6-24-08 P:\PROJECTS\2008\08031\ws-fig.dwg

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Well and Cross Section Location Map

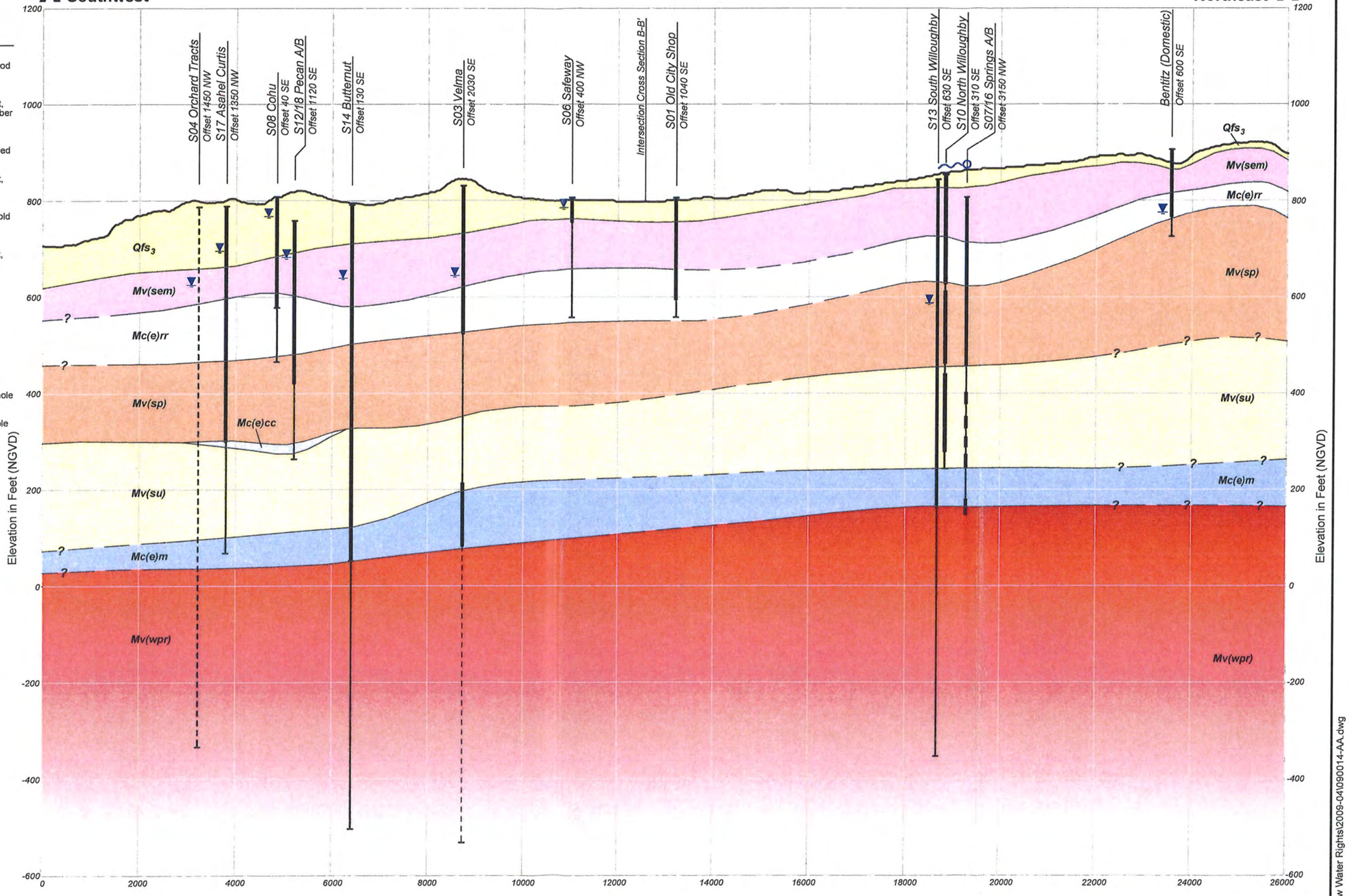
City of Grandview Water Rights
Grandview, Washington

DATE: May 2009	PROJECT NO. 090014
DESIGNED BY: DFR	
DRAWN BY: PMB	FIGURE NO. 1
REVISED BY:	

Q:\City of Grandview Water Rights\2009-04\090014-01.dwg

Legend

- Qfs_3 - Pleistocene Outburst Flood Deposits
- *Mv(sem)* - Saddle Mountains Basalt, Elephant Mountain Member
- *Mc(e)rr* - Ellensburg Formation, Rattlesnake Ridge Interbed
- *Mv(sp)* - Saddle Mountains Basalt, Ponoma Member
- *Mc(e)cc* - Ellensburg Formation, Cold Creek Interbed
- *Mv(su)* - Saddle Mountains Basalt, Umatilla Member
- *Mc(e)m* - Ellensburg Formation, Mabton Interbed
- *Mv(wpr)* - Wanapum Basalt, Priest Rapids Member
- - Cased Borehole
- - Open or Screened Borehole
- - Decommissioned Borehole
- - Static Water Level
- - Artesian Well



0 2000 4000
Feet

Scale: 1" = 2000' Horiz
1" = 200' Vert
Vertical Exaggeration = 10X

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Cross Section A-A'

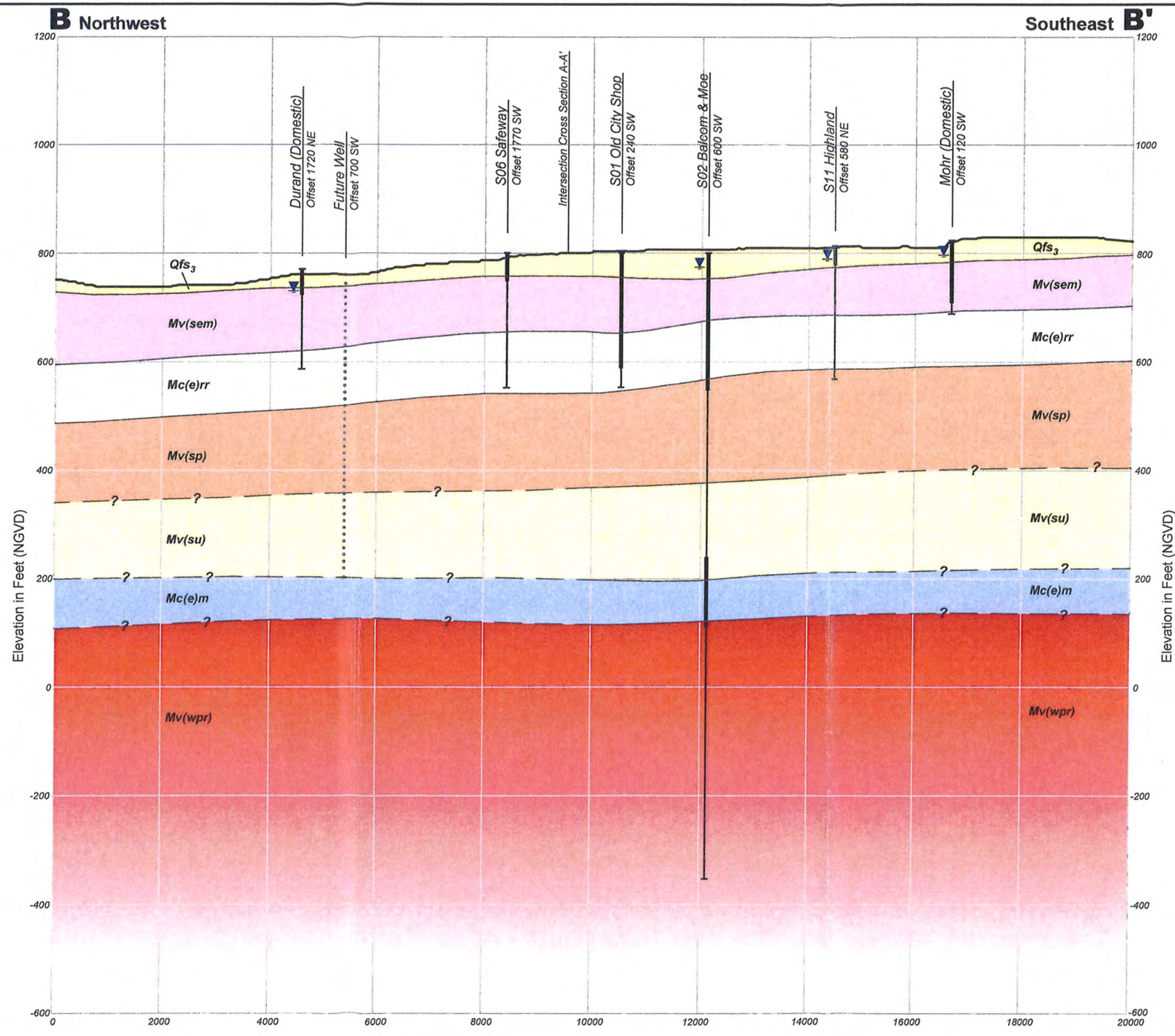
City of Grandview Water Rights
Grandview, Washington

DATE: April 2009	PROJECT NO. 090014
DESIGNED BY: DFR	
DRAWN BY: PMB	FIGURE NO. 3
REVISED BY:	

Q:\City of Grandview Water Rights\2009-04\090014-AA.dwg

Legend

- Qfs_3 - Pleistocene Outburst Flood Deposits
- *Mv(sem)* - Saddle Mountains Basalt, Elephant Mountain Member
- *Mc(e)rr* - Ellensburg Formation, Rattlesnake Ridge Interbed
- *Mv(sp)* - Saddle Mountains Basalt, Ponoma Member
- *Mc(e)cc* - Ellensburg Formation, Cold Creek Interbed
- *Mv(su)* - Saddle Mountains Basalt, Umatilla Member
- *Mc(e)m* - Ellensburg Formation, Mabton Interbed
- *Mv(wpr)* - Wanapum Basalt, Priest Rapids Member
- - Cased Borehole
- - Open or Screened Borehole
- - Future Well
- - Static Water Level
- - Artesian Well



0 2000 4000
Feet

Scale: 1" = 2000' Horiz
1" = 200' Vert
Vertical Exaggeration = 10X

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Cross Section B-B'

City of Grandview Water Rights
Grandview, Washington

DATE: April 2009	PROJECT NO. 090014
DESIGNED BY: DFR	
DRAWN BY: PMB	FIGURE NO. 4
REVISED BY:	

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CITY OF GRANDVIEW

16. SUSCEPTIBILITY ASSESSMENT FORMS

HLA
Engineering and Land Surveying, Inc.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **SO1**

Well depth: **200** (ft.) (From WFI form)

Source name: **WEST MAIN WELL**

WA well identification tag number: **A E P - 5 1 7**

____ well not tagged

Number of connections: **2,513** Population served: **8,377**

Township: **09N** Range: **23E**

Section: **23** ¼ ¼ Section: **NE ¼ / NE ¼**

Latitude/longitude (if available): **4615'22.92179"N / 11954'18.89017"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **UK / UK/ 1946** month/day/year
last reconstruction: **0 7/ 10 /1977** month/day/year

_____ information unavailable

2) Well driller: **Well log obscure.**

__X__ Well driller unknown

3) Type of well:

__X__ Drilled: ___rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: **Records are very obscure.**

4) Well report available? __X__ YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **180** (gallons/min)

Source of information: **Comprehensive water plan/metered.**

If not documented, how was pumping rate determined? **Turbidity sheets, recorded daily use from 1993.**

____Pumping rate unknown

6) Is this source treated? **YES**

If so, what type of treatment:

__X__ disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
We treat with 100% gas chlorine for disinfection purposes.

7) If source is chlorinated, is a chlorine residual maintained: YES / NO

Residual level: **1.0** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft __X__100-200ft ___> 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

___< 20 ft ___20-50 ft __X__50-100 ft ___> 100 ft

___flowing well/spring (artesian)

How was water level determined?

___well log ___other: **Monthly drawdown records. 1994 Water Comp Plan.**

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

__N/A__ psi (pounds per square inch)
or
__N/A__ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: **N/A**

5) Wellhead elevation (height above mean sea level): __787__(ft)

How was elevation determined? ___topographic map ___Drilling/Well Log

___altimeter ___other **Global Positioning Device**

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

___evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? __X__YES ___NO

__X__information unavailable

7) Sanitary setback:

__X__ < 100ft* ___100-120 ft ___> 200 ft

*If less than 100 ft describe the site conditions:
Direct measurement, streets to east & south of Well are Avenue B and West Wine Country Road. Distance from Well to Avenue B is 82'; from Well to West Wine Country Road is 80'.

8) Wellhead construction:

__X__ wellhead enclosed in a wellhouse

__X__ controlled access (describe): **Lockable building, fenced off area.**

___ other uses for wellhouse (describe): **Storage for street signs, comp. dressers, pumps and meters for water services.**

___ no wellhead control

9) Surface seal:

___ 18 ft

___ < 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

___ < 18 ft ('<' means less than)

__X__ depth of seal unknown

___ no surface seal

10) Annual rainfall (inches per year):

__X__ < 10 in/yr ___10-25 in/yr ___> 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **94,659,670** (gallons)

How was this determined?

X meter

___estimated: ___pumping rate (_____)

___pumping capacity (_____)

X other **1994 Water Comp Plan**

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time: **360** (ft)

1 year ground water travel time: **510** (ft)

5 year ground water travel time: **1,140** (ft)

10 year ground water travel time: **1,610** (ft)

Information available on length of screened/open interval?

X YES ___NO

Length of screened/open interval: **200** (ft) – bottom of well, we have a submersible pump.

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? **YES** / NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)

Comments:

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application			X	
stormwater injection wells				
other injection wells				
abandoned ground water well				
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre		X	X	
residences commonly have septic tanks				
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

Bleyhl's chemical plant located in the 10 year ground water travel time as noted on the map. We have a grape field where, more than likely, pesticide application may take place as noted on the map. Have a well in the five year ground water travel time as noted on the map, the well belongs to Stokely U.S.A., food processing plant.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	____	X
	YES	NO
< 2 mg/liter nitrate	____	X
2-5 mg/liter nitrate	____	X
> 5 mg/liter nitrate	____	X
___Nitrate sampling records unavailable		
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	____	X
VOCs detected at least once	____	X
VOCs never detected	____	X
___VOC sampling records unavailable		
	YES	NO
C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	____	____
EDB/DBCP detected above MCL at least once	____	____
EDB/DBCP never detected	____	____
___ EDB/DBCP tests required but not yet completed		
X EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)	____	_____
___Other SOC tests performed but none detected (list test methods in comments)		
X Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **Have not tested for SOCs – all is depending on susceptability assessment for monitoring waivers.**

E. Bacterial Contamination: YES NO

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____ X

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____ X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

___X___YES _____NO

Describe with references to map produced in Part IV:
S.V.I.D. canal which runs just north of the well, open canal and 50' underground east of the well.

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

_____YES ___X___NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____YES ___X___NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES _____X___NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs? **Yes, Sokely U.S.A., a processing plant (vegetables), well is located about 1,050' south east of our well.**

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
< 6 month travel time	___	X	___
6 month –1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	X	___	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	___	X	___
1-5 year travel time	X	___	___
5-10 year travel time	X	___	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

None, other than what I have described or identified in the previous pages.

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? **YES** / NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

Would like a phone number as to where I can call to ask for information. There was not one in the survey packet.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **SO2**

Well depth: **1,150** (ft.) (From WFI form)

Source name: **Balcom & Moe**

WA well identification tag number: **A E P - 5 2 2**

____ well not tagged

Number of connections: **2,513** Population served: **8,377**

Township: **09N** Range: **23E**

Section: **23** ¼ ¼ Section: **SW ¼ / NE ¼**

Latitude/longitude (if available): **4615'10.38616"N** / **11954'5.67046"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **5 /UK/ 1944** month/day/year
last reconstruction: **N/A / / ** month/day/year

_____ information unavailable

2) Well driller: **AA Durand & Sons of Walla Walla, Washington**

____ Well driller unknown

3) Type of well:

__X__ Drilled: ____rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: _____

4) Well report available? __X__ YES (attach copy to form) ____NO
(Copies of log)
If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **600** (gallons/min)

Source of information: **Comprehensive water plan – metered**

If not documented, how was pumping rate determined? **Turbidity sheets – recorded daily usage sheets for 1993**

____Pumping rate unknown

6) Is this source treated? YES

If so, what type of treatment:

__X__ disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
We treat with 100% gas chlorine for disinfection purposes.

7) If source is chlorinated, is a chlorine residual maintained: **YES** / NO

Residual level: **1.0** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft ___100-200ft __X__ > 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

___< 20 ft ___20-50 ft ___50-100 ft __X__ > 100 ft

___flowing well/spring (artesian)

How was water level determined?

__X__well log ___other: **Monthly Water Well Drawdowns for 1993.**

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

__N/A__psi (pounds per square inch)
or
_____feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / **NO**

5) Wellhead elevation (height above mean sea level): __784__(ft)

How was elevation determined? ___topographic map ___Drilling/Well Log

___altimeter __X__other **Global Positioning Device**

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

__X__evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? ___YES __X__NO

___information unavailable

7) Sanitary setback:

__X__ < 100ft* ___100-120 ft ___> 200 ft

*If less than 100 ft describe the site conditions:

Direct measurement – Street to the west of wellhouse is 81', name of the street is Division.

8) Wellhead construction:

__X__ wellhead enclosed in a wellhouse

__X__ controlled access (describe): Lockable doors at both entrances.

___ other uses for wellhouse (describe):

___ no wellhead control

9) Surface seal:

__X__ 18 ft

___ < 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

___ < 18 ft ('<' means less than)

___ depth of seal unknown

___ no surface seal

10) Annual rainfall (inches per year):

__X__ < 10 in/yr ___10-25 in/yr ___> 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **37,051,300** (gallons)

How was this determined?

X meter

___estimated: ___pumping rate (_____)

___pumping capacity (_____)

X other **Water Comp Plan of 1993**

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time: **250** (ft)

1 year ground water travel time: **360** (ft)

5 year ground water travel time: **800** (ft)

10 year ground water travel time: **1140** (ft)

Information available on length of screened/open interval?

___YES **X** NO

Length of screened/open interval: **None** (ft) See Well Log

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / **NO** (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)

Comments:

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application				
stormwater injection wells				
other injection wells			X	
abandoned ground water well				
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre			X	
residences commonly have septic tanks				
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

Nothing else, other than what is identified or described in previous pages.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	____	X
	YES	NO
< 2 mg/liter nitrate	____	X
2-5 mg/liter nitrate	____	X
> 5 mg/liter nitrate	____	X
___Nitrate sampling records unavailable		
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	____	X
VOCs detected at least once	____	X
VOCs never detected	____	X
___VOC sampling records unavailable		
	YES	NO
C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	____	____
EDB/DBCP detected above MCL at least once	____	____
EDB/DBCP never detected	____	____
___ EDB/DBCP tests required but not yet completed		
X EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)	____	X
___Other SOC tests performed but none detected (list test methods in comments)		
X Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **Have not tested for S.O.C.s – All is depended on results for susceptability assessment reports for monitoring waivers.**

E. Bacterial Contamination: YES NO

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____ X

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____ X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

_____YES ____X____NO

Describe with references to map produced in Part IV:

_____

_____

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

____X____YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____YES _____X____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES ____X____NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs? **Yes, Stokely U.S.A., a processing plant (vegetables), well is located northwest of well.**

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within…

	YES	NO	unknown
< 6 month travel time	____	X	____
6 month –1 year travel time	____	X	____
1-5 year travel time	____	X	____
5-10 year travel time	____	____	____

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	____	X	____
1-5 year travel time	____	X	____
5-10 year travel time	____	X	____

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

None, other than what is described or identified in previous pages of this report.

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? **YES** / NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **SO3**

Well depth: **1,650** (ft.) (From WFI form)

Source name:] **VELMA WELL**

WA well identification tag number: **A E P - 5 2 0**

X well not tagged

Number of connections: **2,513** Population served: **8,377**

Township: **09N** Range: **23E**

Section: **22** ¼ ¼ Section: **NE ¼ / SE ¼**

Latitude/longitude (if available): **4614'54.51827"N / 11955'9.03926"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **12 /01 /1948** month/day/year
last reconstruction: ___/___/_____ month/day/year

_____ information unavailable

2) Well driller: **A. A. Durand & Son of Walla Walla, Washington**

____ Well driller unknown

3) Type of well:

__X__ Drilled: ___rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: **Records are very obscure.**

4) Well report available? __X__ YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **350** (gallons/min)

Source of information: **City of Grandview's 1994 Comprehensive Water Plan, 1993 daily turbidity sheets.**

If not documented, how was pumping rate determined? _____

____Pumping rate unknown

6) Is this source treated? **Yes**

If so, what type of treatment:

__X__ disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
We treat with 100% gas chlorine for disinfection purposes.

7) If source is chlorinated, is a chlorine residual maintained: **YES** / NO

Residual level: **0.8 – 1.0** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft __X__ 20-50 ft ___50-100 ft ___100-200ft ___> 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

___< 20 ft ___20-50 ft ___50-100 ft __X__ > 100 ft

___flowing well/spring (artesian)

How was water level determined?

__X__ well log ___other: **1994 Water Comp Plan – monthly drawdown records from 1993.**

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

N/A psi (pounds per square inch)
or
N/A feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / **NO**

5) Wellhead elevation (height above mean sea level): **826** (ft)

How was elevation determined? ___topographic map ___Drilling/Well Log

___altimeter __X__ other **Global Positioning Device**

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

__X__ evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? __X__ YES ___NO

___information unavailable

7) Sanitary setback:

_X_ < 100ft* ___100-120 ft ___> 200 ft

*If less than 100 ft describe the site conditions:

Direct measurement, this Well is encircled by a street. The distance to the street is: from well pump to the north is 20', to the south is 50', to the east is 15', to the west is 80'. The name of the street is Velma.

8) Wellhead construction:

_X_ wellhead enclosed in a wellhouse

X controlled access (describe): **The well is located in a lockable building with one entrance. No other items are stored in this building.**

___other uses for wellhouse (describe):_____

___no wellhead control

9) Surface seal:

___ 18 ft

___< 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

_X_ < 18 ft ('<' means less than)

___depth of seal unknown

___no surface seal

10) Annual rainfall (inches per year):

_X_ < 10 in/yr ___10-25 in/yr ___> 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **145,053, 500** (gallons)

How was this determined?

X meter

___estimated: ___pumping rate (_____)

___pumping capacity (_____)

X other **Daily turbidity sheets from 1993, the 1994 Water Comp Plan.**

2) "Calculated Fixed Radius" estimate of ground water movement:

	(see Instruction Packet)
6 month ground water travel time:	**620** (ft)
1 year ground water travel time:	**880** (ft)
5 year ground water travel time:	**1,970** (ft)
10 year ground water travel time:	**2,780** (ft)

Information available on length of screened/open interval?

___YES **X** NO

Length of screened/open interval: **36** (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / **NO** (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)
Comments:

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application			X	
stormwater injection wells				
other injection wells				
abandoned ground water well				
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre		X		
residences commonly have septic tanks				
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

We have orchards located to the west of the well in the 5 and 10 year CFR, it is very likely that some pesticide application will take place in these orchards – orchards are highlighted in "yellow".

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	____	X
	YES	NO
< 2 mg/liter nitrate	____	X
2-5 mg/liter nitrate	____	X
> 5 mg/liter nitrate	____	X
___Nitrate sampling records unavailable		
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	____	X
VOCs detected at least once	____	X
VOCs never detected	____	X
___VOC sampling records unavailable		
	YES	NO
C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	____	____
EDB/DBCP detected above MCL at least once	____	____
EDB/DBCP never detected	____	____
___ EDB/DBCP tests required but not yet completed		
X EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)	____	X
___Other SOC tests performed but none detected (list test methods in comments)		
___Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **Have not tested for S.O.C.s – all is depending on susceptability assessment forms for monitoring waiver for this testing.**

E. Bacterial Contamination: YES NO

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____ X

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____ X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

_____YES ___X___NO

Describe with references to map produced in Part IV:

_____

_____

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

___X____YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____YES _____X____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES ___X___NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
< 6 month travel time	____	X	____
6 month – 1 year travel time	____	X	____
1-5 year travel time	____	X	____
5-10 year travel time	____	X	____

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	____	X	____
1-5 year travel time	____	X	____
5-10 year travel time	____	X	____

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

None, other than what I described or identified in the previous pages.

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? **YES** / NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

This will help me become more familiar with my system and help me understand the process of keeping a safe drinking water system in compliance with State and Federal Standards and Regulations.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **SO7**

Well depth: **110** (ft.) (From WFI form)

Source name: **OLMSTEAD A WELL**

WA well identification tag number: **A E P - 5 1 6**

____ well not tagged

Number of connections: **2,513** Population served: **8,377**

Township: **09N** Range: **23E**

Section: **12** ¼ ¼ Section: **SW ¼ / SW ¼**

Latitude/longitude (if available): **4616'25.66678"N / 11953'35.46854"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **7 / 10 / 1962** month/day/year
last reconstruction: __/__/____ month/day/year

_____ information unavailable

2) Well driller: **Story Drilling, Prosser, WA 99350**

____ Well driller unknown

3) Type of well:

__X__ Drilled: ___rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: _____

4) Well report available? __X__ YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **250** (gallons/min)

Source of information: **1994 Water Comp Plan – 1993 Daily trubidity sheets**

If not documented, how was pumping rate determined? _____

____Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

__X__ disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
We treat with 100% gas chlorine for disinfection purposes.

7) If source is chlorinated, is a chlorine residual maintained: **YES** / NO

Residual level: **1.0** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft __X__ 20-50 ft ___50-100 ft ___100-200ft ___> 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

___< 20 ft ___20-50 ft ___50-100 ft ___> 100 ft

__X__ flowing well/spring (artesian)

How was water level determined?

___well log __X__ other: **Monthly drawdowns for 1994**

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____psi (pounds per square inch)
or
_____feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / **NO**

5) Wellhead elevation (height above mean sea level): __**843**____(ft)

How was elevation determined? ___topographic map ___Drilling/Well Log

___altimeter __X__ other **Global Positioning Device**

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

__X__ evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? __X__ YES ___NO

___information unavailable

7) Sanitary setback:

___< 100ft* __X__100-120 ft ___> 200 ft

*If less than 100 ft describe the site conditions:

_____

_____

_____

8) Wellhead construction:

__X__wellhead enclosed in a wellhouse

__X__controlled access (describe):__Lockable building with a steel door.__

_____

___other uses for wellhouse (describe):_____

_____

___no wellhead control

9) Surface seal:

___ 18 ft

___< 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

__X__ < 18 ft ('<' means less than)

___depth of seal unknown

___no surface seal

10) Annual rainfall (inches per year):

__X__< 10 in/yr ___10-25 in/yr ___> 25 in/yr

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PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **64,042,000** (gallons)

How was this determined?

X meter

___estimated: ___pumping rate (_____)

___pumping capacity (_____)

X other **Daily turbidity sheet records – 1994 Water Comp Plan**

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time: **440** (ft)

1 year ground water travel time: **620** (ft)

5 year ground water travel time: **1,390** (ft)

10 year ground water travel time: **1,970** (ft)

Information available on length of screened/open interval?

X YES ___NO

Length of screened/open interval: **36** (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? **YES** / NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)

Comments:

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	____	X	X	____
stormwater injection wells	____	____	____	____
other injection wells	____	____	____	____
abandoned ground water well	____	____	____	____
landfills, dumps, disposal areas	____	____	____	____
known hazardous materials clean-up site	____	____	____	____
water system(s) with known quality problems	____	____	____	____
population density > 1 house/acre	____	____	____	____
residences commonly have septic tanks	____	____	____	____
Wastewater treatment lagoons	____	____	____	____
sites used for land application of waste	____	____	____	____

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

There are grapes to the northeast of the Well as identified on the map highlighted in pink, the S.V.I.D. irrigation canal is south – southeast of the wellhouse identified on the map, highlighted in orange & black. There are orchards to the south identified on the map with blue highlighter and a year round flowing creek west of the Well identified on the map with yellow highlighter.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	____	X
	YES	NO
< 2 mg/liter nitrate	____	X
2-5 mg/liter nitrate	____	X
> 5 mg/liter nitrate	____	X
___Nitrate sampling records unavailable		
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	____	X
VOCs detected at least once	____	X
VOCs never detected	____	X
___VOC sampling records unavailable		
	YES	NO
C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	____	____
EDB/DBCP detected above MCL at least once	____	____
EDB/DBCP never detected	____	____
___ EDB/DBCP tests required but not yet completed		
X EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)	____	_____
___Other SOC tests performed but none detected (list test methods in comments)		
___Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **No S.O.C.s test performed – all is dependent on results of ground water contamination susceptability assessment waiver applications.**

E. Bacterial Contamination: YES NO

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____ X

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____ X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

___X___YES _____NO

Describe with references to map produced in Part IV:
There is a stream in the 6 month CFR to the west of pumphouse and the S.V.I.D. irrigation canal to the south of the Wellhouse in the 1 year CFR.

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

___X___YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

___X___YES _____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES ___X___NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
< 6 month travel time	___	X	___
6 month –1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	X	___	___
1-5 year travel time	X	___	___
5-10 year travel time	X	___	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

This well is surrounded by grapes, pastures and the S.V. I. D. irrigation canal just south of the well. Please see attached map for further information.

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? **YES** / NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: City of Grandview

Water system name: City of Grandview

County: Yakima

Water system number: 28970-J Source number: SO8

Well depth: 342' (ft.) (From WFI form)

Source name: C APPLEWAY WELL

WA well identification tag number: A A S - 2 7 9

____ well not tagged

Number of connections: 2513 Population served: 8,377

Township: 9 Range: 23 E

Section: 22 ¼ ¼ Section: NW – SW

Latitude/longitude (if available): 4614'51.48480"N / 11956'10.64312" W

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 07/ /1964 month/day/year
last reconstruction: 08 / 24 /1999 month/day/year

_____ information unavailable

2) Well driller: **Schneider Drilling Co.**

21881 River Road N.E.

St. Paul, OR 97137

____ Well driller unknown

3) Type of well:

__X__ Drilled: __X__ rotary ___ bored ___ cable (percussion) ___ Dug

___ Other: ___ spring(s) ___ lateral collector (Ranney)
___ driven ___ jetted ___ other: _____

Additional comments: _____

4) Well report available? __X__ YES (attach copy to form) ____ NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **93** (gallons/min)

Source of information: **Schneider Drilling Company**

If not documented, how was pumping rate determined? **Pumping test done by Schneider Drilling Company.**

____ Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

__X__ disinfection ___ filtration ___ carbon filter ___ air stripper ___ other

Purpose of treatment (describe materials to be removed or controlled by treatment):
We treat with 100% gas chlorine for disinfection.

7) If source is chlorinated, is a chlorine residual maintained: YES

Residual level: **0.8 - 1.2** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft _X_100-200ft ___> 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

___< 20 ft ___20-50 ft _X_50-100 ft ___> 100 ft

___flowing well/spring (artesian)

How was water level determined?

_X_well log ___other:

_____

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____psi (pounds per square inch)
or
_____feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / NO

5) Wellhead elevation (height above mean sea level): **837.1** (ft)

How was elevation determined? ___topographic map ___Drilling/Well Log

___altimeter _X_other **Global Positioning Device**

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

_X_evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? ___YES _X_NO

___information unavailable

7) Sanitary setback:

___ < 100ft* __X__ 100-120 ft ___ > 200 ft

*If less than 100 ft describe the site conditions:

_____

_____

_____

8) Wellhead construction:

__X__ wellhead enclosed in a wellhouse

___ controlled access (describe): **Building is locked.**

_____

___ other uses for wellhouse (describe): **N/A**

_____

___ no wellhead control

9) Surface seal:

___ 18 ft

___ < 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

___ < 18 ft ('<' means less than)

__X__ depth of seal unknown

___ no surface seal

10) Annual rainfall (inches per year):

__X__ < 10 in/yr ___ 10-25 in/yr ___ > 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **48,880,800** (gallons) estimated.

How was this determined?

___ meter

X estimated: **X** pumping rate **(93 gpm X 1440 min X 365 days = 48,880,800)**

___ pumping capacity (_____)

___ other_____

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time: **250'** (ft)

1 year ground water travel time: **360'** (ft)

5 year ground water travel time: **800'** (ft)

10 year ground water travel time: **1140'** (ft)

Information available on length of screened/open interval?

X YES ___ NO

Length of screened/open interval: **65'** (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / **NO** (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)

Comments:_____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application			X	
stormwater injection wells				
other injection wells				
abandoned ground water well				
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre				
residences commonly have septic tanks				
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

Orchards are located to the west of the wellhouse.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	____	X

	YES	NO
< 2 mg/liter nitrate	____	____
2-5 mg/liter nitrate	X	____
> 5 mg/liter nitrate	____	____

___Nitrate sampling records unavailable

	YES	NO
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)		
Results greater than MCL or SAL	____	X
VOCs detected at least once	____	X
VOCs never detected	____	X

___VOC sampling records unavailable

	YES	NO
C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	____	____
EDB/DBCP detected above MCL at least once	____	____
EDB/DBCP never detected	____	____

___ EDB/DBCP tests required but not yet completed
X EDB/DBCP tests not required

	YES	NO
D. Other SOCs (Pesticides):		
Other SOCs detected (pesticides and other synthetic organic chemicals)	____	X

X Other SOC tests performed but none detected (list test methods in comments)
___Other SOC tests not performed

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **Please see copies of SOC test results for this source. The results are attached.**

E. Bacterial Contamination: YES NO

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____ X

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____ X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

_____YES ___X___NO

Describe with references to map produced in Part IV:

_____

_____

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

___X___YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____YES ___X___NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES ___X____NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs? **NO**

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
< 6 month travel time	___	X	___
6 month –1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

N/A

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? YES / **NO**

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

It is a good program, it allows you to learn more about your system's source wells.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **S010**

Well depth: **620** (ft.) (From WFI form)

Source name: **NORTH WILLOUGHBY WELL**

WA well identification tag number: **A B R - 6 4 2**

____ well not tagged

Number of connections: **2,513** Population served: **8,377**

Township: **09N** Range: **23E**

Section: **13** ¼ ¼ Section: **NE ¼ / SW ¼**

Latitude/longitude (if available): **4615'55.28373"N / 11953'18.75149"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **03 / 29 / 1978** month/day/year
last reconstruction: __/__/____ month/day/year

_____ information unavailable

2) Well driller: **R. J. Strasser Drilling Co.**

810 S.E. Sunset Lane

Portland, OR - License No. 0456

____ Well driller unknown

3) Type of well:

___Drilled: __X__ rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: _____

_____

4) Well report available? __X__ YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **400** (gallons/min)

Source of information: **1994 Water Comp. Plan – 1993 daily turbidity record sheets.**

If not documented, how was pumping rate determined? _____

_____

____Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

__X__ disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
We treat with 100% gas chlorine for disinfection purposes.

_____

7) If source is chlorinated, is a chlorine residual maintained: YES / NO

Residual level: **1.0** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft ___100-200ft _X_ > 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

_X_ < 20 ft ___20-50 ft ___50-100 ft ___> 100 ft

___flowing well/spring (artesian)

How was water level determined?

_X_ well log _X_ other: **Initial static level was 17' – current level is 179'**

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

N/A psi (pounds per square inch)
or
N/A feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / **NO**

5) Wellhead elevation (height above mean sea level): **840** (ft)

How was elevation determined? ___topographic map ___Drilling/Well Log

___altimeter _X_ other **Global Positioning Device**

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

_X_ evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? _X_ YES ___NO

___information unavailable

7) Sanitary setback:

__X__ < 100ft* ___100-120 ft ___> 200 ft

*If less than 100 ft describe the site conditions:

Direct measurement – Have a grape field located to the north of Well and a corn field to the east.

8) Wellhead construction:

__X__ wellhead enclosed in a wellhouse

__X__ controlled access (describe): **This wellhouse is a lockable building with steel doors.**

___other uses for wellhouse (describe):_____

___no wellhead control

9) Surface seal:

___ 18 ft

___< 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

__X__ < 18 ft ('<' means less than)

___depth of seal unknown

___no surface seal

10) Annual rainfall (inches per year):

__X__ < 10 in/yr ___10-25 in/yr ___> 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **154,789,600** (gallons)

How was this determined?

X meter

___estimated: ___pumping rate (_____)

___pumping capacity (_____)

X other **1994 Water Comp. Plan – 1993 daily turbidity record sheets.**

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time: **360** (ft)

1 year ground water travel time: **510** (ft)

5 year ground water travel time: **1,140** (ft)

10 year ground water travel time: **1,610** (ft)

Information available on length of screened/open interval?

X YES ___NO

Length of screened/open interval:_____(ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / **NO** (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)

Comments:_____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	X	X	X	
stormwater injection wells				
other injection wells				
abandoned ground water well				
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre				
residences commonly have septic tanks				
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

There is a grape field located to the north of the well in the 6 month CFR and a corn field to the east in the 6month CFR. Also located in the 1 year CFR is the City's cemetery tot he west of the well. – See map for highlighted locations of these areas identified.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	____	X
	YES	NO
< 2 mg/liter nitrate	____	X
2-5 mg/liter nitrate	____	X
> 5 mg/liter nitrate	____	X
___Nitrate sampling records unavailable		
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	____	X
VOCs detected at least once	____	X
VOCs never detected	____	X
___VOC sampling records unavailable		
	YES	NO
C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	____	____
EDB/DBCP detected above MCL at least once	____	____
EDB/DBCP never detected	____	____
___ EDB/DBCP tests required but not yet completed		
_X_ EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)	____	____
___Other SOC tests performed but none detected (list test methods in comments)		
_X_ Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **These tests have not been conducted, all is depending on th results of the susceptability assessment waivers.**

E. Bacterial Contamination:

	YES	NO
Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records).	____	X
Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.	____	X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

_____YES ____X___NO

Describe with references to map produced in Part IV:

_____

_____

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

___X____YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____YES ____X____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____ YES X NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
< 6 month travel time			
6 month –1 year travel time	X		
1-5 year travel time			
5-10 year travel time			

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time		X	
1-5 year travel time		X	
5-10 year travel time		X	

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

Nothing other than what has been identified in the previous pages and items highlighted on the map.

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? **YES** / NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

Ground Water Contamination
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IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **SO11**

Well depth: **250'** (ft.) (From WFI form)

Source name: **HIGHLAND WELL**

WA well identification tag number: **A A S - 2 4 0**

____ well not tagged

Number of connections: **2513** Population served: **8,377**

Township: **9** Range: **23E**

Section: **24** ¼ ¼ Section: **NW – SW**

Latitude/longitude (if available): **4615'4.16218"N / 11953'31,23160"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: ___/___/___ month/day/year **(Old well log obscure)**
last reconstruction: **5/19/1999** month/day/year

_____ information unavailable

2) Well driller: **Schneider Drilling Company**

21881 River Road NE

St. Paul, OR 97137

____ Well driller unknown

3) Type of well:

___Drilled: _X_ rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: **New well**

4) Well report available? _X_ YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **90** (gallons/min)

Source of information: **Schneider Drilling Company**

If not documented, how was pumping rate determined? **Pumping test was performed by Schnieder Drilling Company.**

____Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

_X_ disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):

We treat with 100% gas chlorine for disinfection purposes.

7) If source is chlorinated, is a chlorine residual maintained: **YES** / NO

Residual level: **0.8 to 1.2** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft __X__100-200ft ___> 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

___< 20 ft __X__ 20-50 ft ___50-100 ft ___> 100 ft

___flowing well/spring (artesian)

How was water level determined?

__X__ well log ___other: **Did a drawdown.**

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____psi (pounds per square inch)
or
_____feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / NO

5) Wellhead elevation (height above mean sea level): __827.7__ (ft)

How was elevation determined? ___topographic map __X__ Drilling/Well Log

___altimeter __X__ other **Global Positioning Device**

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

__X__ evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? __X__ YES ___NO

___information unavailable

7) Sanitary setback:

___ < 100ft* __X__ 100-120 ft ___ > 200 ft

*If less than 100 ft describe the site conditions:

_____

_____

_____

8) Wellhead construction:

__X__ wellhead enclosed in a wellhouse

__X__ controlled access (describe): **Building is locked.**

_____

___other uses for wellhouse (describe): **N/A**

_____

___no wellhead control

9) Surface seal:

___ 18 ft

___< 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

__X__ < 18 ft ('<' means less than)

___depth of seal unknown

___no surface seal

10) Annual rainfall (inches per year):

__X__ < 10 in/yr ___10-25 in/yr ___> 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **47,304,000** (gallons)

How was this determined?

___meter

X estimated: **X** pumping rate **(1440 min X 365 days X 90 gpm = 47,304,000)**

___pumping capacity (_____)

___other_____

2) "Calculated Fixed Radius" estimate of ground water movement:

	(see Instruction Packet)
6 month ground water travel time:	**250'**
1 year ground water travel time:	**360'**
5 year ground water travel time:	**800'**
10 year ground water travel time:	**1140'**

Information available on length of screened/open interval?

X YES ___NO

Length of screened/open interval: **59** (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / **NO** (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)

Comments:_____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	X	X	X	
stormwater injection wells				
other injection wells				
abandoned ground water well				
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre				
residences commonly have septic tanks				
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

A grape field surrounds this well on its east, west and south sides.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	____	X
	YES	NO
< 2 mg/liter nitrate	____	____
2-5 mg/liter nitrate	____	____
> 5 mg/liter nitrate	X	____
___Nitrate sampling records unavailable		
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	____	X
VOCs detected at least once	____	X
VOCs never detected	X	____
___VOC sampling records unavailable		
	YES	NO
C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	____	____
EDB/DBCP detected above MCL at least once	____	____
EDB/DBCP never detected	____	____
___ EDB/DBCP tests required but not yet completed		
X EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)	____	X
X Other SOC tests performed but none detected (list test methods in comments)		
___Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **Please see results of the SOC's for this source. The results are attached.**

E. Bacterial Contamination: YES NO

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____ X

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____ X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

_____YES ___X___NO

Describe with references to map produced in Part IV:

_____

_____

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

___X_____YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____YES ___X_____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES ___X____NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs? **NO**

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
< 6 month travel time	___	X	___
6 month –1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

N/A

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? YES / **NO**

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

It is good program that allows you to learn more about your system's source wells.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **SO12**

Well depth: **320** (ft.) (From WFI form)

Source name: **Butternut Well #12** Pecan A well (inactive)

WA well identification tag number: **A A S - Z 8 2**

____ well not tagged

Number of connections: **2513** Population served: **8,377**

Township: **9** Range: **23E**

Section: **22** ¼ ¼ Section: **SW – SW**

Latitude/longitude (if available): **4614'45.42235"N / 11955'58.28058"W**

How was lat./long. determined?

X global positioning device _____survey _____topographic map
____other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **8 / ___ / 1964** month/day/year
last reconstruction: **08 / 19 / 1999** month/day/year

_____information unavailable

2) Well driller: **Schneider Drilling Company**

21881 River Road

St. Paul, OR 97137

____ Well driller unknown

3) Type of well:

___Drilled: **X** rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: _____

4) Well report available? **X** YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **144** (gallons/min)

Source of information: **Pumping test was performed by Schneider Drilling Company.**

If not documented, how was pumping rate determined? _____

____Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

X disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
We treat with 100% gas chlorine for disinfection purposes.

7) If source is chlorinated, is a chlorine residual maintained: YES / NO

Residual level: **0.8 – 1.2** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft __X__100-200ft ___> 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

___< 20 ft ___20-50 ft __X__50-100 ft ___> 100 ft

___flowing well/spring (artesian)

How was water level determined?

__X__well log ___other: _____

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____psi (pounds per square inch)
or
_____feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / NO

5) Wellhead elevation (height above mean sea level): **715.0** (ft)

How was elevation determined? ___topographic map ___Drilling/Well Log

___altimeter __X__other **Global Positioning Device**

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

__X__evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? __X__YES ___NO

___information unavailable

7) Sanitary setback:

___ < 100ft* _X_ 100-120 ft ___ > 200 ft

*If less than 100 ft describe the site conditions:

_____

_____

_____

8) Wellhead construction:

_X_ wellhead enclosed in a wellhouse

_X_ controlled access (describe): **Building is locked.**

___other uses for wellhouse (describe): **N/A**

___no wellhead control

9) Surface seal:

___ 18 ft

___ < 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

_X_ < 18 ft ('<' means less than)

___depth of seal unknown

___no surface seal

10) Annual rainfall (inches per year):

_X_ < 10 in/yr ___10-25 in/yr ___ > 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 75,686, 400 (gallons)

How was this determined?

___meter

_X_ estimated: ___pumping rate **(1440 min x 365 day X 144 gpm = 75,686,400)**

___pumping capacity (_____)

___other_____

2) "Calculated Fixed Radius" estimate of ground water movement:

	(see Instruction Packet)
6 month ground water travel time:	**250'**
1 year ground water travel time:	**360'**
5 year ground water travel time:	**800'**
10 year ground water travel time:	**1140'**

Information available on length of screened/open interval?

_X_ YES ___NO

Length of screened/open interval: **50'** (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / **NO** (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)
Comments:_____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	____	X	X	_____
stormwater injection wells	____	____	____	_____
other injection wells	____	____	____	_____
abandoned ground water well	____	____	____	_____
landfills, dumps, disposal areas	____	____	____	_____
known hazardous materials clean-up site	____	____	____	_____
water system(s) with known quality problems	____	____	____	_____
population density > 1 house/acre	____	____	____	_____
residences commonly have septic tanks	____	____	____	_____
Wastewater treatment lagoons	____	____	____	_____
sites used for land application of waste	____	____	____	_____

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

We have a sewer lift station located in the 1 year zone. The name of the lift station is the Butternut Lift Station and it also belongs to the City of Grandview.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

A. Nitrate: (Nitrate MCL = 10 mg/l)

	YES	NO
Results greater than MCL	____	X

	YES	NO
< 2 mg/liter nitrate	____	____
2-5 mg/liter nitrate	X	____
> 5 mg/liter nitrate	____	____

___Nitrate sampling records unavailable

B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)

	YES	NO
Results greater than MCL or SAL	____	X
VOCs detected at least once	____	X
VOCs never detected	____	X

___VOC sampling records unavailable

C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)

	YES	NO
EDB/DBCP detected below MCL at least once	____	____
EDB/DBCP detected above MCL at least once	____	____
EDB/DBCP never detected	____	____

___ EDB/DBCP tests required but not yet completed
X EDB/DBCP tests not required

D. Other SOCs (Pesticides):

	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)	____	X

___Other SOC tests performed but none detected (list test methods in comments)
___Other SOC tests not performed

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **Please see SOC test results attached to the Susceptibility Survey Form.**

E. Bacterial Contamination:

	YES	NO
Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records).	____	X
Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.	____	X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

_____YES _____X_____NO

Describe with references to map produced in Part IV:

_____

_____

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

____X____YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____YES _____X_____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES ___X___NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within…

	YES	NO	unknown
< 6 month travel time	___	X	___
6 month –1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

N/A

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? YES / **NO**

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

It is a good program, it allows you to learn more about your system's source wells.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **SO13**

Well depth: **954** (ft.) (From WFI form)

Source name **SOUTH WILLOUGHBY WELL**

WA well identification tag number: **A E P - 5 2 4**

____ well not tagged

Number of connections: **2,573** Population served: **8,377**

Township: **09N** Range: **23E**

Section: **13** ¼ ¼ Section: **NE ¼ / SE ¼**

Latitude/longitude (if available): **4615'52.37104"N** / **11953'18.87446"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **05 / 24 / 1982** month/day/year
last reconstruction: ___/___/_____ month/day/year

_____ information unavailable

2) Well driller: **West Coast Drilling Co., Inc.**

220 Academy Street

Mt. Angel, OR – Steve Stadelie (Owner) License No. 0860

____ Well driller unknown

3) Type of well:

___Drilled: _X_ rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: _____

4) Well report available? _X_ YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **2,000** (gallons/min)

Source of information: **Water Well Report, 1994 Water Comp Plan, 1993, & Daily turbidity record sheets.**

If not documented, how was pumping rate determined? _____

____Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

_X_ disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
We treat with 100% gas chlorine for disinfection purposes.

7) If source is chlorinated, is a chlorine residual maintained: **YES** / NO

Residual level: **1.0** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft ___100-200ft __X__ > 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

___< 20 ft ___20-50 ft ___50-100 ft __X__ > 100 ft

___flowing well/spring (artesian)

How was water level determined?

__X__well log ___other: _____

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

__N/A__ psi (pounds per square inch)
or
__N/A__ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / **NO**

5) Wellhead elevation (height above mean sea level): __859__(ft)

How was elevation determined? ___topographic map ___Drilling/Well Log

___altimeter ___other **Global Positioning Device**

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

__X__ evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? __X__ YES ___NO

___information unavailable

7) Sanitary setback:

___ < 100ft* __X__ 100-120 ft ___ > 200 ft

*If less than 100 ft describe the site conditions:

_____

_____

_____

8) Wellhead construction:

__X__ wellhead enclosed in a wellhouse

__X__ controlled access (describe): **Lockable steel doors, wellhouse is fenced and has a lockable gate.**

___ other uses for wellhouse (describe):_____

_____

___ no wellhead control

9) Surface seal:

___ 18 ft

___ < 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

__X__ > 18 ft ('>' means greater than)

___ depth of seal unknown

___ no surface seal

10) Annual rainfall (inches per year):

__X__ < 10 in/yr ___ 10-25 in/yr ___ > 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **124,493,000** (gallons)

How was this determined?

X meter

___estimated: ___pumping rate (_____)

___pumping capacity (_____)

X other **1994 Water Comp Plan – 1993 Daily turbidity record sheets**

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time: **360** (ft)

1 year ground water travel time: **510** (ft)

5 year ground water travel time: **1,140** (ft)

10 year ground water travel time: **1,610** (ft)

Information available on length of screened/open interval?

___YES ___NO

Length of screened/open interval: **683** (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? **YES** / NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)

Comments:

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	X	X	X	
stormwater injection wells				
other injection wells				
abandoned ground water well				
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre				
residences commonly have septic tanks			X	
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

City's cemetery is located to the west of Well 14 in the 6 months, 1 year and 5 year C.F.R.s.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	___	X
	YES	NO
< 2 mg/liter nitrate	___	X
2-5 mg/liter nitrate	___	X
> 5 mg/liter nitrate	___	X
___Nitrate sampling records unavailable		
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	___	X
VOCs detected at least once	___	X
VOCs never detected	___	X
___VOC sampling records unavailable		
	YES	NO
C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	___	___
EDB/DBCP detected above MCL at least once	___	___
EDB/DBCP never detected	___	___
___ EDB/DBCP tests required but not yet completed		
X EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)	___	___
___Other SOC tests performed but none detected (list test methods in comments)		
X Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **Have not tested for S.O.C.s all is dependent on results of susceptability assessment waiver forms**

E. Bacterial Contamination: YES NO

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____ X

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____ X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

____X____YES _____NO

Describe with references to map produced in Part IV:
S.V.I.D. irrigation canal to the west of the Well in 6 months, 1 year, 5 year and 10 year C.F.R. s.

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

____X____YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____X_____YES _____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

___X___ YES _____ NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs? **YES**

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within... **NO**

	YES	NO	unknown
< 6 month travel time	___	___	___
6 month –1 year travel time	X	___	___
1-5 year travel time	___	___	___
5-10 year travel time	___	___	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	___	___	___
1-5 year travel time	X	___	___
5-10 year travel time	___	___	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

None other than what has been identified in the previous pages or noted on the map.

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? **YES** / NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **SO14**

Well depth: **1,294** (ft.) (From WFI form) .

Source name: **B BUTTERNUT WELL**

WA well identification tag number: **A E P - 5 1 9**

____ well not tagged

Number of connections: **2,513** Population served: **8,377**

Township: **09N** Range: **23E**

Section: **22** ¼ ¼ Section: **NE ¼ / SW ¼**

Latitude/longitude (if available): **4614'58.40926"N / 11955'50.15051"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **01/24/1990** month/day/year
last reconstruction: **N/A /__/__** month/day/year

_____ information unavailable

2) Well driller: **Schneider Equipment Inc.**

21881 River Road N. E.

St. Paul OR 97137 - Stephen Schneider (Owner)

____ Well driller unknown

3) Type of well:

___Drilled: __X__ rotary ___bored __X__ cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: _____

4) Well report available? __X__ YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **2,165** (gallons/min)

Source of information: **Well log, 1994 Water Comp. Plan, 1993 daily turbidity sheets.**

If not documented, how was pumping rate determined? _____

____Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

__X__ disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
We treat with 100% gas chlorine for disinfection purposes

7) If source is chlorinated, is a chlorine residual maintained: YES / NO

Residual level: **1.0** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft ___100-200ft __X__> 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

___< 20 ft ___20-50 ft ___50-100 ft __X__> 100 ft

___flowing well/spring (artesian)

How was water level determined?

__X__well log ___other: _____

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

__N/A__psi (pounds per square inch)
or
__N/A__feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / **NO**

5) Wellhead elevation (height above mean sea level): __769__(ft)

How was elevation determined? ___topographic map ___Drilling/Well Log

___altimeter __X__other **Global Postitioning Device**

__X__information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

__X__evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? __X__YES ___NO

___information unavailable

7) Sanitary setback:

__X__ < 100ft* ___ 100-120 ft ___ > 200 ft

*If less than 100 ft describe the site conditions:

There is a road 62' to the west of the well.

8) Wellhead construction:

__X__ wellhead enclosed in a wellhouse

__X__ controlled access (describe): **Lockable steel door, wellhouse is fenced and locked**

___ other uses for wellhouse (describe): _____

___ no wellhead control

9) Surface seal:

___ 18 ft

___ < 18 ft (no Department of Ecology approval) ('<' means less than)

__X__ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

___ < 18 ft ('<' means less than)

___ depth of seal unknown

___ no surface seal

10) Annual rainfall (inches per year):

__X__ < 10 in/yr ___ 10-25 in/yr ___ > 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **71,000,000** (gallons)

How was this determined?

X meter

___estimated: ___pumping rate (_____)

___pumping capacity (_____)

X other **1994 Water Comp. Plan, 1993 daily turbidity record sheets.**

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time: **250** (ft)

1 year ground water travel time: **360** (ft)

5 year ground water travel time: **800** (ft)

10 year ground water travel time: **1,140** (ft)

Information available on length of screened/open interval?

___YES **X** NO

Length of screened/open interval:_____(ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / **NO** (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)

Comments:_____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application			X	
stormwater injection wells				
other injection wells				
abandoned ground water well				
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre		X		
residences commonly have septic tanks				
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

Orchards are located to the south and to the north – northwest of the well in the 5 and 10 year CFR. Population density is concentrated to all directions of well and as indicated in green highlight.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	___	X
	YES	NO
< 2 mg/liter nitrate	___	X
2-5 mg/liter nitrate	___	X
> 5 mg/liter nitrate	___	X
___Nitrate sampling records unavailable		
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	___	X
VOCs detected at least once	___	X
VOCs never detected	___	X
___VOC sampling records unavailable		
	YES	NO
C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	___	___
EDB/DBCP detected above MCL at least once	___	___
EDB/DBCP never detected	___	___
___ EDB/DBCP tests required but not yet completed		
X EDB/DBCP tests not required		
D. Other SOCs (Pesticides):	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)	___	X
___Other SOC tests performed but none detected (list test methods in comments)		
X Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **No tests have been conducted as of yet, all is dependent on results of susceptability assessment waivers.**

E. Bacterial Contamination: YES NO

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____ X

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____ X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

_____YES ___X___NO

Describe with references to map produced in Part IV:

_____

_____

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

___X____YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

____X____YES _____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES ___X___NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within…

	YES	NO	unknown
< 6 month travel time		X	
6 month –1 year travel time		X	
1-5 year travel time		X	
5-10 year travel time		X	

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time		X	
1-5 year travel time	X		
5-10 year travel time	X		

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

We have orchards to the south in the 1-5 CFR as highlighted on the map.

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? **YES** / NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **SO16**

Well depth: **622** (ft.) (From WFI form)

Source name: **OLMSTEAD B WELL**

WA well identification tag number: **A A S - 2 7 8**

____ well not tagged

Number of connections: **2,439** Population served: **8,410**

Township: **09N** Range: **23E**

Section: **12** ¼ ¼ Section: **SW ¼ / SW ¼**

Latitude/longitude (if available): **4616'25.66678"N / 11953'35.46854"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **04 / 06 /2004** month/day/year
last reconstruction: **0 / / ** month/day/year

_____ information unavailable

2) Well driller: **Schnieder Equipment Inc.**

2188 River Road N.E.

St. Paul, OR 97137

____ Well driller unknown

3) Type of well:

___Drilled: **X** rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: _____

4) Well report available? **X** YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **80** (gallons/min)

Source of information: **Well Log**

If not documented, how was pumping rate determined? _____

____Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

X disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
100% Chlorine Gas for Disinfection

7) If source is chlorinated, is a chlorine residual maintained: **YES** / NO

Residual level: **0.8-1.2 ppm** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft ___100-200ft __X__ > 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

__X__ < 20 ft ___20-50 ft ___50-100 ft ___> 100 ft

__X__ flowing well/spring (artesian)

How was water level determined?

__X__ well log ___other: _____

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

7 psi (pounds per square inch)
or
_____feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / **NO**

5) Wellhead elevation (height above mean sea level): **818** (ft)

How was elevation determined? ___topographic map ___Drilling/Well Log

___altimeter __X__ other **Global Positioning Device**

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

__X__ evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? __X__ YES ___NO

___information unavailable

7) Sanitary setback:

___ < 100ft* __X__ 100-120 ft ___ > 200 ft

*If less than 100 ft describe the site conditions:

_____

_____

_____

8) Wellhead construction:

___wellhead enclosed in a wellhouse

__X__controlled access (describe):**Wellhead is locked with 2 locks and enclosed in 8'x 6' plastic shed enclosure with fencing.**

___other uses for wellhouse (describe):_____

_____

___no wellhead control

9) Surface seal:

___ 18 ft

___< 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

__X__ > 18 ft ('<' means less than)

___depth of seal unknown

___no surface seal

10) Annual rainfall (inches per year):

__X__ < 10 in/yr ___10-25 in/yr ___> 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **42,048,000** (gallons)

How was this determined?

___meter

__X__estimated: __X__pumping rate **(80 x 60 min X24 Hrs x 365 Days = 42,048,000)**

___pumping capacity (_____)

___other_____

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time: **700** (ft)

1 year ground water travel time: **980** (ft)

5 year ground water travel time: **2,200** (ft)

10 year ground water travel time: **3,110** (ft)

Information available on length of screened/open interval?

__X__YES ___NO

Length of screened/open interval: **0** (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? **YES** / NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)

Comments:_____

_____

_____

_____

_____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application		X	X	
stormwater injection wells				
other injection wells				
abandoned ground water well				
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre			X	
residences commonly have septic tanks			X	
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

None

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	___	X
	YES	NO
< 2 mg/liter nitrate	___	X
2-5 mg/liter nitrate	X	___
> 5 mg/liter nitrate	___	X
___Nitrate sampling records unavailable		
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)	YES	NO
Results greater than MCL or SAL	___	X
VOCs detected at least once	___	X
VOCs never detected	X	___
___VOC sampling records unavailable		
	YES	NO
C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	___	___
EDB/DBCP detected above MCL at least once	___	___
EDB/DBCP never detected	___	___
___ EDB/DBCP tests required but not yet completed		
___ EDB/DBCP tests not required		
	YES	NO
D. Other SOCs (Pesticides):		
Other SOCs detected (pesticides and other synthetic organic chemicals)	___	___
___Other SOC tests performed but none detected (list test methods in comments)		
___Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here:_____

_____

_____

_____

E. Bacterial Contamination: YES NO

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____ X

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____ X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

___X___YES _____NO

Describe with references to map produced in Part IV:

_____

_____

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

___X___YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____X_____YES _____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES ____X____NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within…

	YES	NO	unknown
< 6 month travel time	___	X	___
6 month –1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	X	___	___
1-5 year travel time	X	___	___
5-10 year travel time	X	___	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

None

Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? **YES** / NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

= S.V.I.D Irr Canal

= Grapes

= Year round Flowing Creek.

ORCHARDS

1" = 600'

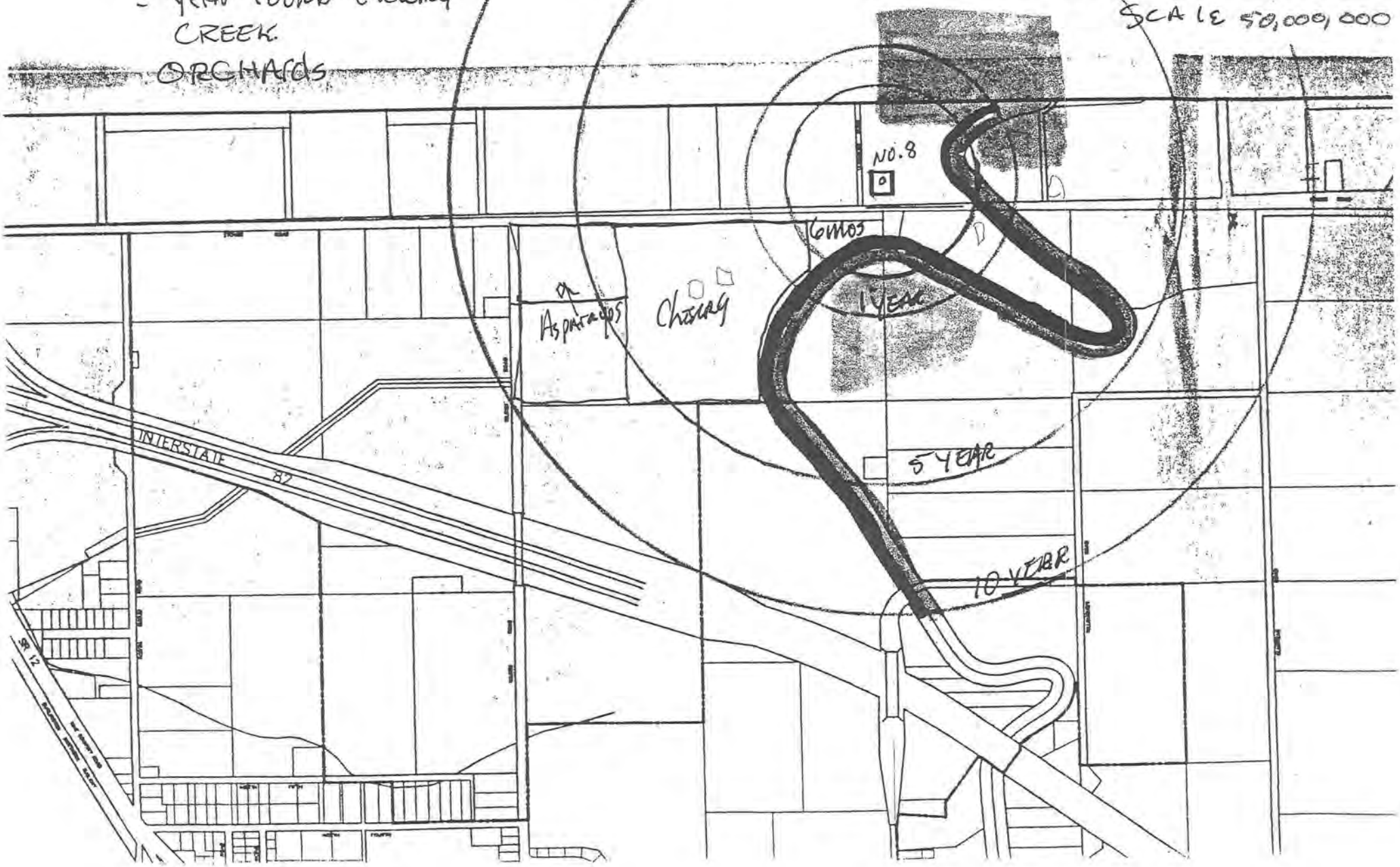
Screened Intake used 200

Annual Volumes

42,048,000 → Pumped

used

Scale 50,000,000



Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **S17**

Well depth: **718** (ft.) (From WFI form)

Source name: **ASHAEL CURTIS WELL**

WA well identification tag number: **A A S - 2 4 2**

____ well not tagged

Number of connections: **2,439** Population served: **8,410**

Township: **09N** Range: **23E**

Section: **21** ¼ ¼ Section: **NE ¼ - ¼ SE ¼**

Latitude/longitude (if available): **4614'57.69717"N / 11956'40.32476"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **04 / 21 /04** month/day/year
last reconstruction: **0 / / ** month/day/year

_____ information unavailable

2) Well driller: **Schnieder Equipment Inc.**

2188 River Road N.E.

St. Paul, OR 97137

____ Well driller unknown

3) Type of well:

___Drilled: **X** rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: _____

4) Well report available? **X** YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **180** (gallons/min)

Source of information: **Well Log**

If not documented, how was pumping rate determined? _____

____Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

X disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
100% Chlorine Gas for Disinfection

7) If source is chlorinated, is chlorine residual maintained: **YES** / NO

Residual level: **0.8 – 1.2 ppm** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft ___100-200ft __X__> 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

__X__< 20 ft ___20-50 ft ___50-100 ft ___> 100 ft

___flowing well/spring (artesian)

How was water level determined?

__X__well log ___other:

_____

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____psi (pounds per square inch)
or
_____feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / NO

5) Wellhead elevation (height above mean sea level): __800__(ft)

How was elevation determined? __X__topographic map ___Drilling/Well Log

___altimeter ___other _____

___information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)

__X__evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? __X__YES ___NO

___information unavailable

7) Sanitary setback:

___ < 100ft* __X__ 100-120 ft ___ > 200 ft

*If less than 100 ft describe the site conditions:

_____

_____

_____

8) Wellhead construction:

___wellhead enclosed in a wellhouse

___controlled access (describe):_____

_____

___other uses for wellhouse (describe):_____

_____

__X__ no wellhead control – **Well is under construction. Will update item #8 upon construction phase completion.**

9) Surface seal:

___ 18 ft

___ < 18 ft (no Department of Ecology approval) ('<' means less than)

___ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

__X__ >18 ft ('>' means greater than)

___depth of seal unknown

___no surface seal

10) Annual rainfall (inches per year):

__X__ < 10 in/yr ___10-25 in/yr ___ > 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **94,608,000** (gallons)

How was this determined?

___meter

___estimated: __**X**__ pumping rate **(180 x 60 min x 24 x 365)**

___pumping capacity (_____)

___other_____

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time: **360** (ft)

1 year ground water travel time: **510** (ft)

5 year ground water travel time: **1,140** (ft)

10 year ground water travel time: **1,610** (ft)

Information available on length of screened/open interval?

__**X**__ YES ___NO

Length of screened/open interval: **0** (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / **NO** (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)
Comments:_____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	X	X	X	
stormwater injection wells				
other injection wells				
abandoned ground water well			X	
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre			X	
residences commonly have septic tanks			X	
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

A. Nitrate: (Nitrate MCL = 10 mg/l)

	YES	NO
Results greater than MCL	X	

	YES	NO
< 2 mg/liter nitrate		
2-5 mg/liter nitrate	X	
> 5 mg/liter nitrate	X	

___Nitrate sampling records unavailable

B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)

	YES	NO
Results greater than MCL or SAL		X
VOCs detected at least once		X
VOCs never detected		

___VOC sampling records unavailable

C. EDB/DBCP: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)

	YES	NO
EDB/DBCP detected below MCL at least once		
EDB/DBCP detected above MCL at least once		
EDB/DBCP never detected		

___ EDB/DBCP tests required but not yet completed
X EDB/DBCP tests not required

D. Other SOCs (Pesticides):

	YES	NO
Other SOCs detected (pesticides and other synthetic organic chemicals)		X

___Other SOC tests performed but none detected (list test methods in comments)
___Other SOC tests not performed

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here:_____

E. Bacterial Contamination:

	YES	NO
Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records).	____	X
Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.	____	X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

_____YES ____X__NO

Describe with references to map produced in Part IV:

_____

_____

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

___X____YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____X_____YES _____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES _____NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within…

	YES	NO	unknown
< 6 month travel time	___	X	___
6 month –1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	X	___	___
1-5 year travel time	X	___	___
5-10 year travel time	X	___	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

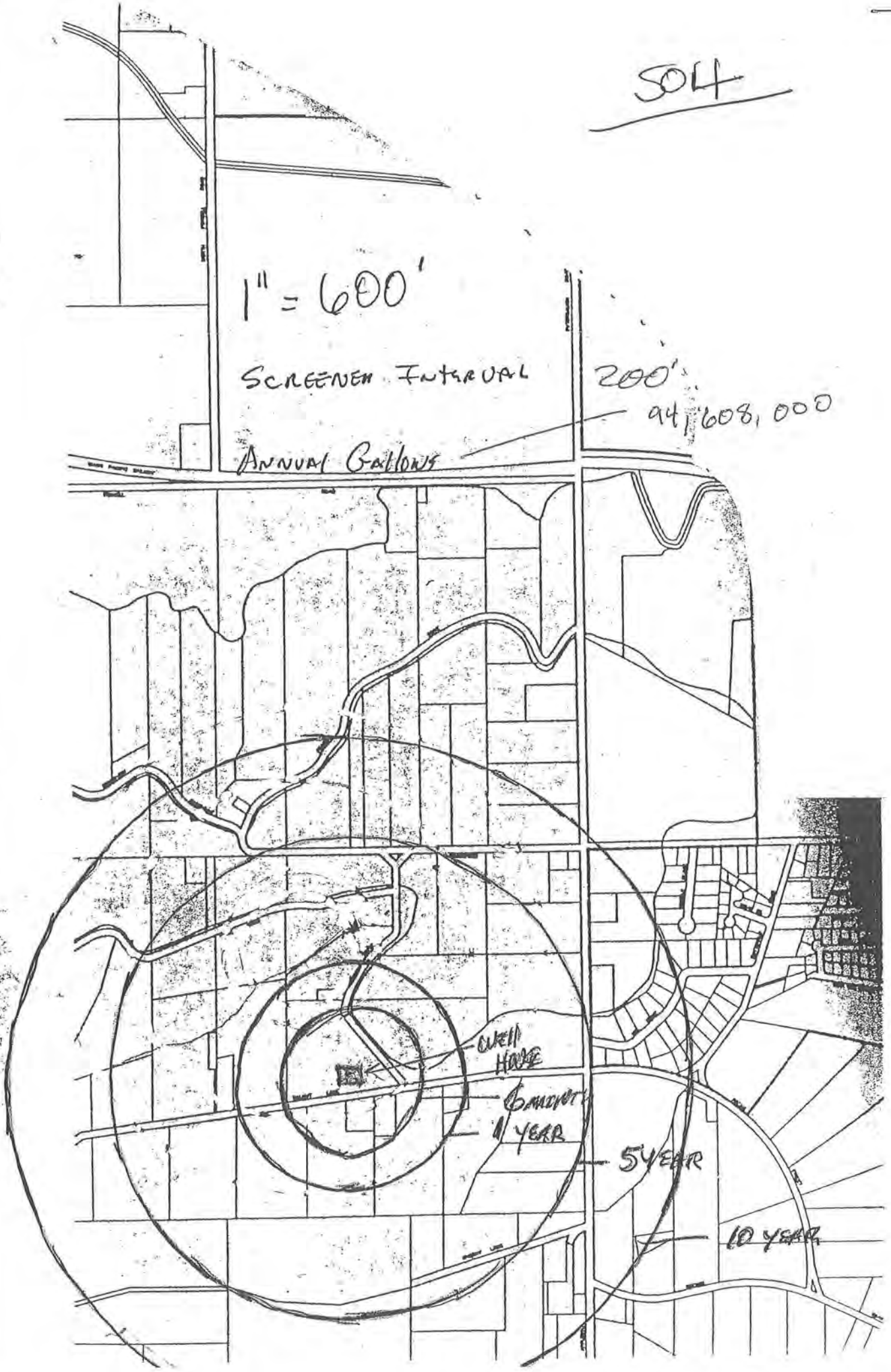
Suggestions and Comments

Did you attend one of the susceptibility workshops? **YES** / NO

Did you find it useful? **YES** / NO

Did you seek outside assistance to complete the assessment? **YES** / NO

This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.


1" = 600'
SCREENED INTERVAL 200'
94,608,000
ANNUAL GALLONS
WELL HOUSE
6 MONTH
1 YEAR
5 YEAR
10 YEAR

504

Urban B

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.1

IMPORTANT! Please complete one form for each ground water source (well, wellfield, spring) used in your water system. Photocopy as necessary.

PART I System Information

Well owner/manager: **City of Grandview**

Water system name: **City of Grandview**

County: **Yakima**

Water system number: **28970-J** Source number: **S18**

Well depth: **485** (ft.) (From WFI form)

Source name: **PECAN B WELL**

WA well identification tag number: **A A S - 1 6 1**

____ well not tagged

Number of connections: **2,621** Population served: **8,714**

Township: **09N** Range: **23E**

Section: **22** ¼ ¼ Section: **NE ¼ - ¼ SW ¼**

Latitude/longitude (if available): **4614'54.51827"N / 11955'9.03926"W**

How was lat./long. determined?

X global positioning device _____ survey _____ topographic map
____ other: _____

*Please refer to Assistance Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: **08 / 02 /06** month/day/year
last reconstruction: **0 / / ** month/day/year

_____ information unavailable

2) Well driller: **Schnieder Equipment Inc.**

2188 River Road N.E.

St. Paul, OR 97137

____ Well driller unknown

3) Type of well:

___Drilled: **X** rotary ___bored ___cable (percussion) ___Dug

___Other: ___spring(s) ___lateral collector (Ranney)
___driven ___jetted ___other: _____

Additional comments: _____

4) Well report available? **X** YES (attach copy to form) ____NO

If no well log is available, please attach any other records documenting well construction; e.g. boring logs, "as built" sheets, engineering reports, well reconstruction logs.

5) Average pumping rate: **190** (gallons/min)

Source of information: **Well Log**

If not documented, how was pumping rate determined? _____

____Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

X disinfection ___filtration ___carbon filter ___air stripper ___other

Purpose of treatment (describe materials to be removed or controlled by treatment):
100% Chlorine Gas for Disinfection

7) If source is chlorinated, is chlorine residual maintained: **YES** / NO

Residual level: **0.2 – 1.2 ppm** (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___< 20 ft ___20-50 ft ___50-100 ft ___100-200ft __X__> 200 ft

___ information unavailable ('<' means less than; '>' means greater than)

2) Depth to ground water (static water level):

___< 20 ft ___20-50 ft __X__50-100 ft ___> 100 ft

___flowing well/spring (artesian)

How was water level determined?

__X__well log ___other:

Sounder

___depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

___N/A_____psi (pounds per square inch)
or
___N/A_____feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: YES / NO

5) Wellhead elevation (height above mean sea level): __800__(ft)

How was elevation determined? ___topographic map __X__Drilling/Well Log

___altimeter ___other

___information unavailable

6) *Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to assistance package for example.)*

__X__evidence of a confining layer in well log

___no evidence of a confining layer in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the top of the open interval? __X__YES ___NO

___information unavailable

7) Sanitary setback:

___ < 100ft* __X__ 100-120 ft ___ > 200 ft

*If less than 100 ft describe the site conditions:

_____

_____

_____

8) Wellhead construction:

__X__ wellhead enclosed in a wellhouse

__X__ controlled access (describe): **Building is Locked**

_____

___ other uses for wellhouse (describe): _____

_____

___ no wellhead control

9) Surface seal:

___ 18 ft

___ < 18 ft (no Department of Ecology approval) ('<' means less than)

__X__ < 18 ft (approved by Ecology, include documentation) ('<' means less than)

___ >18 ft ('>' means greater than)

___ *depth of seal unknown*

___ no surface seal

10) Annual rainfall (inches per year):

__X__ < 10 in/yr ___ 10-25 in/yr ___ > 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: **99,864,000** (gallons)

How was this determined?

X meter

___estimated: ___pumping rate **(1440 x 365x190 gpms)**

___pumping capacity (_____)

___other **Pump Test by Well Driller**

2) "Calculated Fixed Radius" estimate of ground water movement:

(see Instruction Packet)

6 month ground water travel time: **360** (ft)

1 year ground water travel time: **510** (ft)

5 year ground water travel time: **1,140** (ft)

10 year ground water travel time: **1,610** (ft)

Information available on length of screened/open interval?

___YES **X** NO

Length of screened/open interval: **N/A** (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? YES / **NO** (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6 month time of travel boundary? YES / **NO** (mark and identify on map)

Comments:

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time:

	6 month	1 year	5 year	unknown
likely pesticide application	X	X	X	
stormwater injection wells				
other injection wells				
abandoned ground water well				
landfills, dumps, disposal areas				
known hazardous materials clean-up site				
water system(s) with known quality problems				
population density > 1 house/acre				
residences commonly have septic tanks				
Wastewater treatment lagoons				
sites used for land application of waste				

Mark and identify on map any of the risks listed above which are located within the 6 month time of travel boundary? *(Please include a map of the welhead and time of travel areas with this form. Please locate and mark any of the following.)*

If other recorded or potential sources of ground water contamination exist within the ten year time of travel circular zone around your water supply, please describe:

We have a sewer lift station located in the 1 year travel time zone. The name of the lift station is Butternut Lift Station and it belongs to the City of Grandview.

2) Source specific water quality records:

Please indicate the occurrence of any test results since 1986 that meet the following conditions: (Unless listed on assessment, MCLs are listed in assistance package.)

	YES	NO
A. Nitrate: (Nitrate MCL = 10 mg/l)		
Results greater than MCL	___	X
< 2 mg/liter nitrate	___	___
2-5 mg/liter nitrate	X	___
> 5 mg/liter nitrate	X	___
___Nitrate sampling records unavailable		

	YES	NO
B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l)		
Results greater than MCL or SAL	___	X
VOCs detected at least once	___	X
VOCs never detected	___	___
___VOC sampling records unavailable		

	YES	NO
C. EDB/DBCP/VOCs: (EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l)		
EDB/DBCP detected below MCL at least once	___	X
EDB/DBCP detected above MCL at least once	___	X
EDB/DBCP never detected	___	X
___ EDB/DBCP tests required but not yet completed		
___ EDB/DBCP tests not required		

	YES	NO
D. Other SOCs (Pesticides):		
Other SOCs detected (pesticides and other synthetic organic chemicals)	___	X
___Other SOC tests performed but none detected (list test methods in comments)		
___Other SOC tests not performed		

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: **524.2**

E. Bacterial Contamination:

	YES	NO
Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records).	____	X
Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source.	____	X

___ Source sampling records for bacteria unavailable

Part VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water systems which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10 year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

_____YES ____X___NO

Describe with references to map produced in Part IV:

_____

_____

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

___X____YES _____NO

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

_____ YES ____X____NO

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

_____YES ___X___ NO

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 *gal/min* within…

	YES	NO	unknown
< 6 month travel time	___	X	___
6 month –1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within..

	YES	NO	unknown
< 1 year travel time	___	X	___
1-5 year travel time	___	X	___
5-10 year travel time	___	X	___

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

N/A

Suggestions and Comments

Did you attend *one of the susceptibility workshops?*	**YES** / NO
Did you find it useful?	**YES** / NO
Did you seek outside assistance to complete the assessment?	YES / **NO**

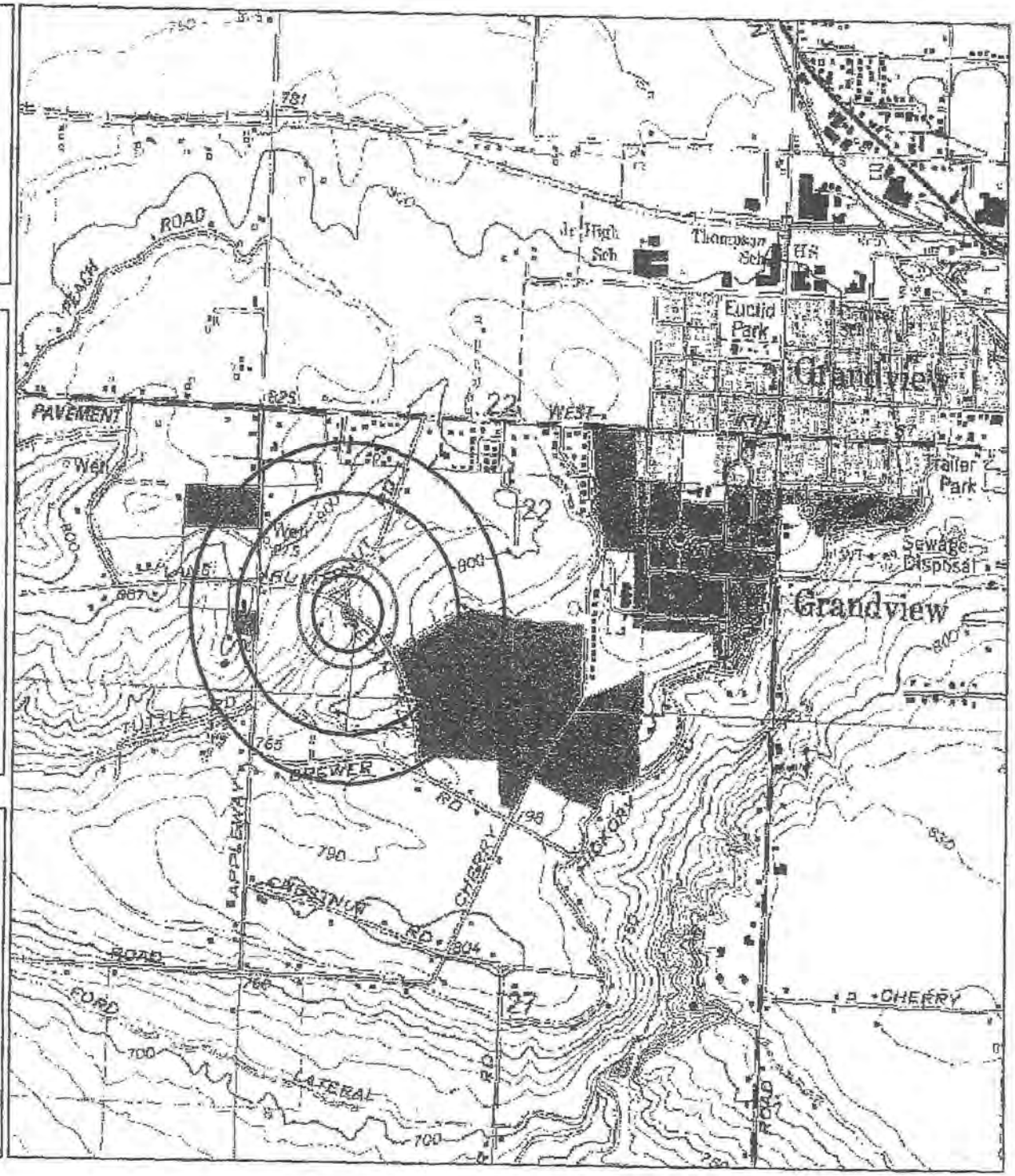
This form and instruction packet are still in the process of development. Your comments, suggestions and questions will help us upgrade and improve this assessment form. If you found particular sections confusing or problematic please let us know. How could this susceptibility assessment be improved or made clearer? Did the instruction package help you find the information needed to complete the assessment? How much time did it take you to complete the form? Were you able to complete the assessment without additional/outside expertise? Do you feel the assessment was valuable as a learning experience? Any other comments or constructive criticisms you have would be appreciated.

The packet contains great information in helping complete the Susceptibility Form -

Thanks.

City of Grandview

Source Well 18 (Pecan Well)
Wellhead Protection Area Map



CITY OF GRANDVIEW

17.
WELLHEAD PROTECTION PLAN AND NOTIFICATION LETTERS

HLA
Engineering and Land Surveying, Inc.

Dear Business Owner/Representative:

Our goal is to protect the potable water supply for the customers of the City of Grandview. In doing so, we have developed and adopted a wellhead protection program that is required by state law. A section of our wellhead protection program, requires us to map the area overlying the recharge zones of our drinking water supply sources. These areas are identified as our (wellhead protection areas) and are identified and presented on the reverse side of this letter for your information.

Following the mapping of the wellhead protection areas requires us to conduct an inventory of potential groundwater contamination sources within the City. The nature of your business and its location near or within our wellhead protection areas means that your activities could have the potential to affect our customers' drinking water supply.

We have notified the Washington State Department of Health, Office of Drinking Water Eastern Division (Main Phone #: 509-329-2100) that you are located within our wellhead protection area. Therefore, we encourage that you contact them to request technical assistance to help manage your business in a way that will best prevent groundwater contamination.

We hope in learning that you are located within our wellhead protection area will encourage you to take more precautionary measures to ensure that your activities will not affect our drinking water quality.

The City of Grandview has approximately 2,999 service connections, and serves about 11,010 people. Please take all reasonable steps to ensure that land use activities within the protection areas do not contaminate our drinking water sources within our community.

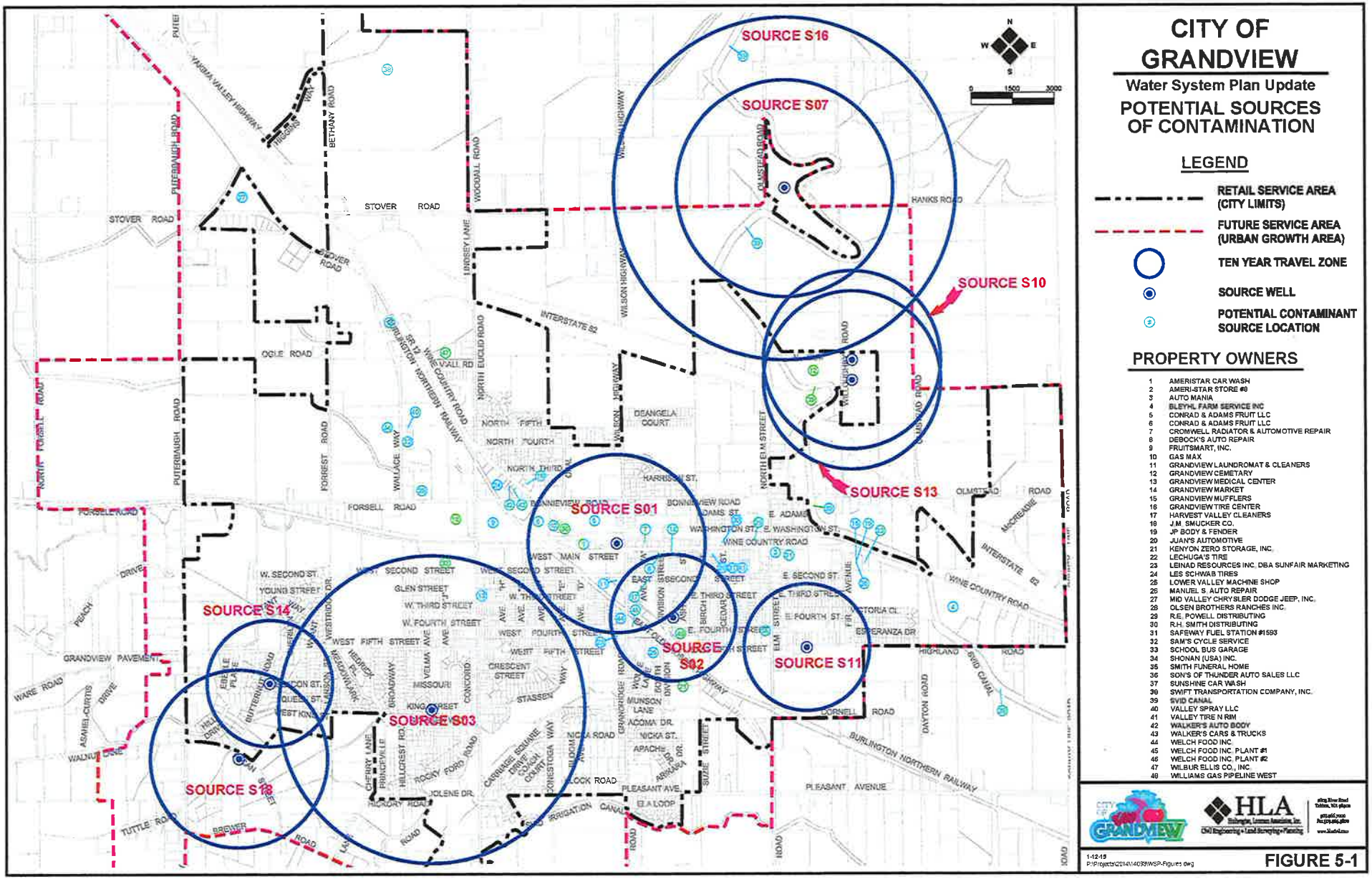
Thank you for your support in protecting our drinking water.

Sincerely,

Cus Arteaga

W.D.M. III

City Administrator/Public Works Director



CITY OF GRANDVIEW

Water System Plan Update

POTENTIAL SOURCES OF CONTAMINATION

LEGEND

- RETAIL SERVICE AREA (CITY LIMITS)
- FUTURE SERVICE AREA (URBAN GROWTH AREA)
- TEN YEAR TRAVEL ZONE
- SOURCE WELL
- POTENTIAL CONTAMINANT SOURCE LOCATION

PROPERTY OWNERS

1 AMERISTAR CAR WASH
2 AMERI-STAR STORE #8
3 AUTO MANIA
4 BLEYHL FARM SERVICE INC
5 CONRAD & ADAMS FRUIT LLC
6 CONRAD & ADAMS FRUIT LLC
7 CROMWELL RADIATOR & AUTOMOTIVE REPAIR
8 DEBOCK'S AUTO REPAIR
9 FRUITSMART, INC.
10 GAS MAX
11 GRANDVIEW LAUNDROMAT & CLEANERS
12 GRANDVIEW CEMETARY
13 GRANDVIEW MEDICAL CENTER
14 GRANDVIEW MARKET
15 GRANDVIEW MUFFLERS
16 GRANDVIEW TIRE CENTER
17 HARVEST VALLEY CLEANERS
18 J.M. SMUCKER CO.
19 JP BODY & FENDER
20 JUAN'S AUTOMOTIVE
21 KENYON ZERO STORAGE, INC.
22 LECHUGA'S TIRE
23 LEINAD RESOURCES INC. DBA SUNFAIR MARKETING
24 LES SCHWAB TIRES
25 LOWER VALLEY MACHINE SHOP
26 MANUEL S. AUTO REPAIR
27 MID VALLEY CHRYSLER DODGE JEEP, INC.
28 OLSEN BROTHERS RANCHES INC.
29 R.E. POWELL DISTRIBUTING
30 R.H. SMITH DISTRIBUTING
31 SAFEWAY FUEL STATION #1593
32 SAM'S CYCLE SERVICE
33 SCHOOL BUS GARAGE
34 SHONAN (USA) INC.
35 SMITH FUNERAL HOME
36 SON'S OF THUNDER AUTO SALES LLC
37 SUNSHINE CAR WASH
38 SWIFT TRANSPORTATION COMPANY, INC.
39 SVID CANAL
40 VALLEY SPRAY LLC
41 VALLEY TIRE N RIM
42 WALKER'S AUTO BODY
43 WALKER'S CARS & TRUCKS
44 WELCH FOOD INC
45 WELCH FOOD INC. PLANT #1
46 WELCH FOOD INC. PLANT #2
47 WILBUR ELLIS CO., INC.
48 WILLIAMS GAS PIPELINE WEST

HLA Civil Engineering • Land Surveying • Planning

1-12-15
P:\Projects\2014\14039\WSP-Figures.dwg

FIGURE 5-1

CITY OF GRANDVIEW

18.
2015 COLIFORM MONITORING PLAN

HLA
Engineering and Land Surveying, Inc.

Coliform Monitoring Plan
City of Grandview Water System
Coliform Monitoring Plan

A. System Information

City Of Grandview Water System ID. No. 28970J

Sources:

- #SO1 W. Main Well
- #SO2 Balcom and Moe Well
- #SO3 Velma Well
- #SO6 Euclid Well
- #SO7 Olmstead Well
- #SO8 Appleway Well (Inactive 2005)
- #SO9 Abandoned Well (Inactive 11/1/1993)
- #S10 North Willoughby Well
- #S11 Highland Well
- #S12 Pecan A Well (Inactive 2006)
- #S13 South Willoughby Well
- #S14 Butternut Well
- #S16 Olmstead Well
- #S17 Asahel Curtis Well (Inactive 2013)
- #S18 Pecan B Well

Storage: 2 Storage reservoirs

1. Willoughby Reservoir – 3 Million gallon capacity
2. Velma Reservoir – 500 Thousand gallon capacity

Total Storage Capacity – 3,500,000 gallons

Treatment Type: All sources treated with 100% gas chlorine for disinfection.

Pressure Stations: None

Pressure Zones: 1 Pressure zone - pressure between 45 and 60 psi.

Population and Connections

Total Number of Service Connections	2,999
Total Population Served	11,010

B. Sampling information – Samples required by the Department of Health Division of Drinking Water, State of Washington Eastern Regional Office.

Total samples to be collected per month – 10 samples

Routine and repeat sample site addresses:

Sample 1 – Larson Addition

Routine Sample Site	-	2013 Hill Drive
Repeat Up Stream Sample	-	2107 Hill Drive
Repeat Down Stream Sample	-	2005 Hill Drive

Sample 2 – Hillcrest

Routine Sample Site	-	710 Hillcrest
Repeat Up Stream Sample	-	900 Hillcrest
Repeat Down Stream Sample	-	700 Hillcrest

Sample 3 – Westridge Addition

Routine Sample Site	-	306 Westridge
Repeat Up Stream Sample	-	402 Westridge Drive
Repeat Down Stream Sample	-	301 Westridge Drive

Sample 4 – Jefferson – Main

Routine Sample Site	-	303 W. Wine Country Road
Repeat Up Stream Sample	-	500 W. Main (YVCC – Library)
Repeat Down Stream Sample	-	101 E. Wine Country Road

Sample 5 – Northside – Wallace Way

Routine Sample Site	-	815 Wallace Way
Repeat Up Stream Sample	-	200 Colleen's Way
Repeat Down Stream Sample	-	695 Wallace Way

Sample 6 – City Center

Routine Sample Site		207 W. 2nd
Repeat Up Stream Sample	-	811 W. 2nd
Repeat Down Stream Sample	-	129 W. 2nd

Sample 7 – (Proposed New Site)

Routine Sample Site	-	341 N Elm (Sunnyside Valley Irrigation District)
Repeat Up Stream Sample	-	621 N Elm
Repeat Down Stream Sample	-	113 N Elm

Sample 8 – Carriage Square

Routine Sample Site	-	1011 Carriage Square
Repeat Up Stream Sample	-	1003 Carriage Square
Repeat Down Stream Sample	-	1003 Carriage Square

Sample 9 – Grandridge Addition

Routine Sample Site	-	1005 Grandridge
Repeat Up Stream Sample	-	1203-A Grandridge
Repeat Down Stream Sample	-	810 Grandridge

Sample 10 – Eastside - Elm

Routine Sample Site	-	200 E. 2nd Street
Repeat Up Stream Sample	-	406 E. 2nd Street
Repeat Down Stream Sample	-	201 Division St.

C. Rotation

Weekly Sampling Rotation Schedule *

	Month 1	Month 2	Month 3
Week 1	S-1 S-2 S-3	S-8 S-9 S-10	S-4 S-5 S-6 S-7
Week 2	S-4 S-5 S-6 S-7	S-1 S-2 S-3	S-8 S-9 S-10
Week 3	S-8 S-9 S-10	S-4 S-5 S-6 S-7	S-1 S-2 S-3

*This cycle repeats every 3 months.

Repeat Sample Sites: WAC 246-290-300 for Monitoring Requirements on Table 1 require water systems serving a population of 8,501 to 12,900 to take a minimum of ten (10) samples a month when no samples with a coliform presence are collected the previous month.

All water storage tanks can be sampled as necessary. All sources can be sampled directly as necessary.

Triggered Source Sampling: In accordance with the Groundwater Rule (GWR) requirements, triggered source samples must be collected and tested for E. coli when coliform bacteria are present in any routine distribution sample. Triggered source sampling shall be conducted as follows:

i. Triggered source samples must be collected within 24 hours of notification of the total coliform positive result.

ii. Each source that was in operation at the time the routine sample was collected must be tested prior to treatment.

iii. If one of the triggered source samples is E. coli positive, corrective action shall be taken as directed by the DOH, or five additional source samples must be taken within 24 hours.

iv. If any of the five additional source samples is E. coli positive, one or more of the following corrective actions may need to be taken, as directed by the DOH:

(1) Provide an alternate source of water.

(2) Eliminate the source of contamination.

(3) Provide 4-log treatment.

v. Customers must be notified within 24 hours of receiving an E. coli positive triggered source sample.

The month after an unsatisfactory sample: The month after an unsatisfactory routine sample, you must collect at least FIVE Routine Samples from the distribution system. If you usually take five or more samples each month, which the City of Grandview does, we follow our regular schedule.

D. Department of Health Source Numbers

#SO1	W. Main Well
#SO2	Balcom and Moe Well
#SO3	Velma Well
#SO6	Euclid Well
#SO7	Olmstead Well 7-A
#SO8	Appleway Well (Inactive 2005)
#SO9	Abandoned Well (Inactive 11/1/1993)
#S10	North Willoughby Well
#S11	Highland Well
#S12	Pecan A Well (Inactive 2006)
#S13	South Willoughby Well
#S14	Butternut Well
#S16	Olmstead Well 7-B
#S17	Asahel Curtis Well (Inactive 2013)
#S18	Pecan B Well

E. Plan Information

Information prepared by: _____

Daniel R. Tiliano,
Water System Operator
Water Distribution Manager 3, Water Treatment Operator 3
City of Grandview, Phone (509) 882-9211
Revised on 10/21/15

Reviewed by : _____

Cus Arteaga,
City Administrator/ Public Works Director
Water Distribution Manger 3

CITY OF GRANDVIEW

19.
WATER QUALITY (CONSUMER CONFIDENCE) REPORT

HLA
Engineering and Land Surveying, Inc.

2020

Water Quality Report

CITY OF

Grandview, Washington

PUBLIC WORKS DEPARTMENT

This report describes the quality of Grandview's drinking water, sources, and programs that protect our water quality. This publication complies with federal law, which requires water utilities to provide water quality information to customers every year.

While most of the content is required by regulation, we also include information that responds to typical questions our customers ask about the system. We support the public's right to know the results of our water quality monitoring. We also recognize that a report dominated by technical information is not inviting reading to most people.

We've made an effort to provide the information in a clear and useful format. While our customers appreciate a well-designed publication, most are concerned about costs. Therefore we continue to provide a quality report at an affordable price similar to last year's **$0.62** per copy.

Safe drinking water is essential to our community. Providing safe drinking water is a complex business. For those of you who are not interested in all the detail we provide, here is the summary:

GRANDVIEW'S WATER MEETS OR SURPASSES ALL STATE AND FEDERAL STANDARDS.

We test our water regularly through Eurofins Cascade Analytical, in Yakima, Washington. State and federal regulators routinely monitor our compliance and testing protocols to assure that we deliver safe drinking water to our customers.

Cus Arteaga

City Administrator/Public Works Director

W.D.M. 3

Juan Moreno

Public Works Foreman

W.D.M. 1

CROSS CONNECTION CONTROL PROGRAM

What is it and why is it important?

One of the measures the City of Grandview takes to ensure the safety of your drinking water is the implementation of a **Cross Connection Control Program** as per WAC 246-290-490. This program is designed to prevent water or other substances from back flowing into the potable water supply.

Cross connection is a temporary or permanent connection between drinking water piping and/or plumbing fixtures, tanks, or devices through which it may be possible for used water or other substances to re-enter the potable water supply.

Backflow is the reversal of flow of non-potable water or other substances through a cross connection into the piping of the potable water system .

Some examples of potentially dangerous cross connections are lawn irrigation systems, fertilizer spray attachments, or a garden hose used to fill a bucket. These cross connections require the installation of mechanical devices called **backflow prevention assemblies** which are designed to prevent water from flowing backwards.

As a water customer, it is your responsibility to maintain your own plumbing system according to the plumbing code and/or other state regulations. Plumbing permits are required when working on a plumbing system, and this includes the installation of a backflow prevention assembly. Obtaining the proper permits minimizes your liability in the event of a backflow incident. The permit process ensures that work done on a plumbing system is carried out in a safe and correct manner. This protects you, your loved ones, your investment, your community, and your water supply.

YOU ARE REQUIRED TO HAVE YOUR BACKFLOW ASSEMBLY TESTED ANNUALLY BY A CERTIFIED BACKFLOW ASSEMBLY TESTER AND A COPY OF THE RESULTS MUST BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT .

If you have any questions regarding our Cross Connection Control Program, please contact the Public Works Department at (509) 882-9211.

"Prevents contaminated water from getting back into drinking water."

EDUCATIONAL PROGRAMS

The City of Grandview believes education is a very important tool. Numerous times during the year, representatives from the Public Works Department attend the Career Day at our local schools and help teach the children about the many ways we protect and conserve water. The Public Works Department also offers, by appointment, public and educational tours of our well sources.

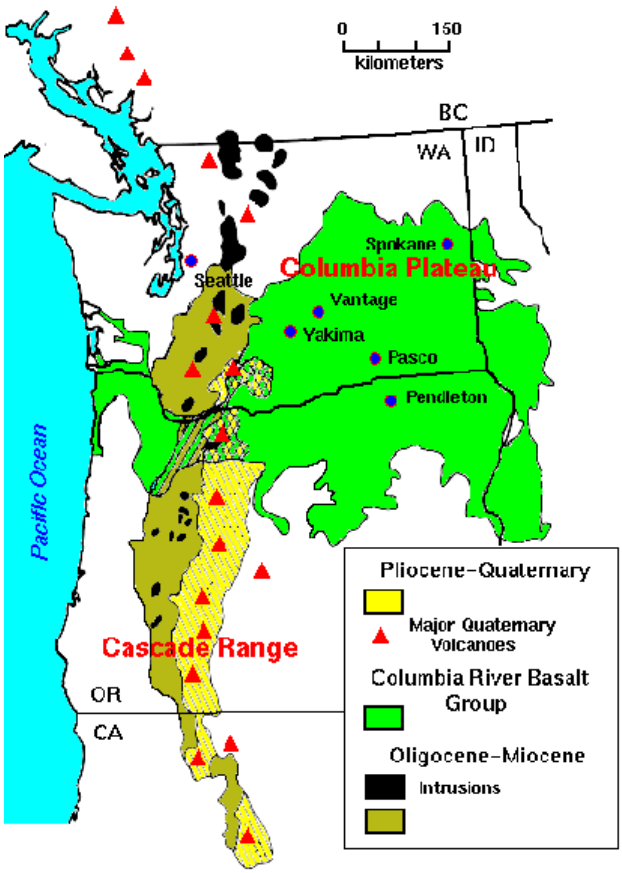
Water drawn from various units

1) Grandview's primary source of water is withdrawn from the Columbia River Basalt Group. This geologic formation consists of four distinct hydro-geologic units.

Starting with the oldest, these four units are known as the Grande Ronde, Wanapum, and Saddle Mountain Units (Made up primarily of basalts of the same name but also include sedimentary inter-beds) and the Overburden Unit.

2) The Grande Ronde, Wanapum, and Saddle Mountain Units vary in thickness in South-central Washington. Each Unit is composed of numerous to several hundred individual basalt flows, which can range in thickness from a few inches to more than 300 feet, with sedimentary inter-beds. Distinct, thick sedimentary interbeds separate the Grande Ronde, Wanapum, and Saddle Mountains.

3) Our shallowest wells draw water from the Overburden Unit. This unit consists of undivided unconsolidated to semi-consolidated sedimentary deposits and minor basalt and adesite. The deeper wells penetrate into the Saddle Mountain Unit, and perhaps into the Wanapum or Grande Ronde Units.



What the EPA Says About Drinking Water Contaminants

Drinking water, including bottled water, may reasonably be expected to contain small amounts of contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health affects can be obtained by calling the Environmental Protection Agency 's (EPA) Safe Drinking Water hotline at (800) 426-4791 or online at http://www.epa.gov/safewater.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

Environmental Protection Agencies/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline at (800) 426-4791 or online at http://epa.gov/safewater.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells.

As water travels over the surface of land or through the ground it dissolves naturally occurring minerals and, in some cases, radioactive materials, and can pick up substances resulting from the presences of animals or from human activity.

Possible contaminants in Grandview's Columbia River Basalt Group Water may include:

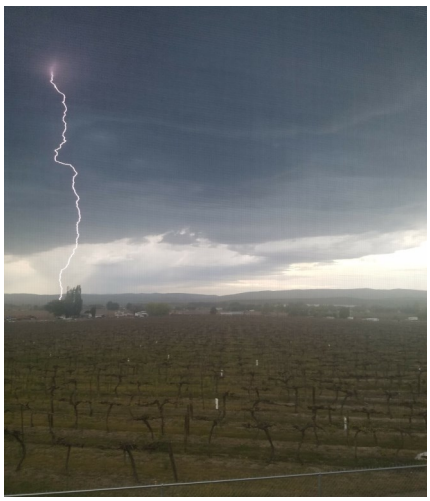
- **Microbial Contaminants** such as viruses and bacteria which may come from septic systems or wildlife. **122 samples were collected in 2020.**
- **Inorganic Contaminants** such as salts and metal, which can occur naturally, or result from urban storm water runoff, industrial or domestic waste disposal, or farming. **79 samples were collected in 2020.**

- **Pesticides and Herbicides** which may come from a variety of sources such as farming, urban storm water runoff, home or business use, and storm drains. **7 samples were collected in 2020.**
- **Organic Chemical Contaminants** including synthetic and volatile organic chemicals, which are by-products of industrial processes, solvents, or they can come from gas stations. **5 samples were collected in 2020; no contaminates above the trigger and MCL levels were detected. Total Trihalomethanes were below the MCL.**

- **<u>Radioactive Contaminants</u>** which can occur naturally. **8 samples were collected in 2020; no contaminates above the trigger and MCL levels were detected.**

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems.

The Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.



The Fourth Unregulated Contaminant Monitoring Rule (UCMR 4)

UCMR 4 includes Assessment Monitoring for a total of 30 chemical contaminants including:

- Two metals
- Eight pesticides plus one pesticide manufacturing by product
- Three alcohols
- Three semivolatile organic chemicals (SVOCs).
- Three brominated haloacetic acid (HAA) disinfection byproducts groups and the indicators total organic carbon (TOC) and bromide.
- Nine cyanotoxins and one cyanotoxin group.

Monitoring under UCMR 4 will occur from 2018-2020.

For More Water Quality Information

In 2020 the Public Works Department collected a total of 233 water samples and tested for over 100 contaminants from throughout the water system. To obtain a copy of our Water Analysis Results, contact the Public Works Department at (509) 882-9211. You may also contact the following agencies should you have questions about drinking water quality:

- Environmental Protection Agency Safe Drinking Water (800) 426-4791.
- City of Grandview Public Works Department (509) 882-9211 or via fax (509) 882-9232.

Water Quality Monitoring Results

The U.S. Environmental Protection Agency (EPA) requires that water systems report annually on contaminants that have been detected in their water supplies.

In 2020 the Public Works Department collected a total of 233 water samples and monitored for over 100 contaminants. When contaminants are detected they are typically below the levels that EPA has established.

City of Grandview Water Plant Operators

Grandview's water meets or surpasses all state and federal drinking water standards

IMPORTANT DEFINITIONS

MAXIMUM CONTAMINANT LEVEL GOAL (MCLG)

The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MAXIMUM CONTAMINANT LEVEL (MCL)

The highest level of a contaminant which is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

TREATMENT TECHNIQUE

A required process intended to reduce the level of a contaminant in drinking water.

ACTION LEVEL

The concentration of a contaminant which is exceeded, triggers treatment or other requirements which a water system must follow.

PART PER MILLION PART PER BILLION

These units describe the levels of detected contaminants.

One part per million is approximately half of a dissolved aspirin tablet (162.5 mg) in a full bathtub of water (about 50 gallons).

One part per billion is approximately one dissolved aspirin tablet (325 mg) in a typical 25-meter swimming pool (about 100,000 gallons).

Grandview's Water Quality Monitoring Results

Turbidity and Nephelometric Turbidity Units (NTUs)

Columbia River Basalt Group is an unfiltered water supply. Rules for public water systems have strict standards for unfiltered supplies.

Turbidity levels in unfiltered water must not exceed 5 NTU

The typical cause of turbidity is tiny particles of sediment in the water. Turbidity can interfere with disinfection and provide a medium for microbial growth.

Microbiological Testing

Microbiological testing of water helps protect the public from diseases such as cryptosporidiosis, giardiasis, polio, diphtheria, typhoid and cholera.

The Safe Drinking Water Act, Water Treatment Rule, requires unfiltered water systems to meet standards for total and fecal coliform bacteria.

This rule requires disinfection, a treatment technique, to destroy or inactivate a minimum level of Giardia cysts and viruses.

Testing before treatment helps confirm that the Columbia River Basalt Group is suitable for use as an unfiltered water supply.

Total Coliform Bacteria – Total coliform bacteria are naturally present in the environment.

Their presence is an indicator that other potentially harmful bacteria may be present.

The Public Works Department uses chlorine to disinfect and control these bacteria.

Ten total coliform samples are taken from the distribution system each month for a total of 120 samples per year. All samples taken in 2020 were negative, which is the preferred result.

Fecal Coliform Bacteria – The presence of fecal coliform bacteria indicates that water may be contaminated with human or animal wastes.

Disinfection Byproducts

During 2020, 2 total trihalomethanes (TTHM) and 2 halo-acetic acids (HAA5) samples were collected. The disinfection process is carefully controlled to remain effective, while keeping disinfection byproduct levels low.

New regulatory maximum contamination levels (MCL) for total trihalomethanes are 20 ug/L and 15 ug/L for HAA5s. All 4 samples were below the MCL.

Nutrients (Nitrates/Nitrites)

Nutrients can support microbial growth such as bacteria and algae. Nitrate and nitrite levels exceeding the standards can contribute to health problems. The levels in Grandview's water are below those that EPA considers of concern. 80 satisfactory samples were taken in 2020.

Metals (Antimony, Arsenic, Barium)

Metals are a group of similar elements that occur in the earth's crust. They can dissolve into water that is in contact with soil or in groundwater aquifers.

Other Minerals (Fluoride)

Fluoride is a naturally occurring trace element in groundwater. Grandview does not add fluoride to the water. At low levels, it helps prevent dental caries. The U.S. Public Health Service and the Centers for Disease Control (CDC) consider the fluoride levels in Grandview's water sources to be lower than optimal for helping to prevent dental caries. You may want to consult with your dentist about fluoride treatments to help prevent tooth decay, especially for young children.

GRANDVIEW'S RESULTS OF MONITORING FOR REGULATED CONTAMINANTS

The 2020 Season Test Results meet or surpass state and federal drinking water standards.

Variable	Amount Minimum Detected	Detected Maximum	Maximum Contaminant Level (MCL)	Maximum Contaminant Level Goal (MCLG)	Possible Source Of Contaminant
Total Coliform Bacteria	Not Detected	100% of our samples had fewer than 100 Bacterial colonies per 100 milliliters of water. 120 samples were taken in 2020.	At least 90% of samples must have fewer than 20 bacterial colonies per 100 milliliters of water.	Zero bacterial colonies detected	Found throughout the environment
Fecal Coliform Bacteria	Not Detected	100% of our samples had fewer than 20 Bacterial colonies per 100 milliliters of water. 120 samples were taken in 2020.	At least 90% of samples must have fewer than 20 bacterial colonies per 100 milliliters of water	Zero bacterial colonies `detected	Animal waste


CITY OF GRANDVIEW
GRANDVIEW
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COMMUNITY CENTER
GRANDVIEW LIBRARY

Grandview's Results of Lead and Copper

As directed by the Department of Health, the Public Works Department monitors tap water from a select group of homes.

These are older homes in our service area where the plumbing may potentially contribute to elevated lead or copper levels.

Samples are collected after the water has stood motionless in the home for approximately 6 – 18 hours.

Lead has not been detected in Grandview's water system; however, our water is naturally corrosive and may leach metals when water has stood motionless in the home's plumbing system.

During September 2020, we sampled for lead and copper levels and none exceeded the Action Level of 15 parts per billion set by drinking water regulations.

2020 LEAD AND COPPER MONITORING RESULTS		
ANALYTE	**COPPER (Cu)**	**LEAD (Pb)**
STATE REPORTING LEVEL (SRL)	**.02 mg/l**	**0.001 mg/l**
REGULATORY ACTION LEVEL	**1.3 mg/l**	**0.015 mg/l**
GRANDVIEW'S AVERAGE	**0.036376 mg/l**	**<0.0006 mg/l**

Water Testing

The Public Works Department will be testing for lead and copper in our drinking water in 2023.

What you should know about lead in your tap water

Infants and young children are typically more vulnerable to lead in drinking water than adults.

Lead levels at your tap could be higher than at other homes because of the plumbing fixtures and materials.

If you are concerned about lead levels in your water, you may wish to have your water tested. (Certified laboratory phone numbers are listed under "Frequently Asked Questions.")

You can reduce your lead exposure by:

- Flushing your home's plumbing if water has stood motionless in the pipes for more than 6 hours. Run the water until it is cold (about 30-60 seconds).
- Using only cold water for cooking, drinking, and making baby formula.
- Using only "lead-free" solder when making plumbing repairs.
- If you replace plumbing, use only "lead-free" faucets and plumbing components.

The U.S. Safe Drinking Water Act requires faucets and plumbing components sold after August 6, 1998 to be "lead-free".

For more information about faucets call the National Sanitation Foundation (NSF) International telephone number 800-NSF-MARK, or via the internet at http://www.nsf.org

Grandview's Water Quality Monitoring Results

Total Chlorine Residual

Chlorine residual is necessary. Total chlorine residual is a measure of free-chlorine entering our distribution system. A new standard, finalized in 1998, sets the maximum contaminant level for this type of disinfection residual at 4 parts per million.

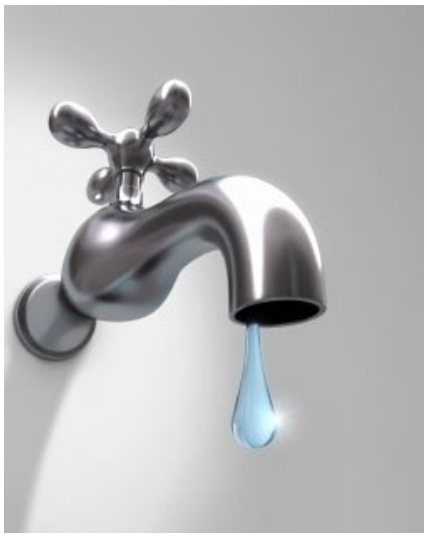
GRANDVIEW'S RESULTS OF MONITORING FOR UNREGULATED CONTAMINANTS

Drinking water rules require the water works department to monitor for certain Unregulated contaminants. Testing detected these unregulated contaminants.

Variable	Amount Minimum	Detected Average	Maximum Contaminant	Possible source of Contamination
Total Chlorine	0.11 Parts Per million	1.2 Parts per million	4.0 Parts per million	Chlorine used to disinfect water

Water Conservation

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less water whenever you can. Here are a few tips to conserve water:



- Turn off the water while shaving or brushing teeth. You waste up to 4 gallons a minute, or up to 200 gallons a week for a family of four!
- Wash only full loads of dishes and select the appropriate water level or load size option on the dishwasher.
- You can significantly reduce water use by simply repairing leaks in fixtures (faucets and showerheads), pipes and toilets. A slow leaking faucet can waste 15 to 20 gallons a day. A leaky toilet can waste up to 100 gallons a day.
- For those with automatic timed sprinkler systems, adjust your watering times based on rainfall, type of grass or plants, sunny or shady locations. If your yard looks healthy, try reducing the watering time by two minutes per zone.

How Do We Protect Water Quality?

The Public Works Department uses a multiple barrier approach to protect and maintain the high quality of our water.

Protecting groundwater – Preventing pollution is the first priority in protecting our groundwater. The City of Grandview has in place a wellhead protection plan for all of our well sources and regulates activities that might pollute our source wells.

Monitoring and reporting meet regulations – The Public Works Department monitors drinking water as required by State and Federal regulations. We report our results to the State of Washington, Department of Health Division, in Spokane, Washington, (509) 329-2100. This agency oversees all drinking water systems in Eastern Washington.

Disinfecting and treating water – We use chlorine to disinfect our water and aeration to minimize or reduce odors in our water system.

Managing the distribution system – This activity includes monitoring water quality and quantities in tanks and water mains. It is important that the water that reaches our customers' taps has adequate chlorine disinfectant residual as recommended by the Department of Health.

OUR WATER MEETS OR SURPASSES ALL DRINKING WATER REGULATIONS.

Frequently Asked Questions

What is the pH of Grandview's water?

The average pH of water in Grandview's distribution system is 7.9 .

Is Grandview's water soft or hard?

Grandview's water is hard. It ranges from 9.9 to 18.0 grains of hardness per gallon.

Why does the taste and odor of my water sometimes differ?

Water naturally varies in taste and odor at different times of the year. Taste and odor problems can come from new or old pipelines, plumbing fixtures, or changes in water quality.

What causes discolored water?

Is rusty or discolored water typical at your tap? Rusting galvanized pipe in home plumbing systems is the usual cause of discolored water. If this is the case, the water clears after running a bit. Iron causes the discoloration but it is not a health risk.

Is your hot water rusty?

If so, the water heater may need flushing. If you flush your water heater, follow the manufacturer's guidelines.

Discolored water rarely causes health problems. Drinking water regulations provide guidelines covering taste, and odor or color of drinking water.

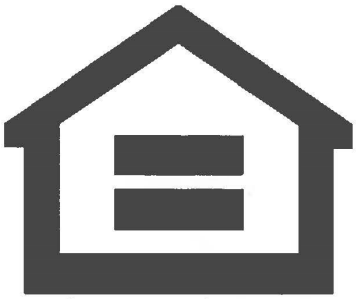
Our water meets or surpasses those standards.

State –Certified Laboratories Test Water

If you are concerned about the quality of water in your home, you may want to have your water tested; private laboratories will test your tap water, but there is a fee. The State of Washington has certified the following metropolitan-area laboratory to conduct water quality analysis. Not all labs are certified to test for all contaminants; be sure to ask what types of testing the lab is certified to perform.

Eurofins Cascade Analytical, Yakima WA 800-545-4206 (Toll Free)

U. S. Department of Housing and Urban Development



EQUAL HOUSING OPPORTUNITY

We Do Business in Accordance With the Federal Fair Housing Law

(The Fair Housing Amendments Act of 1988)

It is Illegal to Discriminate Against Any Person Because of Race, Color, Religion, Sex, Handicap, Familial Status, or National Origin

In the sale or rental of housing or residential lots

In advertising the sale or rental of housing

In the financing of housing

In the provision of real estate brokerage services

In the appraisal of housing

Blockbusting is also illegal

Anyone who feels he or she has been discriminated against may file a complaint of housing discrimination:

1-800-669-9777 (Toll Free)
1-800-927-9275 (TTY)
www.hud.gov/fairhousing

U.S. Department of Housing and Urban Development
Assistant Secretary for Fair Housing and Equal Opportunity
Washington, D.C. 20410

Previous editions are obsolete

form HUD-928.1 (8/2011)

City of Grandview
207 West Second Street
Grandview, Washington 98930

CITY OF GRANDVIEW

20.
DISINFECTION BYPRODUCTS MONITORING PLAN

HLA
Engineering and Land Surveying, Inc.

Disinfection Byproducts Monitoring Plan

System Name	City of Grandview	**Type and Population of System**	GW only <10,000
PWSID#	28970J		
Date	6/23/2008		
Completed by	David C. Martinez		

Monitoring requirements are additive; for example a system using ozone and chlorine, or chlorine with conventional filtration must meet the monitoring requirements for both.

Treatment Provided

Chlorine (gas, hypochlorite, etc) or Chloramines

Identify the number of "Treatment Plants" serving your system

A "Treatment Plant" or "TP" may be:

- A single surface water source
- A single well source
- A combination of multiple, individual sources (if all of the water is blended prior to distribution)

5

Enter Description of Treatment Plant Below

TP1	SO1/W. Main Well located at 303 W. Main St. - Permanent use, no other treatment.
TP2	S10-S13/Willoughby Wells located at 511 & 603 N. Willoughby Rd - Blended prior to distribution , permanent use,
TP3	SO3/Velma Well located at 1206 Velma - Permanent use, no other treatment.
TP4	SO2 Balcom & Moe Well located at 311 1/2 Division - Supplemental use, aeration.
TP5	S14 Butternut Well located at 605 Butternut Rd. - Supplemental use, aeration.

Disinfectant Monitoring

Required:

Chlorine residuals must be measured at the same time and place as routine or repeat coliform samples
MRDL for chlorine and chloramines = 4.0 mg/l as Cl2

Compliance

Compliance is based on the running annual average (RAA) of 12 consecutive months
DOH will determine compliance for chlorine MRDL
Daily residual measurements will / will not be included in the compliance calculations (circle one)

Byproduct Monitoring

Required:

TTHM & HAA5 - 1 sample per treatment plant per year during month of warmest water temperature
[samples should be collected at MRT relative to each treatment plant]
TTHM MCL = 0.080 mg/l, HAA5 MCL = 0.060 mg/l

Compliance

Must go to quarterly monitoring if annual sample exceeds MCL for either TTHM or HAA5
Compliance is then based on the Running Annual Average (RAA) of quarterly results or averages
DOH will determine compliance for TTHM & HAA5 based on data submitted by the lab

Disinfection Byproducts Monitoring Plan

System Name	City of Grandview	**Type and Population of System**	GW only <10,000
PWSID#	28970J		
Date	6/23/2008		
Completed by	David C. Martinez		

Monitoring requirements are additive; for example a system using ozone and chlorine, or chlorine with conventional filtration must meet the monitoring requirements for both.

Treatment Provided

Chlorine (gas, hypochlorite, etc) or Chloramines

Identify the number of "Treatment Plants" serving your system

A "Treatment Plant" or "TP" may be:

- A single surface water source
- A single well source
- A combination of multiple, individual sources (if all of the water is blended prior to distribution)

3

Enter Description of Treatment Plant Below

TP1	SO3/Velma Well located at 1206 Velma - Permanent use, no other treatment.
TP2	S18 Pecan Well located at 200 Pecan Road - Supplemental use, no other treatment.
TP3	S11 Highland Well located at 620 Highland Road - Supplemental use, no other treatment.

Disinfectant Monitoring

Required:

Chlorine residuals must be measured at the same time and place as routine or repeat coliform samples
MRDL for chlorine and chloramines = 4.0 mg/l as Cl2

Compliance

Compliance is based on the running annual average (RAA) of 12 consecutive months
DOH will determine compliance for chlorine MRDL
Daily residual measurements will / will not be included in the compliance calculations (circle one)

Byproduct Monitoring

Required:

TTHM & HAA5 - 1 sample per treatment plant per year during month of warmest water temperature
[samples should be collected at MRT relative to each treatment plant]
TTHM MCL = 0.080 mg/l, HAA5 MCL = 0.060 mg/l

Compliance

Must go to quarterly monitoring if annual sample exceeds MCL for either TTHM or HAA5
Compliance is then based on the Running Annual Average (RAA) of quarterly results or averages
DOH will determine compliance for TTHM & HAA5 based on data submitted by the lab

Specify sampling location(s) for:

TTHM & HAA5	Enter Sampling Locations	Enter sampling schedule
TP1 (MRT)	Sample tap at 207 W. 2nd Street	August 22 (warmest water)
TP2 (MRT)	Sample tap at 846 Woodall Road	August 23 (warmest water)
TP3 (MRT)	Outside tap at 308 Westridge	August 22 (warmest water)
TP4 (MRT)	Sample tap at 1005 Grandridge Road	August 22 (warmest water)
TP5 (MRT)	Outside tap at 2013 Hill Drive	August 27 (warmest water)

No information needed here

Attach a distribution map with sample locations

Reduced Monitoring

To qualify for reduced monitoring the following criteria must be met (and State must approve)
TTHM RAA </= 0.040 mg/l AND HAA5 RAA </= 0.030 mg/l for two consecutive years
OR
TTHM RAA </= 0.020 mg/l AND HAA5 RAA </= 0.015 mg/l for one year
Monitoring may then be reduced to 1 sample per treatment plant per 3-year cycle

Specify sampling location(s) for:

TTHM & HAA5	Enter Sampling Locations	Enter sampling schedule
TP1 (MRT)	Sample tap at 1101 Cherry Lane	August 27 (warmest water)
TP2 (MRT)	Outside tap at 1206 Appleway Road	August 27 (warmest water)
TP3 (MRT)	Sample tap at 940 East Wine Country Road	August 27 (warmest water)

No information needed here

Attach a distribution map with sample locations

Reduced Monitoring

To qualify for reduced monitoring the following criteria must be met (and State must approve)
TTHM RAA </= 0.040 mg/l AND HAA5 RAA </= 0.030 mg/l for two consecutive years
OR
TTHM RAA </= 0.020 mg/l AND HAA5 RAA </= 0.015 mg/l for one year
Monitoring may then be reduced to 1 sample per treatment plant per 3-year cycle

CITY OF GRANDVIEW

City of Grandview
Disinfection Byproducts (DBP) Sampling Location Map
February 2008

Legend

- ☆ DBP Sample Site
- Storage Tank
- ● Chlorinator/Distribution System Entry Point

N

21.
WATER QUALITY MONITORING SCHEDULE

HLA
Engineering and Land Surveying, Inc.

Water Quality Monitoring Schedule

System: GRANDVIEW CITY OF **PWS ID: 28970 J** **Region: EASTERN**
Contact: Castulo T Arteaga **Group: A - Comm** **County: YAKIMA**

NOTE: To receive credit for compliance samples, you must fill out laboratory and sample paperwork completely, send your samples to a laboratory accredited by Washington State to conduct the analyses, AND ensure the results are submitted to DOH Office of Drinking Water. There is often a lag time between when you collect your sample, when we credit your system with meeting the monitoring requirement, and when we generate the new monitoring requirement.

Coliform Monitoring Requirements

	Dec 2021	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022	Oct 2022	Nov 2022
Coliform Monitoring Population	11010	11010	11010	11010	11010	11010	11010	11010	11010	11010	11010	11010
Number of Routine Samples Required	10	10	10	10	10	10	10	10	10	10	10	10

- Collect samples from representative points throughout the distribution system.
- Collect required repeat samples following an unsatisfactory sample. In addition, collect a sample from each operating groundwater source.
- For systems that chlorinate, record chlorine residual (measured when the coliform sample is collected) on the coliform lab slip.

Chemical Monitoring Requirements

Distribution Monitoring

Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*	
Lead and Copper	30	Jan 2021 - Dec 2023	standard - 3 year	09/18/2020	Sep 2023	
Asbestos	1	Jan 2020 - Dec 2028	standard - 9 year	09/18/2018	Sep 2027	
Total Trihalomethane (THM)	2	Jan 2021 - Dec 2021	reduced - 1 year	06/29/2021		
Halo-Acetic Acids (HAA5)	2	Jan 2021 - Dec 2021	reduced - 1 year	06/29/2021		

Water Quality Monitoring Schedule

Notes on Distribution System Chemical Monitoring

For *Lead and Copper*:
- Collect samples from the COLD WATER side of a KITCHEN or BATHROOM faucet that is used daily.
- Before sampling, make sure the water has sat unused in the pipes for at least 6 hours, but no more than 12 hours (e.g. overnight).
- If you are sampling from a faucet that has hot water, make sure cold water is the last water to run through the faucet before it sits overnight.
- If your sampling frequency is annual or every 3 years, collect samples between June 1 and September 30.

For *Asbestos:* Collect the sample from one of your routine coliform sampling sites in an area of your distribution system that has asbestos concrete pipe.

For *Disinfection Byproducts (HAA5 and THM):* Collect the samples at the locations identified in your Disinfection Byproducts (DBP) monitoring plan.

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S01 *W. Main Well* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2021 - Dec 2021	R&C - 1 year	05/03/2021	
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	05/14/2019	May 2028
Volatile Organics (VOC)	1	Jan 2020 - Dec 2025	waiver - 6 year	04/13/2021	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	07/11/2016	
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	07/11/2016	
Soil Fumigants	0	Jan 2020 - Dec 2022	waiver - 3 year	01/14/1999	
Gross Alpha	1	Jan 2020 - Dec 2022	standard - 3 year	05/05/2020	
Radium 228	1	Jan 2020 - Dec 2022	standard - 3 year	05/05/2020	

Source S02 *Balcom Well* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2021 - Dec 2021	R&C - 1 year	04/05/2021	
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	04/03/2018	Apr 2027
Iron	1	Jan 2020 - Dec 2022	standard - 3 year	04/03/2018	Apr 2022

Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S02 *Balcom Well* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Manganese	1	Jan 2020 - Dec 2022	standard - 3 year	04/03/2018	Apr 2022
Volatile Organics (VOC)	1	Jan 2020 - Dec 2025	waiver - 6 year	04/13/2021	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/25/2017	
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/23/2013	Apr 2022
Soil Fumigants	0	Jan 2020 - Dec 2022	waiver - 3 year	06/07/2001	
Gross Alpha	1	Jan 2020 - Dec 2022	standard - 3 year	05/05/2020	
Radium 228	1	Jan 2020 - Dec 2022	standard - 3 year	05/05/2020	

Source S03 *Velma Well* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2021 - Dec 2021	R&C - 1 year	05/03/2021	
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	04/23/2019	Apr 2028
Iron	1	Jan 2020 - Dec 2022	standard - 3 year	04/23/2019	Apr 2022
Volatile Organics (VOC)	1	Jan 2020 - Dec 2025	waiver - 6 year	04/13/2021	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	06/06/2016	
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	06/06/2016	
Soil Fumigants	0	Jan 2020 - Dec 2022	waiver - 3 year	06/07/2001	
Gross Alpha	1	Jan 2020 - Dec 2025	standard - 6 year	06/02/2020	
Radium 228	1	Jan 2020 - Dec 2025	standard - 6 year	06/02/2020	

Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S10 *North Willoughby Well* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2021 - Mar 2021	increased - quarterly	11/30/2021	
Nitrate	1	Apr 2021 - Jun 2021	increased - quarterly	11/30/2021	
Nitrate	1	Jul 2021 - Sep 2021	increased - quarterly	11/30/2021	
Nitrate	1	Oct 2021 - Dec 2021	increased - quarterly	11/30/2021	
Nitrate	1	Jan 2022 - Mar 2022	increased - quarterly	11/30/2021	Mar 2022
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	09/12/2016	Sep 2025
Iron	1	Jan 2020 - Dec 2022	standard - 3 year	06/17/2019	Jun 2022
Volatile Organics (VOC)	1	Jan 2020 - Dec 2022	standard - 3 year	09/21/2021	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	07/11/2016	
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	07/11/2016	
Soil Fumigants	0	Jan 2020 - Dec 2022	waiver - 3 year	12/28/1998	
Gross Alpha	1	Jan 2020 - Dec 2025	standard - 6 year	05/05/2020	
Radium 228	1	Jan 2020 - Dec 2025	standard - 6 year	05/05/2020	

Source S11 *Highland Well* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Apr 2021 - Jun 2021	increased - quarterly	10/04/2021	
Nitrate	1	Jul 2021 - Sep 2021	increased - quarterly	10/04/2021	
Nitrate	1	Oct 2021 - Dec 2021	increased - quarterly	10/04/2021	
Nitrate	1	Jan 2022 - Mar 2022	increased - quarterly	10/04/2021	Mar 2022
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	04/04/2016	Apr 2025

Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S11 *Highland Well* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due	
Arsenic	1	Jan 2020 - Dec 2022	standard - 3 year	08/13/2019	Sep 2022	
Volatile Organics (VOC)	1	Jan 2020 - Dec 2025	waiver - 6 year	04/13/2021		
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/13/2021		
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/18/2015		
Soil Fumigants	0	Jan 2020 - Dec 2022	waiver - 3 year			
Gross Alpha	1	Jan 2020 - Dec 2022	standard - 3 year	05/05/2020		
Radium 228	1	Jan 2020 - Dec 2022	standard - 3 year	05/05/2020		

Source S13 *South Willoughby Well* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due	
Nitrate	1	Jan 2021 - Mar 2021	increased - quarterly	11/30/2021		
Nitrate	1	Apr 2021 - Jun 2021	increased - quarterly	11/30/2021		
Nitrate	1	Jul 2021 - Sep 2021	increased - quarterly	11/30/2021		
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	05/14/2019	May 2028	
Fluoride	1	Jan 2021 - Dec 2021	R&C - 1 year	06/29/2021		
Volatile Organics (VOC)	1	Jul 2021 - Sep 2021	increased - quarterly	04/13/2021	***Sep 2021***	***Past Due***
Volatile Organics (VOC)	1	Oct 2021 - Dec 2021	increased - quarterly	04/13/2021	***Oct 2021***	
Volatile Organics (VOC)	1	Jan 2022 - Mar 2022	increased - quarterly	04/13/2021	Mar 2022	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	09/11/2018		
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	09/11/2018		
Soil Fumigants	0	Jan 2020 - Dec 2022	waiver - 3 year	12/28/1998		

Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S13	*South Willoughby Well*	*Well*	*Use - Permanent*	*Susceptility - High*		
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*	
Gross Alpha	1	Jan 2020 - Dec 2025	standard - 6 year	06/06/2016	Jun 2022	
Radium 228	1	Jan 2020 - Dec 2025	standard - 6 year	06/06/2016	Jun 2022	

Source S14	*Butternut Well*	*Well*	*Use - Permanent*	*Susceptility - Low*		
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*	
Nitrate	1	Jan 2021 - Dec 2021	standard - 1 year	06/07/2021		
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	09/11/2018	Sep 2027	
Fluoride	1	Jan 2021 - Dec 2021	R&C - 1 year	10/04/2021		
Volatile Organics (VOC)	1	Jan 2020 - Dec 2025	waiver - 6 year	04/13/2021		
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/03/2018		
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/03/2018		
Soil Fumigants	0	Jan 2020 - Dec 2022	waiver - 3 year	12/28/1998		
Gross Alpha	1	Jan 2020 - Dec 2025	standard - 6 year	04/04/2016	Apr 2022	
Radium 228	1	Jan 2020 - Dec 2025	standard - 6 year	04/04/2016	Apr 2022	

Source S16	*Olmstead (B) Well*	*Well*	*Use - Permanent*	*Susceptility - High*		
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*	
Nitrate	1	Jan 2021 - Dec 2021	R&C - 1 year	06/29/2021		
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	06/11/2019	Jun 2028	
Arsenic	1	Jan 2020 - Dec 2022	standard - 3 year	06/11/2019	Jun 2022	
Volatile Organics (VOC)	1	Jul 2021 - Sep 2021	increased - quarterly	04/13/2021	***Sep 2021***	***Past Due***

Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S16 *Olmstead (B) Well* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due	
Volatile Organics (VOC)	1	Oct 2021 - Dec 2021	increased - quarterly	04/13/2021	***Oct 2021***	
Volatile Organics (VOC)	1	Jan 2022 - Mar 2022	increased - quarterly	04/13/2021	Mar 2022	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	09/12/2016		
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	09/12/2016		
Soil Fumigants	0	Jan 2020 - Dec 2022	waiver - 3 year			
Radium 226 + 228	1	Jan 2020 - Dec 2025	standard - 6 year	04/17/2017	Apr 2023	
Gross Alpha	1	Jan 2020 - Dec 2025	standard - 6 year	08/03/2015	***Aug 2021***	***Past Due***

Source S17 *Ashael Curtis Well - AAS242* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2021 - Dec 2021	R&C - 1 year	06/07/2021	
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	03/19/2019	Mar 2028
Arsenic	1	Jan 2020 - Dec 2022	standard - 3 year	03/19/2019	Mar 2022
Iron	1	Jan 2020 - Dec 2022	standard - 3 year	07/08/2019	Mar 2022
Manganese	1	Jan 2020 - Dec 2022	standard - 3 year	03/19/2019	Mar 2022
Volatile Organics (VOC)	1	Jan 2020 - Dec 2025	waiver - 6 year	03/19/2019	Mar 2025
Herbicides	1	Jan 2020 - Dec 2028	waiver - 9 year	10/30/2019	Oct 2028
Pesticides	1	Jan 2020 - Dec 2028	waiver - 9 year	10/30/2019	Oct 2028
Soil Fumigants	0	Jan 2020 - Dec 2022	waiver - 3 year		

Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S18 *Pecan Well - AAS161* *Well* *Use - Permanent* *Susceptility - Moderate*

Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*	*Last Sample Date*	*Next Sample Due*
Nitrate	1	Jan 2021 - Dec 2021	standard - 1 year	09/07/2021	
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	07/08/2013	Jul 2022
Arsenic	1	Jan 2020 - Dec 2022	standard - 3 year	08/13/2019	Jul 2022
Volatile Organics (VOC)	1	Jan 2020 - Dec 2025	waiver - 6 year	04/23/2019	Apr 2025
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/04/2016	
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/04/2016	
Soil Fumigants	0	Jan 2020 - Dec 2022	waiver - 3 year		
Gross Alpha	1	Jan 2020 - Dec 2025	standard - 6 year	06/06/2016	Jun 2022
Radium 228	1	Jan 2020 - Dec 2025	standard - 6 year	06/06/2016	Jun 2022

Water Quality Monitoring Schedule

Other Information

Other Reporting Schedules	*Due Date*
Measure chlorine residuals and submit monthly reports if your system uses continuous chlorination:	monthly
Submit Consumer Confidence Report (CCR) to customers and ODW (Community systems only):	07/01/2021
Submit CCR certification form to ODW (Community systems only):	10/01/2021
Submit Water Use Efficiency report online to ODW and to customers (Community and other municipal water systems only):	07/01/2021
Send notices of lead and copper sample results to the customers sampled:	30 days after you receive the laboratory results
Submit Certification of customer notification of lead and copper results to ODW:	90 days after you notify customers

Special Notes

Nitrate: S07, 1 raw source sample every year
Nitrate: S10, 1 raw source sample every year
Nitrate: S13, 1 raw source sample every year
Nitrate: S16, 1 raw source sample every year
Please follow the nitrate monitoring schedule for blending listed in the letter dated January 31, 2005 from Michael Wilson, and the e-mail dated November 1, 2011.

Eastern Regional Water Quality Monitoring Contacts

For questions regarding chemical monitoring:	Stan Hoffman: (509) 329-2132: or Stan.Hoffman@doh.wa.gov
For questions regarding DBPs:	Stan Hoffman: (509) 329-2132 or Stan.Hoffman@doh.wa.gov
For questions regarding coliform bacteria and microbial issues:	Joseph Perkins: (509) 329-2134 or Joseph.Perkins@doh.wa.gov

Additional Notes

The information on this monitoring schedule is valid as of the date in the upper left corner on the first page. However, the information may change with subsequent updates in our water quality monitoring database as we receive new data or revise monitoring schedules. There is often a lag time between when you collect your sample and when we credit your system with meeting the monitoring requirement.

We have not designed this monitoring schedule to display all compliance requirements. The purpose of this schedule is to assist water systems with planning for most water quality monitoring, and to allow systems to compare their records with DOH ODW records. Please be aware that this monitoring schedule does not include constituents that require a special monitoring frequency, such as monitoring affiliated with treatment.

Any inaccuracies on this schedule will not relieve the water system owner and operator of the requirement to comply with applicable regulations.

If you have any questions about your monitoring requirements, please contact the regional office staff listed above.

CITY OF GRANDVIEW

22.
SOURCE SAMPLE CHEMICAL ANALYSIS RESULTS (IOC, NITRATE, VOC, SOC, AND RADIONUCLIDE)

HLA
Engineering and Land Surveying, Inc.

DOH Source No.	Lab No.	Sample No.	Source DOE Id	Sample Collection Date	Analyte Group Code	Analyte Group Name	Test Panel Code	Test Panel Name	Exceed.
1	151	18620	37G057	9/9/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
1	151	13437	37G057	7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
1	151	8141	37G057	5/3/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	89	1829	37G057	4/13/2021	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
1	163	8529	37G057	5/5/2020	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
1	151	8286	37G057	5/4/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	105	11853	37G057	5/14/2019	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
1	151	11614	37G057	5/13/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	151	12417	37G057	5/21/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	151	10880	37G057	5/15/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	89	85052	37G057	7/11/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
1	89	85052	37G057	7/11/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
1	151	14782	37G057	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	28	51549	37G057	6/6/2016	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
1	151	6054	37G057	3/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	151	30876	37G057	10/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	151	28279	37G057	9/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
1	105	19365	37G057	7/6/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	151	14548	37G057	6/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	89	74894	37G057	4/6/2015	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
1	151	13213	37G057	6/11/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	105	6445	37G057	4/8/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	151	5506	37G057	4/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	151	12330	37G057	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_NUM	NUMERIC COLI COUNT	No
1	151	7182	37G057	5/2/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	105	15389	37G057	8/9/2010	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
1	28	41555	37G057	6/4/2010	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
1	151	6560	37G057	4/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	89	77704	37G057	4/15/2009	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

1	151	6206	37G057	4/15/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	151	6376	37G057	4/21/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	28	36431	37G057	10/17/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
1	28	95919	37G057	9/11/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
1	105	14133	37G057	8/13/2007	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
1	89	74901	37G057	7/12/2007	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
1	89	85639	37G057	7/5/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
1	89	85639	37G057	7/5/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
1	151	8649	37G057	5/30/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	28	10806	37G057	10/10/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
1	28	61103	37G057	4/4/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
1	151	1341	37G057	1/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	151	20238	37G057	11/3/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	105	13935	37G057	8/11/2004	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
1	107	25825	37G057	8/11/2004	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
1	105	8638	37G057	6/1/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	105	2377	37G057	2/17/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	105	19508	37G057	11/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	105	10961	37G057	8/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	105	8176	37G057	7/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	28	22891	37G057	5/6/2003	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
1	149	2767	37G057	5/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	149	743	37G057	1/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	14	47466	37G057	8/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	14	45756	37G057	5/29/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	14	40627	37G057	7/26/2001	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	81	68879	37G057	4/10/2000	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
1	81	69366	37G057	4/10/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	81	67580	37G057	1/24/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	81	63216	37G057	7/12/1999	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	81	59991	37G057	1/14/1999	SOC	SYNTHETIC ORGANIC CONTAMINANTS	FUMIGANT	SOIL FUMIGANTS	No

1	14	17882	37G057	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
1	81	51188	37G057	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
1	23	49670	37G057	4/22/1997	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
1	81	41031	37G057	10/28/1996	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	111	12006	37G057	12/13/1994	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
1	14	6736	37G057	12/14/1993	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
1	14	96736	37G057	12/14/1993	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
1	111	12021	37G057	12/14/1993	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
1	54	2230	37G057	6/13/1990	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
1	54	1990	37G057	3/20/1990	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
1	54	483	37G057	7/18/1988	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
1	51	10621	37G057	3/22/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
1	51	4733	37G057	9/1/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
2	89	1830	37G001	4/13/2021	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
2	151	5984	37G001	4/5/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	163	8530	37G001	5/5/2020	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
2	151	7035	37G001	4/13/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	163	29797	37G001	9/4/2019	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
2	151	9462	37G001	4/22/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	163	27718	37G001	4/3/2018	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
2	105	7254	37G001	4/3/2018	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
2	151	7112	37G001	4/2/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	89	85538	37G001	4/25/2017	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
2	151	8740	37G001	4/25/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	151	14994	37G001	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	105	15972	37G001	6/8/2015	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	No
2	151	14549	37G001	6/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	105	12295	37G001	5/11/2015	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	No
2	89	74897	37G001	4/6/2015	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
2	151	13214	37G001	6/11/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

2	105	8679	37G001	5/6/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	89	82132	37G001	4/23/2013	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
2	151	9876	37G001	6/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	151	9592	37G001	6/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	28	43038	37G001	4/11/2011	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
2	151	10306	37G001	6/8/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	28	39818	37G001	5/26/2009	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
2	89	77702	37G001	4/15/2009	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
2	105	6205	37G001	4/15/2009	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
2	89	86809	37G001	4/30/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
2	151	4240	37G001	3/18/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	89	86708	37G001	3/18/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	INSECT1	CARBAMATE INSECTICIDES	No
2	89	86708	37G001	3/18/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
2	28	36503	37G001	10/22/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
2	28	35919	37G001	9/11/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
2	105	12099	37G001	7/17/2007	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
2	89	74937	37G001	7/17/2007	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
2	151	22803	37G001	12/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	28	36802	37G001	11/7/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
2	151	16681	37G001	9/13/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	151	10166	37G001	6/20/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	28	5904	37G001	5/23/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
2	151	1342	37G001	1/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	151	22579	37G001	12/13/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	105	17983	37G001	10/4/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	105	15829	37G001	9/7/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	107	25824	37G001	8/11/2004	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
2	105	6126	37G001	4/20/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	105	2378	37G001	2/17/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	105	19511	37G001	11/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	105	14341	37G001	9/8/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	105	8088	37G001	7/1/2003	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No

2	28	22896	37G001	5/6/2003	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
2	149	2268	37G001	4/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	149	741	37G001	1/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	14	46749	37G001	7/15/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	81	76669	37G001	6/7/2001	SOC	SYNTHETIC ORGANIC CONTAMINANTS	FUMIGANT	SOIL FUMIGANTS	No
2	81	72921	37G001	10/17/2000	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
2	14	34221	37G001	7/24/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	81	68880	37G001	4/10/2000	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
2	81	69365	37G001	4/10/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	81	67581	37G001	1/24/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	81	63220	37G001	7/12/1999	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	81	59494	37G001	12/28/1998	SOC	SYNTHETIC ORGANIC CONTAMINANTS	FUMIGANT	SOIL FUMIGANTS	No
2	14	17885	37G001	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
2	81	51189	37G001	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
2	23	49673	37G001	4/22/1997	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
2	81	41035	37G001	10/28/1996	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	111	12007	37G001	12/13/1994	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
2	14	96737	37G001	12/14/1993	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
2	111	12022	37G001	12/14/1993	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
2	14	6737	37G001	12/14/1993	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
2	52	18047	37G001	1/25/1989	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
2	54	484	37G001	7/18/1988	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
2	51	10619	37G001	3/22/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
2	51	7538	37G001	8/27/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
2	51	4734	37G001	9/1/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
3	151	13445	37G002	7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
3	151	8142	37G002	5/3/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	89	1831	37G002	4/13/2021	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
3	163	10598	37G002	6/2/2020	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
3	151	8283	37G002	5/4/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

3	151	11615	37G002	5/13/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	105	9619	37G002	4/23/2019	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
3	151	12418	37G002	5/21/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	151	10881	37G002	5/15/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	89	84997	37G002	6/6/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
3	89	84997	37G002	6/6/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
3	151	14783	37G002	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	151	28280	37G002	9/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
3	151	14550	37G002	6/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	28	49636	37G002	5/11/2015	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
3	89	74896	37G002	4/6/2015	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
3	28	48348	37G002	6/11/2014	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
3	151	13215	37G002	6/11/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	105	8681	37G002	5/6/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	151	7611	37G002	5/7/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	151	23864	37G002	11/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	151	12327	37G002	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_NUM	NUMERIC COLI COUNT	No
3	105	7078	37G002	4/20/2010	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
3	151	6561	37G002	4/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	28	39817	37G002	5/26/2009	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
3	89	77701	37G002	4/15/2009	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
3	151	6207	37G002	4/15/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	151	6377	37G002	4/21/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	89	86706	37G002	3/18/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	INSECT1	CARBAMATE INSECTICIDES	No
3	28	99431	37G002	10/17/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
3	28	99919	37G002	9/11/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
3	89	85571	37G002	6/14/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
3	89	85571	37G002	6/14/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
3	28	34686	37G002	5/17/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
3	89	74530	37G002	4/17/2007	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
3	105	6009	37G002	4/17/2007	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
3	151	20239	37G002	11/3/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

3	105	6121	37G002	4/20/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	105	2379	37G002	2/17/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	105	19509	37G002	11/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	105	8089	37G002	7/1/2003	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
3	28	22895	37G002	5/6/2003	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
3	149	2269	37G002	4/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	149	2265	37G002	4/1/2003	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
3	149	742	37G002	1/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	14	46750	37G002	7/15/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	14	40425	37G002	7/17/2001	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	81	76668	37G002	6/7/2001	SOC	SYNTHETIC ORGANIC CONTAMINANTS	FUMIGANT	SOIL FUMIGANTS	No
3	14	35809	37G002	10/17/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	14	34222	37G002	7/24/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	81	68881	37G002	4/10/2000	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
3	81	69367	37G002	4/10/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	81	67582	37G002	1/24/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	81	63221	37G002	7/12/1999	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	81	59498	37G002	12/28/1998	SOC	SYNTHETIC ORGANIC CONTAMINANTS	FUMIGANT	SOIL FUMIGANTS	No
3	14	17884	37G002	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
3	81	51190	37G002	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
3	23	49674	37G002	4/22/1997	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
3	81	41036	37G002	10/28/1996	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	111	12008	37G002	12/13/1994	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
3	14	6738	37G002	12/14/1993	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
3	111	12023	37G002	12/14/1993	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
3	14	96738	37G002	12/14/1993	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
3	51	13100	37G002	2/6/1991	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
3	51	13101	37G002	2/6/1991	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
3	54	1995	37G002	3/21/1990	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
3	52	16929	37G002	9/6/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

3	54	485	37G002	7/18/1988	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
3	51	10617	37G002	3/22/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
3	51	7539	37G002	8/27/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
3	51	4735	37G002	9/1/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
4	89	86708	37G003	3/18/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
4	81	59496	37G003	12/28/1998	SOC	SYNTHETIC ORGANIC CONTAMINANTS	FUMIGANT	SOIL FUMIGANTS	No
4	54	9121	37G003	3/21/1995	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
4	111	12009	37G003	12/13/1994	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
4	14	96739	37G003	12/14/1993	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
4	111	12024	37G003	12/14/1993	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
4	14	6739	37G003	12/14/1993	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
4	54	1991	37G003	3/20/1990	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
4	54	486	37G003	7/18/1988	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
4	51	10620	37G003	3/22/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
4	51	7540	37G003	8/27/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
4	51	7541	37G003	8/27/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
4	51	4738	37G003	9/1/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
6	151	11508	37G004	7/11/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
6	81	63217	37G004	7/12/1999	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
6	81	51191	37G004	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
6	14	17889	37G004	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
6	23	49676	37G004	4/22/1997	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
6	111	12010	37G004	12/13/1994	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
6	111	12025	37G004	12/14/1993	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
6	14	96740	37G004	12/14/1993	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
6	14	6740	37G004	12/14/1993	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
6	54	1996	37G004	3/21/1990	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
6	54	487	37G004	7/18/1988	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
6	51	10618	37G004	3/22/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**

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6	51	4741	37G004	9/1/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
7	62	42	37G005	1/10/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	62	41	37G005	1/10/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	205	37G005	1/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
7	151	210	37G005	1/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
7	151	35153	37G005	11/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	35148	37G005	11/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	32397	37G005	10/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	32392	37G005	10/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	30387	37G005	9/10/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	30388	37G005	9/10/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	25867	37G005	8/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	25872	37G005	8/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19791	37G005	7/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19786	37G005	7/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14128	37G005	6/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14123	37G005	6/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	12133	37G005	5/14/2019	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	No
7	151	10859	37G005	5/6/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	10854	37G005	5/6/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7255	37G005	4/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7251	37G005	4/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	4772	37G005	3/4/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	4768	37G005	3/4/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3134	37G005	2/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3129	37G005	2/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	460	37G005	1/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	456	37G005	1/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	38740	37G005	12/17/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	38739	37G005	12/17/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	34945	37G005	11/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

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7	151	34940	37G005	11/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	31618	37G005	10/1/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	31623	37G005	10/1/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	27966	37G005	9/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	27964	37G005	9/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	23896	37G005	8/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	23900	37G005	8/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19940	37G005	7/9/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19936	37G005	7/9/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14312	37G005	6/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14307	37G005	6/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	10575	37G005	5/7/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	10579	37G005	5/7/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7117	37G005	4/2/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7113	37G005	4/2/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	4845	37G005	3/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	4843	37G005	3/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2396	37G005	2/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2392	37G005	2/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	494	37G005	1/8/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	492	37G005	1/8/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	35758	37G005	12/4/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	35755	37G005	12/4/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	33601	37G005	11/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	33602	37G005	11/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	30171	37G005	10/2/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	30175	37G005	10/2/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	27354	37G005	9/11/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	27356	37G005	9/11/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	22657	37G005	8/7/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	22660	37G005	8/7/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

7	151	18878	37G005	7/10/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	18880	37G005	7/10/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	16033	37G005	6/19/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	16029	37G005	6/19/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	28	53776	37G005	5/30/2017	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	151	10884	37G005	5/15/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	10886	37G005	5/15/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	8590	37G005	4/24/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	8592	37G005	4/24/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	28	53305	37G005	3/29/2017	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	151	4277	37G005	3/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	4278	37G005	3/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2287	37G005	2/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2291	37G005	2/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	523	37G005	1/9/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	521	37G005	1/9/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	35321	37G005	12/5/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	35317	37G005	12/5/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	34095	37G005	11/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	34097	37G005	11/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	30113	37G005	10/3/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	30111	37G005	10/3/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	29146	37G005	9/26/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	27335	37G005	9/12/2016	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
7	89	85268	37G005	9/12/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
7	89	85268	37G005	9/12/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
7	151	21641	37G005	8/1/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	21643	37G005	8/1/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19129	37G005	7/11/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19132	37G005	7/11/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14997	37G005	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

7	151	14998	37G005	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7736	37G005	4/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7737	37G005	4/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	6051	37G005	3/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	6049	37G005	3/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2909	37G005	2/8/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2906	37G005	2/8/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	33	37G005	1/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	32	37G005	1/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	36571	37G005	12/7/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	36570	37G005	12/7/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	30877	37G005	10/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	30873	37G005	10/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	28281	37G005	9/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
7	151	26350	37G005	9/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	28	50225	37G005	9/1/2015	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	151	26336	37G005	9/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	22485	37G005	8/3/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	22488	37G005	8/3/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	19367	37G005	7/6/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	19364	37G005	7/6/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14551	37G005	6/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14554	37G005	6/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	10811	37G005	5/4/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	10808	37G005	5/4/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7939	37G005	4/6/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	89	74895	37G005	4/6/2015	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
7	151	7937	37G005	4/6/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	4420	37G005	3/2/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	4422	37G005	3/2/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2160	37G005	2/2/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2159	37G005	2/2/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

7	151	54	37G005	1/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	52	37G005	1/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	30452	37G005	12/1/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	30453	37G005	12/1/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	29248	37G005	11/10/2014	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
7	151	28572	37G005	11/3/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	28575	37G005	11/3/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	26145	37G005	10/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	26148	37G005	10/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	26069	37G005	10/2/2014	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
7	151	22211	37G005	9/2/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	22214	37G005	9/2/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	18873	37G005	8/4/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	18874	37G005	8/4/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	16088	37G005	7/8/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	16086	37G005	7/8/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	11761	37G005	6/2/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	11762	37G005	6/2/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	8701	37G005	5/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	8702	37G005	5/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5996	37G005	4/1/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5997	37G005	4/1/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3840	37G005	3/3/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3838	37G005	3/3/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2268	37G005	2/10/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2267	37G005	2/10/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	110	37G005	1/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	109	37G005	1/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	28489	37G005	12/2/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	28491	37G005	12/2/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	26716	37G005	11/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

7	151	26715	37G005	11/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	24038	37G005	10/1/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	24041	37G005	10/1/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	20828	37G005	9/3/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	20826	37G005	9/3/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	17893	37G005	8/5/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	17896	37G005	8/5/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14260	37G005	7/1/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14259	37G005	7/1/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	11289	37G005	6/3/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	11288	37G005	6/3/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	8682	37G005	5/6/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	8684	37G005	5/6/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	6074	37G005	4/2/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	6073	37G005	4/2/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	4787	37G005	3/18/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	4789	37G005	3/18/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	2120	37G005	2/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	2119	37G005	2/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	464	37G005	1/7/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	465	37G005	1/7/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	26545	37G005	12/3/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	26546	37G005	12/3/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	24772	37G005	11/5/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	24774	37G005	11/5/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	22264	37G005	10/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	22265	37G005	10/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	18955	37G005	9/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	18957	37G005	9/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	15702	37G005	8/6/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	15700	37G005	8/6/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

7	151	12616	37G005	7/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	12618	37G005	7/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	9880	37G005	6/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	9878	37G005	6/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7612	37G005	5/7/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7608	37G005	5/7/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	28	44811	37G005	4/4/2012	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	151	5279	37G005	4/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5274	37G005	4/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3535	37G005	3/5/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3533	37G005	3/5/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	1926	37G005	2/6/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	1928	37G005	2/6/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	133	37G005	1/3/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	136	37G005	1/3/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	25736	37G005	12/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	25735	37G005	12/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	23862	37G005	11/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	23863	37G005	11/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	20867	37G005	10/3/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	20866	37G005	10/3/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	17766	37G005	9/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	17772	37G005	9/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14542	37G005	8/1/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14543	37G005	8/1/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	12325	37G005	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_NUM	NUMERIC COLI COUNT	No
7	151	12011	37G005	7/5/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	12012	37G005	7/5/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	9593	37G005	6/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	9595	37G005	6/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7180	37G005	5/2/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7179	37G005	5/2/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

7	151	5428	37G005	4/4/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5426	37G005	4/4/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3793	37G005	3/8/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3795	37G005	3/8/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2184	37G005	2/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2182	37G005	2/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	211	37G005	1/4/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	209	37G005	1/4/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	24820	37G005	12/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	24823	37G005	12/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	22611	37G005	11/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	22610	37G005	11/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	20474	37G005	10/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	20472	37G005	10/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	17707	37G005	9/7/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	17709	37G005	9/7/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14785	37G005	8/3/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14786	37G005	8/3/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	13006	37G005	7/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	13004	37G005	7/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	9781	37G005	6/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	9777	37G005	6/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	8040	37G005	5/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	8038	37G005	5/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5954	37G005	4/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5952	37G005	4/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3654	37G005	3/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3657	37G005	3/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	2004	37G005	2/2/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	2003	37G005	2/2/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	349	37G005	1/5/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

7	105	346	37G005	1/5/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	23822	37G005	12/8/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	23832	37G005	12/8/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	21850	37G005	11/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	21841	37G005	11/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	21176	37G005	10/27/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	21175	37G005	10/27/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	28	40424	37G005	9/10/2009	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	151	16766	37G005	9/1/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	16764	37G005	9/1/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	14469	37G005	8/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	14466	37G005	8/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	12022	37G005	7/7/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	12024	37G005	7/7/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	9432	37G005	6/1/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	9343	37G005	6/1/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7266	37G005	5/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7267	37G005	5/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	89	77698	37G005	4/15/2009	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
7	151	5454	37G005	4/6/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5453	37G005	4/6/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3236	37G005	3/2/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3235	37G005	3/2/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	1623	37G005	2/3/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	1622	37G005	2/3/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	80	37G005	1/5/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	79	37G005	1/5/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	23395	37G005	12/1/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	23393	37G005	12/1/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	21592	37G005	11/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	21590	37G005	11/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19459	37G005	10/6/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

7	151	19457	37G005	10/6/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	16552	37G005	9/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	16554	37G005	9/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	13953	37G005	8/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	105	13955	37G005	8/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	11441	37G005	7/7/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	11440	37G005	7/7/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	8805	37G005	6/2/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	8803	37G005	6/2/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7090	37G005	5/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7091	37G005	5/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5968	37G005	4/14/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	89	5971	37G005	4/14/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3204	37G005	3/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3202	37G005	3/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	285	37G005	1/7/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	286	37G005	1/7/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	28	97017	37G005	12/18/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	151	23347	37G005	12/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	23350	37G005	12/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	21659	37G005	11/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	21657	37G005	11/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19881	37G005	10/17/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19883	37G005	10/17/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	89	86105	37G005	9/11/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
7	151	16459	37G005	9/11/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	28	35922	37G005	9/11/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	105	16444	37G005	9/11/2007	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
7	89	86105	37G005	9/11/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
7	151	14131	37G005	8/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14130	37G005	8/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

7	151	11064	37G005	7/2/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	11062	37G005	7/2/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	10382	37G005	6/20/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	10380	37G005	6/20/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	28	50171	37G005	6/14/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	151	7389	37G005	5/8/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7386	37G005	5/8/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5195	37G005	4/4/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5196	37G005	4/4/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3844	37G005	3/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3842	37G005	3/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2259	37G005	2/12/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	2261	37G005	2/12/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	509	37G005	1/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	507	37G005	1/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	23179	37G005	12/13/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	23180	37G005	12/13/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	21747	37G005	11/16/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	21746	37G005	11/16/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19120	37G005	10/9/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	19122	37G005	10/9/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	16539	37G005	9/11/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	16541	37G005	9/11/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14017	37G005	8/9/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	14015	37G005	8/9/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	11354	37G005	7/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	11356	37G005	7/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	28	32094	37G005	7/6/2006	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	151	11004	37G005	6/29/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	11005	37G005	6/29/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	89	73130	37G005	5/30/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
7	151	6870	37G005	5/1/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

7	151	6869	37G005	5/1/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	89	72966	37G005	4/24/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
7	28	29701	37G005	4/4/2006	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	151	5309	37G005	4/4/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	5310	37G005	4/4/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	28	31298	37G005	4/4/2006	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
7	151	3443	37G005	3/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	3445	37G005	3/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	1827	37G005	2/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	1829	37G005	2/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	1204	37G005	1/23/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	1206	37G005	1/23/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	22806	37G005	12/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	22808	37G005	12/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	20860	37G005	11/7/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	20862	37G005	11/7/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	18809	37G005	10/10/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	18807	37G005	10/10/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	16678	37G005	9/13/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	16679	37G005	9/13/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	15337	37G005	8/29/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	15338	37G005	8/29/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	9238	37G005	6/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	9236	37G005	6/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	7513	37G005	5/9/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	6227	37G005	4/18/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	6228	37G005	4/18/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	151	4815	37G005	3/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	14	34527	37G005	8/8/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	14	34223	37G005	7/24/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
7	81	68878	37G005	4/10/2000	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
7	81	69368	37G005	4/10/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

7	14	31468	37G005	2/17/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	81	63218	37G005	7/12/1999	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	81	59491	37G005	12/28/1998	SOC	SYNTHETIC ORGANIC CONTAMINANTS	FUMIGANT	SOIL FUMIGANTS	No
7	81	51192	37G005	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
7	14	17888	37G005	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
7	23	49671	37G005	4/22/1997	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
7	81	41032	37G005	10/28/1996	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	111	95176	37G005	10/24/1995	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
7	111	95176	37G005	10/24/1995	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PESTX	MISC PESTICIDES	No
7	111	95176	37G005	10/24/1995	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
7	111	12011	37G005	12/13/1994	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
7	14	96741	37G005	12/14/1993	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
7	14	6741	37G005	12/14/1993	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
7	111	92026	37G005	12/14/1993	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
7	54	1992	37G005	3/20/1990	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
7	52	16928	37G005	9/6/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
7	54	489	37G005	7/18/1988	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
7	51	7542	37G005	8/27/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
7	51	4737	37G005	9/1/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
8	151	1343	37G058	1/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
8	28	1881	37G058	12/2/2004	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
8	151	20240	37G058	11/3/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
8	105	6122	37G058	4/20/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
8	105	3349	37G058	3/4/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
8	89	79968	37G058	11/3/2003	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
8	105	19505	37G058	11/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
8	107	25517	37G058	8/5/2003	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
8	105	10856	37G058	8/5/2003	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
8	28	22892	37G058	5/6/2003	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
8	149	2771	37G058	5/5/2003	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No

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Bold emphasis of exceedances added for clarity.

8	149	2769	37G058	5/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
8	149	1372	37G058	2/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
8	149	1371	37G058	2/6/2003	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
8	14	49201	37G058	11/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
8	81	86874	37G058	11/20/2002	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
8	81	85442	37G058	8/20/2002	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
8	14	47467	37G058	8/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
8	14	45759	37G058	5/29/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
8	81	83905	37G058	5/29/2002	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
8	125	70700	37G058	8/20/1999	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
8	125	70700	37G058	8/20/1999	SOC	SYNTHETIC ORGANIC CONTAMINANTS	INSECT1	CARBAMATE INSECTICIDES	No
8	81	64485	37G058	8/20/1999	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
8	81	64486	37G058	8/20/1999	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
8	125	70700	37G058	8/20/1999	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
8	51	13216	37G058	4/8/1991	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
8	52	16930	37G058	9/6/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
8	51	10616	37G058	3/22/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
8	51	7543	37G058	8/27/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
8	51	4736	37G058	9/1/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
10	151	24295	37G006	11/30/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	23024	37G006	11/8/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	20356	37G006	10/4/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	6745	37G006	9/21/2021	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	151	18728	37G006	9/13/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	18729	37G006	9/13/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	18621	37G006	9/9/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
10	151	13440	37G006	7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
10	151	13057	37G006	7/6/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	13060	37G006	7/6/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10776	37G006	6/7/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10780	37G006	6/7/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

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10	151	8145	37G006	5/3/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	8143	37G006	5/3/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	5987	37G006	4/5/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	5986	37G006	4/5/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	3674	37G006	3/1/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	3673	37G006	3/1/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	1856	37G006	2/1/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	1854	37G006	2/1/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	20	37G006	1/4/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	22	37G006	1/4/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	25363	37G006	12/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	25365	37G006	12/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	24070	37G006	11/9/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	24071	37G006	11/9/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	22017	37G006	10/12/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	22015	37G006	10/12/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	18418	37G006	9/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	18421	37G006	9/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	15679	37G006	8/3/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	15677	37G006	8/3/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	14155	37G006	7/14/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	13240	37G006	7/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10400	37G006	6/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10402	37G006	6/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	163	8531	37G006	5/5/2020	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
10	151	8287	37G006	5/4/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	8285	37G006	5/4/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	6365	37G006	4/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	6368	37G006	4/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	4005	37G006	3/2/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	4007	37G006	3/2/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	1939	37G006	2/3/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

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Bold emphasis of exceedances added for clarity.

10	151	1937	37G006	2/3/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	207	37G006	1/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	209	37G006	1/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	35152	37G006	11/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	35150	37G006	11/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	32394	37G006	10/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	32396	37G006	10/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	30386	37G006	9/10/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	29590	37G006	9/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	25869	37G006	8/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
10	151	25871	37G006	8/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	19788	37G006	7/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
10	151	19790	37G006	7/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	17413	37G006	6/17/2019	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	No
10	151	14127	37G006	6/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	14125	37G006	6/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10858	37G006	5/6/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10857	37G006	5/6/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	7252	37G006	4/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	7256	37G006	4/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	4770	37G006	3/4/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	4773	37G006	3/4/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	3131	37G006	2/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	3133	37G006	2/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	461	37G006	1/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	458	37G006	1/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	37292	37G006	12/3/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	37287	37G006	12/3/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	34941	37G006	11/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	34944	37G006	11/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	31622	37G006	10/1/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

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10	151	31621	37G006	10/1/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	27967	37G006	9/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	27962	37G006	9/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	23898	37G006	8/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	23901	37G006	8/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	19941	37G006	7/9/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	19939	37G006	7/9/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	14311	37G006	6/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	14308	37G006	6/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10580	37G006	5/7/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10576	37G006	5/7/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	7118	37G006	4/2/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	7114	37G006	4/2/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	4713	37G006	3/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	4711	37G006	3/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	2397	37G006	2/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	2393	37G006	2/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	493	37G006	1/8/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	495	37G006	1/8/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	35754	37G006	12/4/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	35756	37G006	12/4/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	33600	37G006	11/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	33603	37G006	11/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	77360	37G006	10/16/2017	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	151	30176	37G006	10/2/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	30172	37G006	10/2/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	27355	37G006	9/11/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	27351	37G006	9/11/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	22661	37G006	8/7/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	22658	37G006	8/7/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	18879	37G006	7/10/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

10	151	18881	37G006	7/10/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	16030	37G006	6/19/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	16034	37G006	6/19/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	28	53874	37G006	6/12/2017	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
10	151	10882	37G006	5/15/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10887	37G006	5/15/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	8591	37G006	4/24/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	8593	37G006	4/24/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	6404	37G006	3/29/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	6403	37G006	3/29/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	2288	37G006	2/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	2292	37G006	2/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	520	37G006	1/9/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	524	37G006	1/9/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	35322	37G006	12/5/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	35318	37G006	12/5/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	34098	37G006	11/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	34096	37G006	11/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	76526	37G006	10/4/2016	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	151	30115	37G006	10/3/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	30112	37G006	10/3/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	29145	37G006	9/26/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	27336	37G006	9/12/2016	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
10	151	21640	37G006	8/1/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	21645	37G006	8/1/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	19128	37G006	7/11/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	85051	37G006	7/11/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
10	151	19130	37G006	7/11/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	85051	37G006	7/11/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
10	151	14999	37G006	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	14995	37G006	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

10	151	7734	37G006	4/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	7738	37G006	4/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	6055	37G006	3/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	6050	37G006	3/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	2914	37G006	2/8/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	2913	37G006	2/8/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	37	37G006	1/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	36	37G006	1/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	36572	37G006	12/7/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	36575	37G006	12/7/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	75562	37G006	10/12/2015	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	151	30872	37G006	10/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	30874	37G006	10/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	28282	37G006	9/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
10	151	26338	37G006	9/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	22487	37G006	8/3/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	14552	37G006	6/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10810	37G006	5/4/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	7936	37G006	4/6/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	28	49478	37G006	4/6/2015	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
10	151	4419	37G006	3/2/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	2162	37G006	2/2/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	51	37G006	1/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	30455	37G006	12/1/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	28574	37G006	11/3/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	26147	37G006	10/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	74300	37G006	10/2/2014	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	151	22213	37G006	9/2/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	18875	37G006	8/4/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	16087	37G006	7/8/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	28	48347	37G006	6/11/2014	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
10	151	11764	37G006	6/2/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

10	151	8704	37G006	5/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	5999	37G006	4/1/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	3839	37G006	3/3/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	2270	37G006	2/10/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	112	37G006	1/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	28490	37G006	12/2/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	26717	37G006	11/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	24040	37G006	10/1/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	20825	37G006	9/3/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	17895	37G006	8/5/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	72615	37G006	7/9/2013	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	151	14258	37G006	7/1/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	11290	37G006	6/3/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	8680	37G006	5/6/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	6075	37G006	4/2/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	3893	37G006	3/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	2122	37G006	2/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	466	37G006	1/7/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	26544	37G006	12/3/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	24771	37G006	11/5/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	22266	37G006	10/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	18954	37G006	9/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	15698	37G006	8/6/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	12615	37G006	7/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	9877	37G006	6/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	7610	37G006	5/7/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	28	44812	37G006	4/4/2012	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
10	151	5272	37G006	4/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	3532	37G006	3/5/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	1925	37G006	2/6/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	134	37G006	1/3/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	25739	37G006	12/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

10	151	23861	37G006	11/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	20868	37G006	10/3/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	17771	37G006	9/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	14545	37G006	8/1/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	12323	37G006	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_NUM	NUMERIC COLI COUNT	No
10	151	12014	37G006	7/5/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	9599	37G006	6/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	7178	37G006	5/2/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	5425	37G006	4/4/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	3796	37G006	3/8/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	2187	37G006	2/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	210	37G006	1/4/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	24821	37G006	12/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	22608	37G006	11/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	20473	37G006	10/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	17706	37G006	9/7/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	14784	37G006	8/3/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	13008	37G006	7/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	13007	37G006	7/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	9780	37G006	6/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	9779	37G006	6/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	8042	37G006	5/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	8041	37G006	5/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	5955	37G006	4/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	5956	37G006	4/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	3656	37G006	3/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	2006	37G006	2/2/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	348	37G006	1/5/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	23823	37G006	12/8/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	21840	37G006	11/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	21177	37G006	10/27/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	28	40423	37G006	9/9/2009	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

10	151	16763	37G006	9/1/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	14467	37G006	8/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	12021	37G006	7/7/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	9345	37G006	6/1/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	7264	37G006	5/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	77741	37G006	4/28/2009	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	151	6862	37G006	4/28/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	82	37G006	1/5/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	23397	37G006	12/1/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	21593	37G006	11/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	19456	37G006	10/6/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	19455	37G006	10/6/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	16553	37G006	9/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	13956	37G006	8/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	11442	37G006	7/7/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	8807	37G006	6/2/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	7087	37G006	5/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	5969	37G006	4/14/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	3201	37G006	3/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	288	37G006	1/7/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	23348	37G006	12/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	21660	37G006	11/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	28	96431	37G006	10/17/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
10	151	19880	37G006	10/17/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	16443	37G006	9/11/2007	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
10	28	35920	37G006	9/11/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
10	151	14132	37G006	8/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	85638	37G006	7/5/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
10	89	85638	37G006	7/5/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
10	151	11061	37G006	7/2/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10383	37G006	6/20/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	28	50172	37G006	6/14/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No

10	151	7388	37G006	5/8/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	4560	37G006	3/26/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	2117	37G006	2/9/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	16542	37G006	9/11/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	16543	37G006	9/11/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	89	73199	37G006	6/12/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	151	8833	37G006	5/31/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	8832	37G006	5/31/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	1830	37G006	2/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	1831	37G006	2/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	1208	37G006	1/23/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	1207	37G006	1/23/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	22809	37G006	12/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	22810	37G006	12/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	20863	37G006	11/7/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	20864	37G006	11/7/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	18805	37G006	10/10/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	18806	37G006	10/10/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	16676	37G006	9/13/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	16677	37G006	9/13/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	28	92001	37G006	9/13/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
10	151	15335	37G006	8/29/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	15336	37G006	8/29/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	12157	37G006	7/19/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	12158	37G006	7/19/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10169	37G006	6/20/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	10170	37G006	6/20/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	28	28592	37G006	3/30/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
10	151	1340	37G006	1/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	1339	37G006	1/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	22581	37G006	12/13/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	151	20241	37G006	11/3/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

10	151	20242	37G006	11/3/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	107	25857	37G006	11/3/2004	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	105	18000	37G006	10/4/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	18001	37G006	10/4/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	15825	37G006	9/7/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	15824	37G006	9/7/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	13934	37G006	8/11/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	13933	37G006	8/11/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	11491	37G006	7/12/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	11490	37G006	7/12/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	10596	37G006	6/28/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	10597	37G006	6/28/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	8639	37G006	6/1/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	6123	37G006	4/20/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	6124	37G006	4/20/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	2380	37G006	2/17/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	2381	37G006	2/17/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	597	37G006	1/14/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	598	37G006	1/14/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	22048	37G006	12/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	22049	37G006	12/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	19506	37G006	11/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	19507	37G006	11/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	17202	37G006	10/7/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	17203	37G006	10/7/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	14339	37G006	9/8/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	14340	37G006	9/8/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	10962	37G006	8/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	10960	37G006	8/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	8174	37G006	7/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	105	8175	37G006	7/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

10	149	3298	37G006	6/2/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	3299	37G006	6/2/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	28	22899	37G006	5/6/2003	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
10	149	2765	37G006	5/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
10	149	2766	37G006	5/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	2266	37G006	4/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	2267	37G006	4/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	1901	37G006	3/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	1900	37G006	3/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	1369	37G006	2/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	1370	37G006	2/6/2003	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	149	1368	37G006	2/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	738	37G006	1/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	739	37G006	1/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	652	37G006	12/31/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	149	651	37G006	12/31/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	49199	37G006	11/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	49048	37G006	11/12/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	49047	37G006	11/12/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	48388	37G006	10/7/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	48387	37G006	10/7/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	81	86215	37G006	10/7/2002	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	14	48012	37G006	9/16/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	47462	37G006	8/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	47463	37G006	8/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
10	14	46748	37G006	7/15/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	46747	37G006	7/15/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	45754	37G006	5/29/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	45332	37G006	5/6/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	44905	37G006	4/8/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	44680	37G006	3/25/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	44679	37G006	3/25/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

10	14	44012	37G006	2/11/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	43644	37G006	1/15/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	42154	37G006	10/18/2001	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	81	79425	37G006	10/18/2001	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
10	81	79424	37G006	10/18/2001	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	14	40424	37G006	7/17/2001	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
10	14	39626	37G006	6/7/2001	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	81	72922	37G006	10/17/2000	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	14	35810	37G006	10/17/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	34552	37G006	8/10/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	14	34528	37G006	8/8/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
10	14	34224	37G006	7/24/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
10	81	70950	37G006	7/24/2000	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	81	69369	37G006	4/10/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	81	68877	37G006	4/10/2000	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	81	67583	37G006	1/24/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	81	59492	37G006	12/28/1998	SOC	SYNTHETIC ORGANIC CONTAMINANTS	FUMIGANT	SOIL FUMIGANTS	No
10	81	51193	37G006	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
10	14	17887	37G006	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
10	23	49675	37G006	4/22/1997	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	81	41033	37G006	10/28/1996	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	111	95177	37G006	10/24/1995	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	54	9122	37G006	3/21/1995	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	81	26619	37G006	2/28/1995	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
10	111	12012	37G006	12/13/1994	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
10	51	13177	37G006	3/18/1991	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
10	54	1993	37G006	3/20/1990	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	54	491	37G006	7/18/1988	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
10	51	10615	37G006	3/22/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No

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10	51	7544	37G006	8/27/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
11	151	20357	37G060	10/4/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	13441	37G060	7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
11	151	13058	37G060	7/6/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	6780	37G060	4/13/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	89	1832	37G060	4/13/2021	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
11	89	1836	37G060	4/13/2021	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
11	151	3670	37G060	3/1/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	21253	37G060	10/5/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	14155	37G060	7/14/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	13241	37G060	7/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	163	8532	37G060	5/5/2020	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	151	6367	37G060	4/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	5178	37G060	3/17/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	105	30050	37G060	9/4/2019	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	No
11	105	27672	37G060	8/13/2019	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
11	151	6084	37G060	3/19/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	163	12552	37G060	5/22/2018	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	151	5908	37G060	3/19/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	37370	37G060	12/21/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	105	7710	37G060	4/4/2016	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
11	151	6053	37G060	3/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	28	50226	37G060	9/1/2015	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	151	15646	37G060	6/8/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	89	84190	37G060	5/18/2015	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
11	28	48982	37G060	5/15/2015	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	28	49584	37G060	5/4/2015	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	105	11379	37G060	5/4/2015	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
11	89	74891	37G060	4/6/2015	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
11	151	13216	37G060	6/11/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	105	6444	37G060	4/8/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	89	81070	37G060	4/4/2012	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No

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Bold emphasis of exceedances added for clarity.

11	151	4864	37G060	3/26/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	12326	37G060	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_NUM	NUMERIC COLI COUNT	No
11	28	43008	37G060	4/11/2011	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	151	2186	37G060	2/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	105	347	37G060	1/5/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	28	40093	37G060	11/10/2009	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	89	77703	37G060	4/15/2009	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
11	151	81	37G060	1/5/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	23396	37G060	12/1/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	105	16555	37G060	9/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	8806	37G060	6/2/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	89	86707	37G060	3/18/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	INSECT1	CARBAMATE INSECTICIDES	No
11	89	86707	37G060	3/18/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
11	151	4239	37G060	3/18/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	89	86707	37G060	3/18/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
11	151	23349	37G060	12/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	28	99039	37G060	9/18/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	151	16456	37G060	9/11/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	28	50522	37G060	6/20/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	151	10384	37G060	6/20/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	89	85570	37G060	6/14/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	INSECT1	CARBAMATE INSECTICIDES	No
11	105	6008	37G060	4/17/2007	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
11	151	508	37G060	1/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	89	74211	37G060	12/13/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
11	89	85210	37G060	12/13/2006	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
11	89	85210	37G060	12/13/2006	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
11	151	23178	37G060	12/13/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	18318	37G060	9/28/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	28	10807	37G060	10/10/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	28	61104	37G060	4/4/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	151	1344	37G060	1/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	151	20243	37G060	11/3/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	105	15827	37G060	9/7/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

11	105	8637	37G060	6/1/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	105	3350	37G060	3/4/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	105	19504	37G060	11/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	89	82410	37G060	11/3/2003	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
11	89	82322	37G060	8/5/2003	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
11	28	22897	37G060	5/6/2003	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
11	149	2770	37G060	5/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	149	2773	37G060	5/5/2003	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
11	125	2595	37G060	5/5/2003	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
11	125	791	37G060	2/6/2003	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
11	149	1373	37G060	2/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	149	739	37G060	1/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	14	49200	37G060	11/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	81	85441	37G060	8/20/2002	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
11	14	47465	37G060	8/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	81	83906	37G060	5/29/2002	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
11	14	45757	37G060	5/29/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
11	125	66370	37G060	5/19/1999	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
11	125	66370	37G060	5/19/1999	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
11	81	62265	37G060	5/19/1999	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
11	81	62264	37G060	5/19/1999	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
11	54	1997	37G060	3/21/1990	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
11	54	490	37G060	7/18/1988	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
11	51	10630	37G060	3/22/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
12	151	22804	37G061	12/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
12	28	36801	37G061	11/7/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
12	151	16682	37G061	9/13/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
12	151	10167	37G061	6/20/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
12	28	5901	37G061	5/23/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
12	151	1345	37G061	1/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
12	151	20244	37G061	11/3/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

12	105	15828	37G061	9/7/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
12	105	6125	37G061	4/20/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
12	105	3351	37G061	3/4/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
12	105	10958	37G061	8/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
12	28	22894	37G061	5/6/2003	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
12	149	739	37G061	1/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
12	81	86875	37G061	11/20/2002	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
12	81	85452	37G061	8/21/2002	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
12	81	83904	37G061	5/29/2002	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
12	81	83903	37G061	5/29/2002	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
12	125	67810	37G061	6/30/1999	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
12	125	67810	37G061	6/30/1999	SOC	SYNTHETIC ORGANIC CONTAMINANTS	INSECT1	CARBAMATE INSECTICIDES	No
12	81	63199	37G061	6/30/1999	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
12	81	63198	37G061	6/30/1999	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
12	52	10952	37G061	11/1/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
12	51	7575	37G061	8/27/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
13	151	24294	37G062	11/30/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	24295	37G062	11/30/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	18729	37G062	9/13/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	13446	37G062	7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
13	151	13059	37G062	7/6/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	13060	37G062	7/6/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	12653	37G062	6/29/2021	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
13	151	10777	37G062	6/7/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10780	37G062	6/7/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	8144	37G062	5/3/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	8145	37G062	5/3/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	89	1833	37G062	4/13/2021	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	151	5985	37G062	4/5/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	5987	37G062	4/5/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	3671	37G062	3/1/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

13	151	3674	37G062	3/1/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	1855	37G062	2/1/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	1856	37G062	2/1/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	21	37G062	1/4/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	22	37G062	1/4/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	25365	37G062	12/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	25364	37G062	12/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	24071	37G062	11/9/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	24072	37G062	11/9/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	22016	37G062	10/12/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	22017	37G062	10/12/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	18419	37G062	9/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	18421	37G062	9/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	15678	37G062	8/3/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	15679	37G062	8/3/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	13242	37G062	7/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10402	37G062	6/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10401	37G062	6/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	8953	37G062	5/11/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	8287	37G062	5/4/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	8288	37G062	5/4/2020	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	No
13	151	6368	37G062	4/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	6366	37G062	4/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	4006	37G062	3/2/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	4007	37G062	3/2/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	1939	37G062	2/3/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	1938	37G062	2/3/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	209	37G062	1/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	208	37G062	1/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	35151	37G062	11/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	35152	37G062	11/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

13	151	32396	37G062	10/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	32395	37G062	10/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	29586	37G062	9/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	29590	37G062	9/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	25870	37G062	8/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	25871	37G062	8/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	19790	37G062	7/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	19789	37G062	7/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	14126	37G062	6/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	14127	37G062	6/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	11854	37G062	5/14/2019	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
13	151	10858	37G062	5/6/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10856	37G062	5/6/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	7256	37G062	4/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	4771	37G062	3/4/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	4772	37G062	3/4/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	4773	37G062	3/4/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	3133	37G062	2/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	3132	37G062	2/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	461	37G062	1/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	459	37G062	1/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	37288	37G062	12/3/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	37292	37G062	12/3/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	34944	37G062	11/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	34942	37G062	11/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	31622	37G062	10/1/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	31620	37G062	10/1/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	89	86741	37G062	9/11/2018	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
13	89	86741	37G062	9/11/2018	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
13	151	27963	37G062	9/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	27967	37G062	9/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

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13	151	23901	37G062	8/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	23899	37G062	8/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	21011	37G062	7/16/2018	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
13	151	19937	37G062	7/9/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	19941	37G062	7/9/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	14310	37G062	6/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	14311	37G062	6/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10577	37G062	5/7/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10580	37G062	5/7/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	7115	37G062	4/2/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	7118	37G062	4/2/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	4712	37G062	3/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	4713	37G062	3/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	2394	37G062	2/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	2397	37G062	2/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	496	37G062	1/8/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	493	37G062	1/8/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	35757	37G062	12/4/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	35754	37G062	12/4/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	33604	37G062	11/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	33600	37G062	11/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	30176	37G062	10/2/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	30173	37G062	10/2/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	27355	37G062	9/11/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	27353	37G062	9/11/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	22659	37G062	8/7/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	22661	37G062	8/7/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	18879	37G062	7/10/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	18882	37G062	7/10/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	16026	37G062	6/19/2017	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
13	151	16031	37G062	6/19/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

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13	151	16034	37G062	6/19/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10887	37G062	5/15/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10883	37G062	5/15/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	8593	37G062	4/24/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	8589	37G062	4/24/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	89	76838	37G062	4/3/2017	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	151	6405	37G062	3/29/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	6403	37G062	3/29/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	2289	37G062	2/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	2292	37G062	2/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	524	37G062	1/9/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	519	37G062	1/9/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	35319	37G062	12/5/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	35322	37G062	12/5/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	34099	37G062	11/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	34096	37G062	11/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	89	76527	37G062	10/4/2016	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	151	30112	37G062	10/3/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	30116	37G062	10/3/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	29143	37G062	9/26/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	29145	37G062	9/26/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	21640	37G062	8/1/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	21644	37G062	8/1/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	19131	37G062	7/11/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	19128	37G062	7/11/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	89	76092	37G062	6/29/2016	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	151	14999	37G062	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	28	51548	37G062	6/6/2016	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
13	105	14784	37G062	6/6/2016	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
13	151	14993	37G062	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	7738	37G062	4/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	7733	37G062	4/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

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13	151	6050	37G062	3/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	6056	37G062	3/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	2913	37G062	2/8/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	2912	37G062	2/8/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	35	37G062	1/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	37	37G062	1/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	36575	37G062	12/7/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	36573	37G062	12/7/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	30875	37G062	10/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	30872	37G062	10/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	939	37G062	1/17/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	137	37G062	1/3/2012	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
13	151	25738	37G062	12/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	17768	37G062	9/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	15699	37G062	8/15/2011	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
13	151	9596	37G062	6/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	6261	37G062	4/11/2011	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
13	151	2183	37G062	2/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	26375	37G062	12/30/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	17881	37G062	9/8/2010	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
13	151	13007	37G062	7/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10985	37G062	6/15/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	9780	37G062	6/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	8042	37G062	5/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	6558	37G062	4/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	5955	37G062	4/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	22288	37G062	11/10/2009	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
13	28	40693	37G062	11/9/2009	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
13	105	21839	37G062	11/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	17742	37G062	9/9/2009	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
13	89	88742	37G062	9/9/2009	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

13	89	88742	37G062	9/9/2009	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
13	28	39658	37G062	5/11/2009	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
13	105	7946	37G062	5/11/2009	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
13	105	7943	37G062	5/11/2009	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
13	89	77796	37G062	5/11/2009	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	105	3846	37G062	3/9/2009	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
13	151	19455	37G062	10/6/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	1711	37G062	2/1/2007	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
13	105	19762	37G062	10/17/2006	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
13	151	17924	37G062	9/25/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	16542	37G062	9/11/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	89	73199	37G062	6/12/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	151	8832	37G062	5/31/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	1830	37G062	2/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	1207	37G062	1/23/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	28	60303	37G062	12/12/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
13	151	22805	37G062	12/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	22810	37G062	12/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	20864	37G062	11/7/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	18805	37G062	10/10/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	16683	37G062	9/13/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	16677	37G062	9/13/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	15336	37G062	8/29/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	12158	37G062	7/19/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10168	37G062	6/20/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	10170	37G062	6/20/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	28	16204	37G062	6/6/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
13	151	1346	37G062	1/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	1340	37G062	1/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	22581	37G062	12/13/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	151	20242	37G062	11/3/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

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Bold emphasis of exceedances added for clarity.

13	105	18001	37G062	10/4/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	17981	37G062	10/4/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	15825	37G062	9/7/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	15826	37G062	9/7/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	107	25822	37G062	8/16/2004	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	105	13933	37G062	8/11/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	11491	37G062	7/12/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	10597	37G062	6/28/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	6123	37G062	4/20/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	6120	37G062	4/20/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	2381	37G062	2/17/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	2382	37G062	2/17/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	598	37G062	1/14/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	22049	37G062	12/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	19510	37G062	11/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	19506	37G062	11/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	17203	37G062	10/7/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	14340	37G062	9/8/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	10957	37G062	8/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	10962	37G062	8/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	10956	37G062	8/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	8177	37G062	7/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	105	8175	37G062	7/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	149	3299	37G062	6/2/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	28	22898	37G062	5/6/2003	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
13	149	2768	37G062	5/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	149	2766	37G062	5/5/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	149	2267	37G062	4/1/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	149	1900	37G062	3/3/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	149	1374	37G062	2/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	149	1369	37G062	2/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	149	740	37G062	1/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

13	149	739	37G062	1/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	149	651	37G062	12/31/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	49198	37G062	11/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	49048	37G062	11/12/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	48388	37G062	10/7/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	48012	37G062	9/16/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	47464	37G062	8/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	47462	37G062	8/20/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	46747	37G062	7/15/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	46024	37G062	6/10/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	45755	37G062	5/29/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	45332	37G062	5/6/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	44905	37G062	4/8/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	44679	37G062	3/25/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	44012	37G062	2/11/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	43644	37G062	1/15/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	42954	37G062	12/4/2001	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	35810	37G062	10/17/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	35813	37G062	10/17/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	34552	37G062	8/10/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	14	34225	37G062	7/24/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	81	67584	37G062	1/24/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	81	63219	37G062	7/12/1999	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	81	59493	37G062	12/28/1998	SOC	SYNTHETIC ORGANIC CONTAMINANTS	FUMIGANT	SOIL FUMIGANTS	No
13	81	51194	37G062	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
13	14	17886	37G062	12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
13	23	49672	37G062	4/22/1997	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	81	41034	37G062	10/28/1996	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
13	111	12013	37G062	12/13/1994	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
13	14	96742	37G062	12/14/1993	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

13	111	12026	37G062	12/14/1993	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	14	6742	37G062	12/14/1993	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
13	51	13178	37G062	3/18/1991	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
13	54	1994	37G062	3/20/1990	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	52	18049	37G062	1/25/1989	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
13	54	492	37G062	7/18/1988	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
13	52	10953	37G062	11/1/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
13	51	7545	37G062	8/27/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
13	51	7546	37G062	8/27/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
13	51	4739	37G062	9/1/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
14	105	20358		10/4/2021	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	No
14	151	18622		9/9/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
14	151	13436		7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
14	151	13061		7/6/2021	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	151	10778		6/7/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	89	1838		4/13/2021	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
14	105	5977		4/5/2021	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	105	567		1/11/2021	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	105	21254		10/5/2020	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	105	13243		7/6/2020	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	151	6369		4/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	105	6369		4/6/2020	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	105	1468		1/23/2020	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	105	33005		10/7/2019	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	151	29587		9/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	151	20793		7/8/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	105	20794		7/8/2019	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	105	7250		4/1/2019	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	105	1139		1/14/2019	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	105	32462		10/8/2018	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	**Yes**
14	105	28960		9/11/2018	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**

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Bold emphasis of exceedances added for clarity.

14	151	28740	9/10/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	89	86155	4/3/2018	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
14	89	86155	4/3/2018	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
14	151	30005	9/29/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	151	27331	9/12/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	28	51214	4/4/2016	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
14	151	28283	9/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
14	151	26339	9/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	89	74892	4/6/2015	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
14	151	24188	9/17/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	151	21435	9/9/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	105	19708	9/10/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	151	17770	9/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	151	12329	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_NUM	NUMERIC COLI COUNT	No
14	151	18504	9/14/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	151	17705	9/7/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	28	41268	4/20/2010	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
14	151	6559	4/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	105	22281	11/10/2009	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
14	89	77705	4/15/2009	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
14	89	87929	4/15/2009	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
14	89	87929	4/15/2009	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
14	151	19454	10/6/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	151	19882	10/17/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	151	11976	10/17/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	151	19763	10/17/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	28	60304	12/12/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
14	151	18810	10/10/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	28	29594	7/26/2005	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
14	151	22580	12/13/2004	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	107	25823	8/11/2004	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
14	149	3296	6/2/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

14	28	22893		5/6/2003	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
14	149	744		1/6/2003	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	14	46024		6/10/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	14	45758		5/29/2002	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	81	74006		12/21/2000	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
14	81	69370		4/10/2000	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	81	63222		7/12/1999	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	81	59497		12/28/1998	SOC	SYNTHETIC ORGANIC CONTAMINANTS	FUMIGANT	SOIL FUMIGANTS	No
14	81	51195		12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
14	14	17883		12/23/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
14	23	49677		4/22/1997	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
14	81	41037		10/28/1996	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	111	12014		12/13/1994	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
14	14	6743		12/14/1993	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
14	14	96743		12/14/1993	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
14	111	12028		12/14/1993	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
15	14	17891		12/24/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
15	81	51061		12/24/1997	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
15	14	6744		12/14/1993	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
15	14	96744		12/14/1993	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
15	111	12029		12/14/1993	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
15	54	6054		5/6/1992	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
15	81	8683		8/13/1991	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
15	54	1798		1/18/1990	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
16	151	12652	AAS278	6/29/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	89	1834	AAS278	4/13/2021	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	**Yes**
16	62	41	AAS278	1/10/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	62	42	AAS278	1/10/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	206	AAS278	1/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

16	151	210	AAS278	1/6/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	**Yes**
16	151	35153	AAS278	11/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	35149	AAS278	11/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	32393	AAS278	10/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	32397	AAS278	10/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	30388	AAS278	9/10/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	29584	AAS278	9/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	25872	AAS278	8/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	25868	AAS278	8/5/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19791	AAS278	7/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19787	AAS278	7/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	15729	AAS278	6/11/2019	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
16	151	14124	AAS278	6/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14128	AAS278	6/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	12134	AAS278	5/14/2019	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
16	151	10855	AAS278	5/6/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	10859	AAS278	5/6/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7255	AAS278	4/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2754	AAS278	4/1/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	4769	AAS278	3/4/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3130	AAS278	2/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3134	AAS278	2/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	457	AAS278	1/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	460	AAS278	1/7/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	38740	AAS278	12/17/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	37290	AAS278	12/3/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	34943	AAS278	11/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	34945	AAS278	11/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	31619	AAS278	10/1/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	31623	AAS278	10/1/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	27965	AAS278	9/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

16	151	27966	AAS278	9/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	23900	AAS278	8/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	23897	AAS278	8/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19938	AAS278	7/9/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19940	AAS278	7/9/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14309	AAS278	6/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14312	AAS278	6/4/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	10578	AAS278	5/7/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	10579	AAS278	5/7/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7116	AAS278	4/2/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7117	AAS278	4/2/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	4845	AAS278	3/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	4844	AAS278	3/6/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2395	AAS278	2/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2396	AAS278	2/5/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	497	AAS278	1/8/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	492	AAS278	1/8/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	35755	AAS278	12/4/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	35759	AAS278	12/4/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	33601	AAS278	11/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	33605	AAS278	11/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	30175	AAS278	10/2/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	30174	AAS278	10/2/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	27356	AAS278	9/11/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	27352	AAS278	9/11/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	22656	AAS278	8/7/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	22660	AAS278	8/7/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	18878	AAS278	7/10/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	18883	AAS278	7/10/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	16033	AAS278	6/19/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	16032	AAS278	6/19/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

16	151	10886	AAS278	5/15/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	10885	AAS278	5/15/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	8588	AAS278	4/24/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	8592	AAS278	4/24/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	28	53434	AAS278	4/17/2017	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
16	151	4279	AAS278	3/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	4277	AAS278	3/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2291	AAS278	2/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	2290	AAS278	2/6/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	523	AAS278	1/9/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	522	AAS278	1/9/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	35321	AAS278	12/5/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	35320	AAS278	12/5/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	34095	AAS278	11/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	34100	AAS278	11/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	30111	AAS278	10/3/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	30114	AAS278	10/3/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	29144	AAS278	9/26/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	29146	AAS278	9/26/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	89	85269	AAS278	9/12/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
16	89	85269	AAS278	9/12/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
16	151	21641	AAS278	8/1/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	21642	AAS278	8/1/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19133	AAS278	7/11/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19129	AAS278	7/11/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14996	AAS278	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14998	AAS278	6/6/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7735	AAS278	4/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7737	AAS278	4/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	6049	AAS278	3/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	6052	AAS278	3/14/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2910	AAS278	2/8/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

16	151	2906	AAS278	2/8/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	32	AAS278	1/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	34	AAS278	1/4/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	36570	AAS278	12/7/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	36574	AAS278	12/7/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	30877	AAS278	10/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	30871	AAS278	10/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	28284	AAS278	9/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
16	151	26337	AAS278	9/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	26350	AAS278	9/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	28	50071	AAS278	8/3/2015	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
16	151	22485	AAS278	8/3/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	22486	AAS278	8/3/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	19366	AAS278	7/6/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	19367	AAS278	7/6/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14554	AAS278	6/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14553	AAS278	6/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	10809	AAS278	5/4/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	11378	AAS278	5/4/2015	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
16	151	10811	AAS278	5/4/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	89	74893	AAS278	4/6/2015	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
16	151	7938	AAS278	4/6/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7939	AAS278	4/6/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	4422	AAS278	3/2/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	4421	AAS278	3/2/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2161	AAS278	2/2/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2159	AAS278	2/2/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	54	AAS278	1/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	53	AAS278	1/5/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	30452	AAS278	12/1/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	30454	AAS278	12/1/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	28573	AAS278	11/3/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

16	151	28572	AAS278	11/3/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	26148	AAS278	10/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	26146	AAS278	10/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	22211	AAS278	9/2/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	22212	AAS278	9/2/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	18873	AAS278	8/4/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	18876	AAS278	8/4/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	16089	AAS278	7/8/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	16086	AAS278	7/8/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	11763	AAS278	6/2/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	11761	AAS278	6/2/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	8701	AAS278	5/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	8703	AAS278	5/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	5998	AAS278	4/1/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	5996	AAS278	4/1/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3838	AAS278	3/3/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3841	AAS278	3/3/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2267	AAS278	2/10/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2269	AAS278	2/10/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	109	AAS278	1/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	111	AAS278	1/6/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	28492	AAS278	12/2/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	28489	AAS278	12/2/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	26718	AAS278	11/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	26715	AAS278	11/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	24041	AAS278	10/1/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	24039	AAS278	10/1/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	20828	AAS278	9/3/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	20827	AAS278	9/3/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	17894	AAS278	8/5/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	17893	AAS278	8/5/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

16	151	14260	AAS278	7/1/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14257	AAS278	7/1/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	11289	AAS278	6/3/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	11287	AAS278	6/3/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	8683	AAS278	5/6/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	8684	AAS278	5/6/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	6073	AAS278	4/2/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	6076	AAS278	4/2/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	4789	AAS278	3/18/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	4788	AAS278	3/18/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	2120	AAS278	2/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	2121	AAS278	2/4/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	463	AAS278	1/7/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	464	AAS278	1/7/2013	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	26547	AAS278	12/3/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	26545	AAS278	12/3/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	24773	AAS278	11/5/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	24772	AAS278	11/5/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	22265	AAS278	10/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	22263	AAS278	10/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	18956	AAS278	9/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	18957	AAS278	9/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	28	45655	AAS278	8/27/2012	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
16	151	15702	AAS278	8/6/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	15701	AAS278	8/6/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	12617	AAS278	7/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	12618	AAS278	7/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	9880	AAS278	6/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	9879	AAS278	6/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7612	AAS278	5/7/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7609	AAS278	5/7/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	5279	AAS278	4/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

16	151	5278	AAS278	4/2/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3533	AAS278	3/5/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3534	AAS278	3/5/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	1927	AAS278	2/6/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	1928	AAS278	2/6/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	135	AAS278	1/3/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	136	AAS278	1/3/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	25735	AAS278	12/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	23862	AAS278	11/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	20866	AAS278	10/3/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	20869	AAS278	10/3/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	17767	AAS278	9/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	17772	AAS278	9/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14542	AAS278	8/1/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14544	AAS278	8/1/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	12324	AAS278	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_NUM	NUMERIC COLI COUNT	No
16	151	12013	AAS278	7/5/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	12011	AAS278	7/5/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	9594	AAS278	6/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	9593	AAS278	6/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7179	AAS278	5/2/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7181	AAS278	5/2/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	5428	AAS278	4/4/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	5427	AAS278	4/4/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3794	AAS278	3/8/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3795	AAS278	3/8/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2185	AAS278	2/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2182	AAS278	2/7/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	211	AAS278	1/4/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	208	AAS278	1/4/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	24823	AAS278	12/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

16	151	24822	AAS278	12/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	22609	AAS278	11/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	22611	AAS278	11/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	20475	AAS278	10/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	20474	AAS278	10/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	17708	AAS278	9/7/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	17707	AAS278	9/7/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	15390	AAS278	8/9/2010	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
16	151	14785	AAS278	8/3/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14787	AAS278	8/3/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	13006	AAS278	7/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	13005	AAS278	7/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	9781	AAS278	6/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	9778	AAS278	6/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	28	41389	AAS278	5/11/2010	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
16	151	8038	AAS278	5/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	8039	AAS278	5/4/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	5954	AAS278	4/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	5953	AAS278	4/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3654	AAS278	3/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3639	AAS278	3/1/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	2005	AAS278	2/2/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	2003	AAS278	2/2/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	345	AAS278	1/5/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	349	AAS278	1/5/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	23822	AAS278	12/8/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	23821	AAS278	12/8/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	21841	AAS278	11/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	21849	AAS278	11/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	21174	AAS278	10/27/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	21175	AAS278	10/27/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

16	151	16766	AAS278	9/1/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	16765	AAS278	9/1/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	14469	AAS278	8/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	14468	AAS278	8/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	12022	AAS278	7/7/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	12023	AAS278	7/7/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	9432	AAS278	6/1/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	9344	AAS278	6/1/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7267	AAS278	5/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7265	AAS278	5/4/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	89	77699	AAS278	4/15/2009	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
16	151	5453	AAS278	4/6/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	5455	AAS278	4/6/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3237	AAS278	3/2/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3236	AAS278	3/2/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	1624	AAS278	2/3/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	1623	AAS278	2/3/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	78	AAS278	1/5/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	79	AAS278	1/5/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	23394	AAS278	12/1/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	23395	AAS278	12/1/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	21592	AAS278	11/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	21591	AAS278	11/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19458	AAS278	10/6/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19459	AAS278	10/6/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	16554	AAS278	9/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	16556	AAS278	9/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	13955	AAS278	8/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	13954	AAS278	8/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	11443	AAS278	7/7/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	11441	AAS278	7/7/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

16	151	8805	AAS278	6/2/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	8804	AAS278	6/2/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7091	AAS278	5/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7089	AAS278	5/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	5970	AAS278	4/14/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	89	5971	AAS278	4/14/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3202	AAS278	3/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3203	AAS278	3/3/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	286	AAS278	1/7/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	287	AAS278	1/7/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	28	37017	AAS278	12/18/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
16	151	23346	AAS278	12/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	23347	AAS278	12/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	21658	AAS278	11/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	21659	AAS278	11/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19884	AAS278	10/17/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19883	AAS278	10/17/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	89	86149	AAS278	9/18/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
16	28	36039	AAS278	9/18/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
16	89	86149	AAS278	9/18/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
16	151	16457	AAS278	9/11/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	16459	AAS278	9/11/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14129	AAS278	8/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14130	AAS278	8/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	11062	AAS278	7/2/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	11063	AAS278	7/2/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	10382	AAS278	6/20/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	28	50521	AAS278	6/20/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
16	151	10381	AAS278	6/20/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7387	AAS278	5/8/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7386	AAS278	5/8/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	5196	AAS278	4/4/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

16	151	5194	AAS278	4/4/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3843	AAS278	3/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3842	AAS278	3/13/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2261	AAS278	2/12/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	2260	AAS278	2/12/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	506	AAS278	1/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	507	AAS278	1/10/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	89	74212	AAS278	12/13/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
16	151	23179	AAS278	12/13/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	23181	AAS278	12/13/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	21745	AAS278	11/16/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	21746	AAS278	11/16/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19120	AAS278	10/9/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	19121	AAS278	10/9/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	16539	AAS278	9/11/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	16540	AAS278	9/11/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	89	73803	AAS278	9/11/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
16	151	14017	AAS278	8/9/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	14016	AAS278	8/9/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	14012	AAS278	8/9/2006	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
16	151	11355	AAS278	7/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	11356	AAS278	7/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	28	32093	AAS278	7/6/2006	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
16	151	11004	AAS278	6/29/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	11006	AAS278	6/29/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	89	73130	AAS278	5/30/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
16	151	6869	AAS278	5/1/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	6871	AAS278	5/1/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	89	72966	AAS278	4/24/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
16	151	5309	AAS278	4/4/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	28	29702	AAS278	4/4/2006	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No

16	151	5311	AAS278	4/4/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3444	AAS278	3/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	3445	AAS278	3/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	1828	AAS278	2/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	1827	AAS278	2/6/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	1205	AAS278	1/23/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	1204	AAS278	1/23/2006	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	22807	AAS278	12/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	22808	AAS278	12/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	20862	AAS278	11/7/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	20861	AAS278	11/7/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	18808	AAS278	10/10/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	18809	AAS278	10/10/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	16678	AAS278	9/13/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	16680	AAS278	9/13/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	15339	AAS278	8/29/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	15337	AAS278	8/29/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	11508	AAS278	7/11/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	9238	AAS278	6/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	9237	AAS278	6/6/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	7513	AAS278	5/9/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	6229	AAS278	4/18/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	6227	AAS278	4/18/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	151	4815	AAS278	3/24/2005	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
16	105	15767	AAS278	9/24/2003	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
16	107	25578	AAS278	9/24/2003	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
16	28	24021	AAS278	9/23/2003	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
17	151	18619		9/9/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
17	151	13438		7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
17	151	10779		6/7/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	3672		3/1/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

17	151	25362	12/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	18420	9/1/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	10597	6/2/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	5177	3/17/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	4004	3/2/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	36990	12/2/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	89	11283	10/30/2019	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
17	89	11283	10/30/2019	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
17	151	34722	10/28/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	29588	9/3/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	105	21287	7/8/2019	IOC	INORGANIC CONTAMINANTS	IOC_SHORT	INORGANIC SHORT FORM	No
17	151	15569	6/10/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	89	87149	3/19/2019	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
17	105	6085	3/19/2019	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
17	163	6086	3/19/2019	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
17	89	78367	3/19/2019	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
17	89	87149	3/19/2019	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
17	151	940	1/17/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	25737	12/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	17769	9/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	9597	6/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	3792	3/8/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	151	24819	12/6/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	89	78829	1/28/2010	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
17	105	1420	1/25/2010	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
17	28	40923	1/19/2010	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
17	105	17816	9/16/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	89	86723	3/25/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	INSECT1	CARBAMATE INSECTICIDES	No
17	89	86723	3/25/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
17	151	4683	3/25/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
17	89	86723	3/25/2008	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

17	28	99017		12/18/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
17	28	96039		9/18/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
17	89	74024		10/17/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
17	89	73804		9/11/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
17	28	32577		9/11/2006	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
17	105	11347		7/6/2006	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
17	28	31817		5/30/2006	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
17	28	31818		5/30/2006	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
17	89	73129		5/30/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
17	89	72911		4/10/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
17	28	29703		4/4/2006	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
17	89	82574		3/16/2004	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
17	107	25696		3/16/2004	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
17	105	4027		3/16/2004	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
17	28	25468		3/16/2004	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
18	151	18241	AAS161	9/7/2021	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	151	13444	AAS161	7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
18	151	20664	AAS161	9/24/2020	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	151	29796	AAS161	9/4/2019	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	105	27673	AAS161	8/13/2019	IOC	INORGANIC CONTAMINANTS	AR	ARSENIC	No
18	89	5167	AAS161	4/23/2019	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
18	151	28741	AAS161	9/10/2018	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	151	30006	AAS161	9/29/2017	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	151	27332	AAS161	9/12/2016	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	28	51547	AAS161	6/6/2016	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
18	89	84895	AAS161	4/4/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
18	89	84895	AAS161	4/4/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
18	89	84878	AAS161	3/14/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
18	89	84878	AAS161	3/14/2016	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
18	151	28285	AAS161	9/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
18	151	26340	AAS161	9/1/2015	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	151	24189	AAS161	9/17/2014	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No

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18	105	14866	AAS161	7/8/2013	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
18	89	72422	AAS161	4/23/2013	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
18	151	5507	AAS161	4/4/2012	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	151	12328	AAS161	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_NUM	NUMERIC COLI COUNT	No
18	151	9598	AAS161	6/6/2011	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	28	41005	AAS161	6/4/2010	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
18	105	10062	AAS161	6/4/2010	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
18	151	6562	AAS161	4/13/2010	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	151	7776	AAS161	5/11/2009	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	151	7088	AAS161	5/5/2008	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	89	75630	AAS161	10/17/2007	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
18	89	75508	AAS161	9/18/2007	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
18	28	35921	AAS161	9/11/2007	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
18	89	74847	AAS161	6/26/2007	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
18	151	8005	AAS161	5/17/2007	IOC	INORGANIC CONTAMINANTS	NIT	NITRATE SUITE	No
18	89	85387	AAS161	3/27/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	PEST1	GENERAL PESTICIDE SUITE	No
18	89	74481	AAS161	3/27/2007	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
18	89	85387	AAS161	3/27/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	HERB1	CHLOROPHENOXY HERBICIDES	No
18	89	85387	AAS161	3/27/2007	SOC	SYNTHETIC ORGANIC CONTAMINANTS	INSECT1	CARBAMATE INSECTICIDES	No
18	105	9995	AAS161	6/14/2006	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
18	28	31943	AAS161	6/14/2006	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
18	89	73225	AAS161	6/14/2006	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No

CITY OF GRANDVIEW

23. DISTRIBUTION SYSTEM CHEMICAL ANALYSIS RESULTS (BACTERIOLOGICAL, LEAD, COPPER, AND DISINFECTION BYPRODUCTS)

HLA
Engineering and Land Surveying, Inc.

DOH Source No.	Lab No.	Sample No.	Source DOE Id	Sample Collection Date	Analyte Group Code	Analyte Group Name	Test Panel Code	Test Panel Name	Exceed.
Dist	151	23538		11/16/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23539		11/16/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23540		11/16/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23020		11/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23022		11/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23021		11/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22444		11/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22443		11/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22441		11/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22442		11/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21630		10/18/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21629		10/18/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21631		10/18/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21032		10/11/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21033		10/11/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21030		10/11/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21031		10/11/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20355		10/4/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20354		10/4/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20353		10/4/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19349		9/20/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19351		9/20/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19350		9/20/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19352		9/20/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18725		9/13/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18727		9/13/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18726		9/13/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18616		9/9/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18617		9/9/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18618		9/9/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	18236	9/7/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18238	9/7/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	151	18237	9/7/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16704	8/17/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16703	8/17/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18705	8/17/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16030	8/10/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16029	8/10/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16031	8/10/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15253	8/2/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15250	8/2/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15252	8/2/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15251	8/2/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14233	7/19/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14231	7/19/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14232	7/19/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13601	7/12/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13598	7/12/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13600	7/12/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13602	7/12/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13603	7/12/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13442	7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13443	7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	151	13439	7/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13052	7/6/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13050	7/6/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	151	13051	7/6/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	3821	6/29/2021	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	3822	6/29/2021	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	3822	6/29/2021	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	3821	6/29/2021	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	11535	6/14/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11534	6/14/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11537	6/14/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11536	6/14/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10772	6/7/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10773	6/7/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10771	6/7/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10514	6/2/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10515	6/2/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10513	6/2/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9403	5/17/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9402	5/17/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9401	5/17/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8876	5/10/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8877	5/10/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8875	5/10/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8138	5/3/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8139	5/3/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8140	5/3/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8137	5/2/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7195	4/19/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7196	4/19/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7194	4/19/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6666	4/12/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6665	4/12/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6664	4/12/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6663	4/12/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5966	4/5/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5967	4/5/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5965	4/5/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4833	3/15/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	4834	3/15/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4831	3/15/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4832	3/15/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4254	3/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4255	3/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4253	3/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3639	3/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3641	3/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3640	3/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2902	2/16/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2904	2/16/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2903	2/16/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2406	2/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2405	2/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2407	2/8/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1851	2/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1853	2/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1850	2/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1852	2/1/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11079	1/19/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11082	1/19/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11081	1/19/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	562	1/11/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	564	1/11/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	560	1/11/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	566	1/11/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16	1/4/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17	1/4/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18	1/4/2021	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26323	12/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26324	12/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	26325	12/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26322	12/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25789	12/7/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25788	12/7/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25790	12/7/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25353	12/1/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25352	12/1/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25354	12/1/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	46	78987	11/19/2020	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	46	78988	11/19/2020	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	46	78988	11/19/2020	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	46	78987	11/19/2020	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	24536	11/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24538	11/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24537	11/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24052	11/9/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24051	11/9/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24053	11/9/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23471	11/2/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23469	11/2/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23470	11/2/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23468	11/2/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22578	10/19/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22577	10/19/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22576	10/19/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22014	10/12/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22013	10/12/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22011	10/12/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22012	10/12/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21252	10/5/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21250	10/5/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	21251	10/5/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	20089	9/18/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	20094	9/18/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	20088	9/18/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	20090	9/18/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	20093	9/18/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	20092	9/18/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	20091	9/18/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19952	9/17/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19951	9/17/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19950	9/17/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19855	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19857	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19850	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19841	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19842	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19847	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19859	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19852	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19843	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19854	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19856	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19849	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19861	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19845	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19858	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19844	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19851	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19860	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19853	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	19848	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No

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Dist	105	19846	9/16/2020	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	151	19427	9/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19429	9/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19430	9/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19428	9/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18921	9/8/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18920	9/8/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18919	9/8/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18416	9/1/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18417	9/1/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18415	9/1/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17350	8/18/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17349	8/18/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16394	8/10/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16395	8/10/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16393	8/10/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16392	8/10/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15673	8/3/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15675	8/3/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15674	8/3/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15676	8/3/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14724	7/20/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14723	7/20/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14725	7/20/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14152	7/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14151	7/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14153	7/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15154	7/14/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13238	7/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13237	7/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13239	7/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
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Dist	151	11941	6/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11944	6/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11943	6/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11942	6/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	46	36142	6/9/2020	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	46	36141	6/9/2020	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	46	36141	6/9/2020	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	46	36142	6/9/2020	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	80	11122	6/8/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	80	11123	6/8/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	80	11124	6/8/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	2538	6/2/2020	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	2538	6/2/2020	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	2539	6/2/2020	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	2539	6/2/2020	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	10388	6/1/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10389	6/1/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10390	6/1/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9515	5/18/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9514	5/18/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9513	5/18/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8948	5/11/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8949	5/11/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8950	5/11/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8272	5/4/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8271	5/4/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8274	5/4/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8273	5/4/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7033	4/13/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7034	4/13/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7031	4/13/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

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Bold emphasis of exceedances added for clarity.

Dist	151	7030	4/13/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7032	4/13/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6349	4/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6352	4/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6350	4/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6353	4/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6351	4/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5105	3/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5104	3/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5103	3/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5106	3/16/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4716	3/10/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4715	3/10/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4714	3/10/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4002	3/2/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4003	3/2/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4001	3/2/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3413	2/19/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3414	2/19/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3415	2/19/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2614	2/10/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2615	2/10/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2616	2/10/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1936	2/3/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1934	2/3/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1933	2/3/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1935	2/3/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1286	1/21/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1287	1/21/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1285	1/21/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	764	1/13/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

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Bold emphasis of exceedances added for clarity.

Dist	151	763	1/13/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	762	1/13/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	765	1/13/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	188	1/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	186	1/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	185	1/6/2020	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38175	12/16/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38176	12/16/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38173	12/16/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38174	12/16/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37665	12/9/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37666	12/9/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37664	12/9/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36983	12/2/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36985	12/2/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36984	12/2/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36224	11/18/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36223	11/18/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36222	11/18/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35802	11/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35804	11/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35803	11/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35145	11/5/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35147	11/5/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35144	11/5/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35146	11/5/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33813	10/15/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33814	10/15/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33815	10/15/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33001	10/7/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33003	10/7/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	33002	10/7/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33004	10/7/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	32381	10/1/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	32382	10/1/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	32383	10/1/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31099	9/16/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31096	9/16/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31097	9/16/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31098	9/16/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30120	9/9/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30122	9/9/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30121	9/9/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29554	9/3/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29556	9/3/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29555	9/3/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28359	8/20/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28360	8/20/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28361	8/20/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27364	8/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27362	8/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27363	8/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25865	8/5/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25866	8/5/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25864	8/5/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25863	8/5/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20767	7/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20761	7/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20764	7/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20766	7/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20763	7/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20762	7/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	20765	7/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19784	7/1/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19783	7/1/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19782	7/1/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	6632	6/18/2019	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	6631	6/18/2019	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	6632	6/18/2019	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	6631	6/18/2019	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	16986	6/17/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16985	6/17/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16984	6/17/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16983	6/17/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15566	6/10/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15567	6/10/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15568	6/10/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14121	6/3/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14120	6/3/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14122	6/3/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12377	5/20/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12376	5/20/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12378	5/20/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11593	5/13/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11592	5/13/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11591	5/13/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10848	5/6/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10847	5/6/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10846	5/6/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10845	5/6/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8698	4/15/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8699	4/15/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8700	4/15/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	7978	4/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7981	4/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7979	4/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7980	4/8/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7244	4/1/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7246	4/1/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7245	4/1/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5889	3/18/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5892	3/18/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5890	3/18/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5891	3/18/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5346	3/11/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5345	3/11/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5347	3/11/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4766	3/4/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4767	3/4/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4765	3/4/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3717	2/19/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3718	2/19/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3716	2/19/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3376	2/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3377	2/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3374	2/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3372	2/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3375	2/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3371	2/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3373	2/12/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1668	1/22/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1669	1/22/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1667	1/22/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1122	1/14/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	1123	1/14/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1120	1/14/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1121	1/14/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	436	1/7/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	435	1/7/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	437	1/7/2019	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38734	12/17/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38736	12/17/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38737	12/17/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38735	12/17/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38008	12/10/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38007	12/10/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	38006	12/10/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37274	12/3/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37275	12/3/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37273	12/3/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36223	11/19/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36224	11/19/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36225	11/19/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35728	11/13/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35725	11/13/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35727	11/13/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34908	11/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34909	11/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34907	11/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34910	11/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33095	10/15/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33093	10/15/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33094	10/15/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33092	10/15/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	32461	10/8/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	32460	10/8/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	32459	10/8/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31552	10/1/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31551	10/1/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31550	10/1/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	119	21979	9/18/2018	IOC	INORGANIC CONTAMINANTS	ASB	ASBESTOS	No
Dist	151	29615	9/17/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29614	9/17/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29613	9/17/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29612	9/17/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28734	9/10/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28736	9/10/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28735	9/10/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27949	9/4/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27950	9/4/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27951	9/4/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25981	8/20/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25979	8/20/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25980	8/20/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25090	8/13/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25089	8/13/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25088	8/13/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23877	8/6/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23876	8/6/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23878	8/6/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23875	8/6/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22070	7/23/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22072	7/23/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22071	7/23/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20981	7/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20979	7/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

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Dist	151	20980	7/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20982	7/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19923	7/9/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19922	7/9/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19924	7/9/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18429	6/26/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18428	6/26/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	77772	6/19/2018	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	125	7917	6/19/2018	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	77773	6/19/2018	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	17402	6/19/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	125	7915	6/19/2018	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	17211	6/18/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15897	6/11/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15898	6/11/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15896	6/11/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14704	6/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14703	6/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14705	6/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12406	5/21/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12404	5/21/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12403	5/21/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12405	5/21/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12407	5/21/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12402	5/21/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11485	5/14/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11486	5/14/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11483	5/14/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11488	5/14/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11487	5/14/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11484	5/14/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	8401	4/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8402	4/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8403	4/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7758	4/9/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7757	4/9/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7756	4/9/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7759	4/9/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7110	4/2/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7111	4/2/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7109	4/2/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5894	3/19/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5895	3/19/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5897	3/19/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5896	3/19/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5346	3/12/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5345	3/12/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5348	3/12/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5349	3/12/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5347	3/12/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4709	3/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4706	3/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4707	3/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4150	2/26/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4148	2/26/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4149	2/26/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3129	2/12/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3130	2/12/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3131	2/12/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2389	2/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2388	2/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2391	2/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	2390	2/5/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1942	1/29/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1940	1/29/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1941	1/29/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1116	1/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1115	1/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1117	1/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1118	1/16/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	489	1/8/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	490	1/8/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	491	1/8/2018	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36419	12/11/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36417	12/11/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36416	12/11/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36418	12/11/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35724	12/4/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35723	12/4/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35720	12/4/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35722	12/4/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35721	12/4/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35719	12/4/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35148	11/27/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35146	11/27/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35147	11/27/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34182	11/13/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34181	11/13/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34180	11/13/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33592	11/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33595	11/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33594	11/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33593	11/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	31790	10/16/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31789	10/16/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31791	10/16/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31792	10/16/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30933	10/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30932	10/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30934	10/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30144	10/2/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30143	10/2/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30142	10/2/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	30285	9/29/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	30045	9/28/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	30044	9/28/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	30048	9/28/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	30046	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	30043	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	30042	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29995	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29993	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29998	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29994	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29999	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29997	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29992	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29996	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29991	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	30047	9/27/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29816	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29819	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29817	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29826	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No

Dist	105	29821	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29827	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29820	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29822	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	151	29336	9/26/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	29824	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29823	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29825	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29828	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	29818	9/26/2017	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	151	29335	9/25/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29337	9/25/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29338	9/25/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28362	9/18/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28360	9/18/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28361	9/18/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27280	9/11/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27281	9/11/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27282	9/11/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24536	8/21/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24537	8/21/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24538	8/21/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24539	8/21/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23585	8/14/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23587	8/14/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23586	8/14/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22645	8/7/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22643	8/7/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22644	8/7/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20979	7/24/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20980	7/24/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	20981	7/24/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18850	7/10/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18853	7/10/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18856	7/10/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18852	7/10/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18855	7/10/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18854	7/10/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18851	7/10/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17061	6/26/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17060	6/26/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17063	6/26/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17062	6/26/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16024	6/19/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16025	6/19/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16023	6/19/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	85611	6/12/2017	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	14702	6/12/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	76959	6/12/2017	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	85612	6/12/2017	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	76960	6/12/2017	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	14701	6/12/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14703	6/12/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12481	5/30/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12480	5/30/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12479	5/30/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11612	5/22/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11610	5/22/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11611	5/22/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10877	5/15/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10879	5/15/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10876	5/15/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	10878	5/15/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10879	5/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8584	4/24/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8583	4/24/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8582	4/24/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7841	4/17/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7840	4/17/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7842	4/17/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7843	4/17/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6609	4/3/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6611	4/3/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6610	4/3/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6296	3/29/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6295	3/28/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6293	3/27/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6294	3/27/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4888	3/13/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4889	3/13/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4890	3/13/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4264	3/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4263	3/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4262	3/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3779	2/27/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3780	2/27/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3778	2/27/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2845	2/13/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2847	2/13/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2846	2/13/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2284	2/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2285	2/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2286	2/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	2283	2/6/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1313	1/23/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	515	1/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	513	1/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	514	1/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	509	1/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	517	1/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	512	1/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	516	1/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	510	1/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	511	1/9/2017	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35968	12/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35966	12/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35963	12/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35967	12/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35964	12/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35965	12/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35962	12/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35314	12/5/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35315	12/5/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35316	12/5/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34683	11/21/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34685	11/21/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34684	11/21/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34073	11/14/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34072	11/14/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34074	11/14/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33396	11/7/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33395	11/7/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33397	11/7/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33398	11/7/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	32262	10/24/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	32264	10/24/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	32263	10/24/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30885	10/10/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30884	10/10/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30883	10/10/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30096	10/3/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30097	10/3/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30094	10/3/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30095	10/3/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28299	9/19/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28300	9/19/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28301	9/19/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28298	9/19/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27330	9/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27329	9/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27326	9/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27325	9/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27328	9/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27327	9/12/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24047	8/15/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24046	8/15/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24045	8/15/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22893	8/8/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22892	8/8/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22894	8/8/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21607	8/1/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21606	8/1/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21608	8/1/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21609	8/1/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19101	7/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

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Dist	151	19094	7/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19096	7/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19102	7/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19095	7/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19098	7/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19097	7/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19100	7/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19099	7/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19103	7/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16839	6/20/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16840	6/20/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16838	6/20/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16841	6/20/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15909	6/13/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15907	6/13/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15908	6/13/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	76031	6/6/2016	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	14990	6/6/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	76030	6/6/2016	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	14991	6/6/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	85001	6/6/2016	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	85002	6/6/2016	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	14992	6/6/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11786	5/16/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11785	5/16/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11784	5/16/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10916	5/9/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10915	5/9/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10917	5/9/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10160	5/2/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10159	5/2/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	10158	5/2/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10157	5/2/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8975	4/18/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8977	4/18/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8976	4/18/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8381	4/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8380	4/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8378	4/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8379	4/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7707	4/4/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7708	4/4/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7706	4/4/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7400	3/30/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7401	3/30/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7398	3/30/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7399	3/30/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6584	3/21/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6583	3/21/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6585	3/21/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6044	3/14/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6043	3/14/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6045	3/14/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3693	2/16/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3692	2/16/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3694	2/16/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	75781	2/8/2016	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	84828	2/8/2016	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	84827	2/8/2016	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75782	2/8/2016	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	84826	2/8/2016	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75783	2/8/2016	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No

Dist	89	75784	2/8/2016	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	84825	2/8/2016	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	2231	2/1/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2233	2/1/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2232	2/1/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2234	2/1/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1210	1/19/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1212	1/19/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1211	1/19/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	559	1/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	561	1/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	560	1/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	562	1/11/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29	1/4/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28	1/4/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30	1/4/2016	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37833	12/21/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37834	12/21/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37832	12/21/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37143	12/14/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37142	12/14/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	37141	12/14/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36550	12/7/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36548	12/7/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36547	12/7/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	36549	12/7/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35260	11/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35258	11/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35257	11/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	35259	11/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34616	11/9/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	34615	11/9/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	34614	11/9/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	84696	11/2/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75630	11/2/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	84697	11/2/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	33788	11/2/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33787	11/2/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	33786	11/2/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	75629	11/2/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	75628	11/2/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	75631	11/2/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	84699	11/2/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	84698	11/2/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	32506	10/19/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	32505	10/19/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	32504	10/19/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31648	10/12/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31645	10/12/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31646	10/12/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31647	10/12/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30702	10/5/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30703	10/5/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30704	10/5/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28287	9/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28278	9/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28286	9/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27782	9/14/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27780	9/14/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27781	9/14/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27107	9/8/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27105	9/8/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

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Dist	151	27108	9/8/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27106	9/8/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26315	9/1/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26316	9/1/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26314	9/1/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	75337	8/17/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	84483	8/17/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	84481	8/17/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	24173	8/17/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	84480	8/17/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75338	8/17/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	75335	8/17/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	24172	8/17/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	84482	8/17/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	24174	8/17/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	75340	8/17/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	23241	8/10/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23240	8/10/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23239	8/10/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22469	8/3/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22471	8/3/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22470	8/3/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22468	8/3/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20951	7/20/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20950	7/20/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20949	7/20/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19920	7/13/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19923	7/13/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19921	7/13/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19922	7/13/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19010	7/6/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	19009	7/6/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19008	7/6/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	84269	6/15/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	16545	6/15/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	75085	6/15/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	75083	6/15/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	84268	6/15/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	84270	6/15/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75081	6/15/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	16546	6/15/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	84267	6/15/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75084	6/15/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	16547	6/15/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16544	6/15/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15644	6/8/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15645	6/8/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15643	6/8/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14546	6/1/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14547	6/1/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14545	6/1/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12863	5/18/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12864	5/18/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12865	5/18/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11900	5/11/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11901	5/11/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11902	5/11/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10756	5/4/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10755	5/4/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10758	5/4/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10757	5/4/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9263	4/20/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

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Bold emphasis of exceedances added for clarity.

Dist	151	9265	4/20/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9264	4/20/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8700	4/13/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8702	4/13/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8699	4/13/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8701	4/13/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7909	4/6/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	74880	4/6/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	84091	4/6/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	7910	4/6/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	74883	4/6/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	84092	4/6/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	74881	4/6/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	7911	4/6/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	84090	4/6/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	74882	4/6/2015	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	84093	4/6/2015	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	5833	3/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5832	3/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5834	3/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5835	3/16/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5129	3/9/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5130	3/9/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5128	3/9/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4416	3/2/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4417	3/2/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4418	3/2/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3364	2/17/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3365	2/17/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3363	2/17/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2709	2/9/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	2711	2/9/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2708	2/9/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2710	2/9/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2142	2/2/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2141	2/2/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2140	2/2/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1183	1/20/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1182	1/20/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1184	1/20/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	558	1/12/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	557	1/12/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	559	1/12/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	556	1/12/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	48	1/5/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	49	1/5/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	50	1/5/2015	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31509	12/15/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31508	12/15/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	31507	12/15/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30925	12/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30928	12/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30927	12/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30926	12/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30450	12/1/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30451	12/1/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	30449	12/1/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29488	11/17/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29487	11/17/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29486	11/17/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29105	11/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29106	11/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	29107	11/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29108	11/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28562	11/3/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28563	11/3/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28561	11/3/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27674	10/21/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27675	10/21/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27673	10/21/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26922	10/13/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29625	10/13/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26923	10/13/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26924	10/13/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26143	10/6/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26142	10/6/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26144	10/6/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	74299	10/2/2014	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	83698	10/2/2014	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	83697	10/2/2014	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	74298	10/2/2014	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	105	24750	9/19/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24751	9/19/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24749	9/19/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24587	9/18/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24584	9/18/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24586	9/18/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24585	9/18/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24541	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24535	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24538	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24553	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24543	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No

Dist	105	24540	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24542	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24537	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24557	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24551	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24544	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24550	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24552	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24549	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24547	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24539	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24536	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24554	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24546	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24545	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24555	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24556	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	24548	9/17/2014	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	151	23731	9/15/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23730	9/15/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23729	9/15/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22898	9/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22901	9/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22900	9/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22899	9/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22170	9/2/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22169	9/2/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22168	9/2/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20501	8/18/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20500	8/18/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20499	8/18/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
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Dist	151	19655	8/11/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19658	8/11/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19656	8/11/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19657	8/11/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18830	8/4/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18831	8/4/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18832	8/4/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17011	7/15/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17010	7/15/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17012	7/15/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16080	7/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16081	7/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16083	7/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16082	7/8/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15370	7/1/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15368	7/1/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15369	7/1/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14367	6/23/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14366	6/23/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14365	6/23/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13783	6/17/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13781	6/17/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13782	6/17/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12761	6/9/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12762	6/9/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12763	6/9/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12760	6/9/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11742	6/2/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11741	6/2/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11740	6/2/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10075	5/19/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	10076	5/19/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10077	5/19/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9205	5/12/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9206	5/12/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9204	5/12/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8690	5/6/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8693	5/6/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8692	5/6/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8691	5/6/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6910	4/14/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6909	4/14/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6908	4/14/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6351	4/7/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6350	4/7/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6348	4/7/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6349	4/7/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5992	4/1/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5991	4/1/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5990	4/1/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4862	3/17/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4863	3/17/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4861	3/17/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4272	3/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4270	3/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4271	3/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4273	3/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3835	3/3/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3836	3/3/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3837	3/3/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3252	2/24/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3251	2/24/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	3250	2/24/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2861	2/18/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2862	2/18/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2863	2/18/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2260	2/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2262	2/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2263	2/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2261	2/10/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1070	1/21/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1069	1/21/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1071	1/21/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	612	1/13/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	615	1/13/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	613	1/13/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	614	1/13/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	106	1/6/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	107	1/6/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	108	1/6/2014	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29447	12/16/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29446	12/16/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	29445	12/16/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28991	12/9/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28989	12/9/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28990	12/9/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28992	12/9/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28486	12/2/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28487	12/2/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	28488	12/2/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27713	11/18/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27714	11/18/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27715	11/18/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

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Bold emphasis of exceedances added for clarity.

Dist	151	27317	11/12/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27319	11/12/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27318	11/12/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	27316	11/12/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26691	11/4/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26690	11/4/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26689	11/4/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25191	10/14/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25189	10/14/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25819	10/14/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25194	10/14/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25192	10/14/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24557	10/7/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24558	10/7/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24026	10/1/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24025	10/1/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24027	10/1/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22560	9/17/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22558	9/17/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22561	9/17/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22559	9/17/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21438	9/9/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21437	9/9/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21436	9/9/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20788	9/3/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20787	9/3/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20786	9/3/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	82582	8/28/2013	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	72914	8/28/2013	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	72919	8/28/2013	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	82583	8/28/2013	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No

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Bold emphasis of exceedances added for clarity.

Dist	89	72918	8/28/2013	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	72920	8/28/2013	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	72916	8/28/2013	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	82580	8/28/2013	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	82577	8/28/2013	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	82581	8/28/2013	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	82579	8/28/2013	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	72917	8/28/2013	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	82578	8/28/2013	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	72915	8/28/2013	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	19977	8/26/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19975	8/26/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19976	8/26/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19978	8/26/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19296	8/19/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19298	8/19/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19297	8/19/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17859	8/5/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17858	8/5/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17857	8/5/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15874	7/15/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15873	7/15/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15872	7/15/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15871	7/15/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14867	7/8/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14869	7/8/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14868	7/8/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14254	7/1/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14253	7/1/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14252	7/1/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12827	6/17/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	12824	6/17/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12826	6/17/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12825	6/17/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11824	6/10/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11822	6/10/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11823	6/10/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11002	6/3/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11003	6/3/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11001	6/3/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9900	5/20/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9897	5/20/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9899	5/20/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9898	5/20/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9159	5/13/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9158	5/13/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9157	5/13/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8484	5/6/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8482	5/6/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8483	5/6/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6885	4/15/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6886	4/15/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6887	4/15/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6884	4/15/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6251	4/8/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6249	4/8/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6250	4/8/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5858	4/2/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5857	4/2/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5856	4/2/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4784	3/18/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4785	3/18/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	4783	3/18/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4786	3/18/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4172	3/11/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4175	3/11/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4173	3/11/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3640	3/4/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3638	3/4/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3639	3/4/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2874	2/19/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2872	2/19/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2871	2/19/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2873	2/19/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2384	2/11/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2383	2/11/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2382	2/11/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1963	2/4/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1962	2/4/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1961	2/4/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1317	1/22/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1318	1/22/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1316	1/22/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1319	1/22/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	718	1/14/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	717	1/14/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	716	1/14/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	272	1/7/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	270	1/7/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	271	1/7/2013	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26891	12/10/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26889	12/10/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26890	12/10/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	26892	12/10/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26888	12/10/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26361	12/3/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26364	12/3/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26362	12/3/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26363	12/3/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26360	12/3/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25583	11/19/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25582	11/19/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25584	11/19/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25581	11/19/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25115	11/13/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25114	11/13/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25116	11/13/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24632	11/5/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24631	11/5/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24633	11/5/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23252	10/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23250	10/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23253	10/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23251	10/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22528	10/8/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22527	10/8/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22529	10/8/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22035	10/2/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22036	10/2/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22037	10/2/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20514	9/18/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20512	9/18/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20513	9/18/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20511	9/18/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	19335	9/10/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19333	9/10/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19334	9/10/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18700	9/4/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18701	9/4/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18702	9/4/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17212	8/20/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17214	8/20/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17211	8/20/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17213	8/20/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16398	8/13/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16399	8/13/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16400	8/13/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15696	8/6/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15697	8/6/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15695	8/6/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14109	7/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14107	7/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14110	7/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14108	7/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13082	7/9/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13081	7/9/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13083	7/9/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12612	7/2/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12613	7/2/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12611	7/2/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11296	6/18/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11295	6/18/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11293	6/18/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11294	6/18/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10496	6/11/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	10498	6/11/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10497	6/11/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9872	6/4/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9870	6/4/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9871	6/4/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8933	5/21/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8931	5/21/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8932	5/21/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8930	5/21/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8339	5/14/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8338	5/14/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8340	5/14/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7601	5/7/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7603	5/7/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7602	5/7/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6248	4/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6251	4/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6249	4/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6250	4/16/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5714	4/9/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5715	4/9/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5716	4/9/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5270	4/2/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5271	4/2/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5269	4/2/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4470	3/19/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4469	3/19/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4471	3/19/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4468	3/19/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3974	3/12/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3973	3/12/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	3972	3/12/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3530	3/5/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3529	3/5/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3531	3/5/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2855	2/21/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2857	2/21/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2856	2/21/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2854	2/21/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2438	2/13/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2440	2/13/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2439	2/13/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1923	2/6/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1924	2/6/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1922	2/6/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	937	1/17/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	936	1/17/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	934	1/17/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	935	1/17/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	347	1/9/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	346	1/9/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	348	1/9/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	42	1/3/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	44	1/3/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	43	1/3/2012	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26526	12/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26527	12/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26525	12/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	26524	12/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25996	12/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25995	12/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25997	12/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	25730	12/6/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25729	12/6/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25731	12/6/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24963	11/21/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24962	11/21/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24961	11/21/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24470	11/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24469	11/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24468	11/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24471	11/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23860	11/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23859	11/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23858	11/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22212	10/17/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22214	10/17/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22213	10/17/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21579	10/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21578	10/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21581	10/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21580	10/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20863	10/3/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20864	10/3/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20865	10/3/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19504	9/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19503	9/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19505	9/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18468	9/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18465	9/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18467	9/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18466	9/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	18593	9/9/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	105	18594	9/9/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18592	9/9/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18324	9/8/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18325	9/8/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18595	9/8/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18326	9/8/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18323	9/8/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18322	9/8/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18210	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18219	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18214	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18226	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18212	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18208	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18216	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18215	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18222	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18228	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18211	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18218	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18225	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18213	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18217	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18221	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18209	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18227	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18220	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18223	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18224	9/7/2011	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	151	17739	9/6/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17738	9/6/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	17740	9/6/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15695	8/15/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15697	8/15/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15696	8/15/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15694	8/15/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15157	8/8/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15158	8/8/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15159	8/8/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14541	8/1/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14540	8/1/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14539	8/1/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13617	7/19/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13619	7/19/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13616	7/19/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13618	7/19/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12530	7/11/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12531	7/11/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12532	7/11/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12332	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12333	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12331	7/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11994	7/5/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11996	7/5/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	151	11995	7/5/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10875	6/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10876	6/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10874	6/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10873	6/20/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10254	6/13/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10255	6/13/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10256	6/13/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	9612	6/6/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9611	6/6/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9610	6/6/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8111	5/16/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8112	5/16/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8113	5/16/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8110	5/16/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7736	5/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7738	5/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7737	5/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7169	5/2/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7168	5/2/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7167	5/2/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6034	4/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6030	4/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6031	4/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6032	4/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6033	4/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6035	4/12/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5421	4/4/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5423	4/4/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5424	4/4/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5422	4/4/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4219	3/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4216	3/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4217	3/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4218	3/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3785	3/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3787	3/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3786	3/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3384	3/1/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	3383	3/1/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3382	3/1/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3041	2/22/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3040	2/22/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3043	2/22/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3042	2/22/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2564	2/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2565	2/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2566	2/14/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2180	2/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2179	2/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2181	2/7/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1077	1/18/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1076	1/18/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1078	1/18/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	507	1/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	504	1/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	505	1/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	506	1/10/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	204	1/4/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	206	1/4/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	205	1/4/2011	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25928	12/21/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25927	12/21/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25929	12/21/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25369	12/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25372	12/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25371	12/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	25370	12/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24816	12/6/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24817	12/6/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	24818	12/6/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24043	11/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24045	11/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24044	11/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23661	11/15/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23659	11/15/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23658	11/15/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23660	11/15/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22604	11/1/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22606	11/1/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22605	11/1/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21641	10/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21644	10/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21643	10/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21642	10/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21276	10/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21278	10/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21277	10/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20470	10/4/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20471	10/4/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20469	10/4/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19045	9/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19047	9/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19046	9/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19048	9/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18481	9/14/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18479	9/14/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18480	9/14/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17700	9/7/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17701	9/7/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17699	9/7/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
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Dist	151	16045	8/17/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16047	8/17/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16046	8/17/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16048	8/17/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	89837	8/11/2010	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	89835	8/11/2010	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	79668	8/11/2010	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	89833	8/11/2010	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	79669	8/11/2010	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	89829	8/11/2010	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	79673	8/11/2010	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	89828	8/11/2010	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	79670	8/11/2010	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	89832	8/11/2010	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	79672	8/11/2010	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	89834	8/11/2010	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	79671	8/11/2010	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	79765	8/11/2010	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	79674	8/11/2010	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	89836	8/11/2010	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	15384	8/10/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15386	8/10/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15385	8/10/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14783	8/3/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14781	8/3/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14782	8/3/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13656	7/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13658	7/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13659	7/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13022	7/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13024	7/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	13023	7/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12435	7/7/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12434	7/7/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12433	7/7/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10982	6/15/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10984	6/15/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11983	6/15/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10981	6/15/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10303	6/8/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10301	6/8/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10302	6/8/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9764	6/1/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9762	6/1/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9763	6/1/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9031	5/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9030	5/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9032	5/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	99032	5/18/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8486	5/11/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8484	5/11/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8485	5/11/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7977	5/4/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7979	5/4/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7978	5/4/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7075	4/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7074	4/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7073	4/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7076	4/20/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6553	4/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6554	4/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6552	4/13/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	5932	4/6/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5933	4/6/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5934	4/6/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4669	3/16/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4668	3/16/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4667	3/16/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4670	3/16/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4173	3/9/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4172	3/9/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4171	3/9/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3628	3/2/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3627	3/2/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3629	3/2/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3060	2/23/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3062	2/23/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3061	2/23/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3063	2/23/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2308	2/9/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2310	2/9/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2309	2/9/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1861	2/2/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1860	2/2/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1859	2/2/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1461	1/27/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1459	1/27/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1460	1/27/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1458	1/27/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1098	1/19/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	669	1/12/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	671	1/12/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	670	1/12/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	169	1/5/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	172	1/5/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	171	1/5/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	170	1/5/2010	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24216	12/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24213	12/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24215	12/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24214	12/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23714	12/8/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23715	12/8/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23716	12/8/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23292	12/1/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23290	12/1/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23291	12/1/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22597	11/17/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22596	11/17/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22598	11/17/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22599	11/17/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22109	11/10/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22108	11/10/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22107	11/10/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21734	11/4/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21733	11/4/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21735	11/4/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20665	10/19/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20666	10/19/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20664	10/19/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20300	10/13/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20301	10/13/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20299	10/13/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20303	10/13/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	20302	10/13/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19681	10/6/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19682	10/6/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	119	96454	9/29/2009	IOC	INORGANIC CONTAMINANTS	ASB	ASBESTOS	No
Dist	151	17971	9/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17970	9/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17969	9/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17972	9/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17288	9/8/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17287	9/8/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17289	9/8/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16759	9/1/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16758	9/1/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16757	9/1/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15469	8/18/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15468	8/18/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15470	8/18/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15471	8/18/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14853	8/11/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14852	8/11/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14854	8/11/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14256	8/4/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14254	8/4/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14255	8/4/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13714	7/28/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13712	7/28/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13715	7/28/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13713	7/28/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13196	7/21/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13194	7/21/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13195	7/21/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	12020	7/7/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12019	7/7/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12018	7/7/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10453	6/16/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10455	6/16/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10454	6/16/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10456	6/16/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9813	6/9/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9815	6/9/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9814	6/9/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9333	6/2/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9332	6/2/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9331	6/2/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8853	5/26/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8851	5/26/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8852	5/26/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8850	5/26/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7767	5/11/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7768	5/11/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7766	5/11/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7263	5/4/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7261	5/4/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7262	5/4/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6859	4/28/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6858	4/28/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6857	4/28/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6204	4/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6201	4/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6202	4/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6203	4/15/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5452	4/6/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	5450	4/6/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5451	4/6/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4204	3/17/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4207	3/17/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4205	3/17/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4206	3/17/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3707	3/9/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3706	3/9/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3705	3/9/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3234	3/2/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3232	3/2/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3233	3/2/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2499	2/18/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2500	2/18/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2502	2/18/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	250	2/18/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1943	2/9/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1944	2/9/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1942	2/9/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1609	2/3/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1607	2/3/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1608	2/3/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	970	1/21/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	966	1/21/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	967	1/21/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	968	1/21/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	969	1/21/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	425	1/12/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	424	1/12/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3	1/5/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12	1/5/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	14	1/5/2009	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24340	12/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24338	12/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24339	12/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24337	12/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24066	12/10/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24067	12/10/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24068	12/10/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23373	12/1/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23375	12/1/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23374	12/1/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22560	11/17/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22561	11/17/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22563	11/17/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22562	11/15/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22045	11/10/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22044	11/10/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22043	11/10/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21567	11/3/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21568	11/3/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21566	11/3/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20743	10/21/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20745	10/21/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20746	10/21/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20744	10/21/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20128	10/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20126	10/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20127	10/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19426	10/6/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19427	10/6/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19425	10/6/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	105	18044	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18054	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18062	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18048	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18053	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18059	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18055	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18045	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18051	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18063	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18050	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18049	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18056	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18052	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18061	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18057	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18058	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18046	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18060	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	18047	9/17/2008	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	151	17584	9/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17587	9/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17586	9/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17585	9/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16722	9/8/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16721	9/8/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16723	9/8/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16358	9/3/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16356	9/3/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16357	9/3/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14987	8/18/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	14988	8/18/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14991	8/18/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14989	8/18/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14990	8/18/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14203	8/11/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14204	8/11/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14205	8/11/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13733	8/5/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13732	8/5/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13731	8/5/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13354	7/30/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13352	7/30/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13351	7/30/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13353	7/30/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12001	7/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12000	7/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12002	7/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11439	7/7/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11438	7/7/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11437	7/7/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10151	6/18/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9890	6/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9888	6/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9891	6/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9889	6/16/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9300	6/9/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9301	6/9/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9302	6/9/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8784	6/2/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8785	6/2/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8783	6/2/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	7989	5/19/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7990	5/19/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7992	5/19/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7991	5/19/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7559	5/12/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7558	5/12/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7560	5/12/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7093	5/5/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7092	5/5/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7094	5/5/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5964	4/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5963	4/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5965	4/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5524	4/8/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5523	4/8/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5522	4/8/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5101	4/1/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5102	4/1/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5100	4/1/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5099	4/1/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4233	3/18/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4231	3/18/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4232	3/18/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3615	3/10/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3618	3/10/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3616	3/10/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3617	3/10/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3194	3/3/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3193	3/3/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3195	3/3/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2474	2/19/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	2472	2/19/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2473	2/19/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1974	2/11/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1975	2/11/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1976	2/11/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1977	2/11/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1562	2/4/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1564	2/4/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1563	2/4/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1043	1/22/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1045	1/22/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1044	1/22/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	677	1/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	676	1/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	675	1/14/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	283	1/7/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	282	1/7/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	281	1/7/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	280	1/7/2008	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23950	12/18/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23949	12/18/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23343	12/10/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23340	12/10/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23342	12/10/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23341	12/10/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23068	12/5/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23069	12/5/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23070	12/5/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23071	12/5/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22468	11/27/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22470	11/27/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	22467	11/27/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22471	11/27/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22469	11/27/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21645	11/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21649	11/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21648	11/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21647	11/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21646	11/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20568	10/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20569	10/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20571	10/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20567	10/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20121	10/22/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20123	10/22/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20122	10/22/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19197	10/9/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19198	10/9/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19196	10/9/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18233	9/27/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18234	9/27/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18231	9/27/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18232	9/27/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17287	9/18/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17286	9/18/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17285	9/18/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16446	9/11/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16445	9/11/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16447	9/11/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15550	8/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15549	8/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15551	8/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	15552	8/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	75340	8/27/2007	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	86019	8/27/2007	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75342	8/27/2007	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	86020	8/27/2007	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	86018	8/27/2007	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75343	8/27/2007	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	75341	8/27/2007	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	86024	8/27/2007	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	15095	8/23/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	85982	8/23/2007	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	151	15093	8/23/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15094	8/23/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	75299	8/23/2007	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	85979	8/22/2007	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75300	8/22/2007	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	85981	8/22/2007	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75298	8/22/2007	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	85980	8/22/2007	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	75302	8/22/2007	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	14122	8/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14123	8/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14124	8/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13037	7/30/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13038	7/30/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13039	7/30/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11877	7/12/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11876	7/12/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11875	7/12/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11059	7/2/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11057	7/2/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	11060	7/2/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11058	7/2/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10277	6/20/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10289	6/20/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10290	6/20/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10291	6/20/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10278	6/20/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9702	6/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9700	6/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9703	6/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9701	6/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9699	6/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8001	5/17/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8003	5/17/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8000	5/17/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8002	5/17/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7369	5/8/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7371	5/8/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7370	5/8/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7024	5/2/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7026	5/2/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7025	5/2/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6006	4/17/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6004	4/17/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6005	4/17/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6007	4/17/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5613	4/11/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5615	4/11/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5614	4/11/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5191	4/4/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5192	4/4/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	5193	4/4/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4559	3/26/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4558	3/26/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4556	3/26/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4557	3/26/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4426	3/22/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4425	3/22/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4427	3/22/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3741	3/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3742	3/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3740	3/13/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2925	2/26/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2924	2/26/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2926	2/26/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2927	2/26/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2672	2/20/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2671	2/20/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2670	2/20/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2210	2/12/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2211	2/12/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2212	2/12/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1554	1/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1556	1/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1557	1/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1555	1/29/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	498	1/10/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	499	1/10/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	500	1/10/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	205	1/4/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	204	1/4/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	206	1/4/2007	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	23914	12/27/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23911	12/27/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23913	12/27/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23912	12/27/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23166	12/13/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23165	12/13/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23167	12/13/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22541	12/4/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22539	12/4/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22540	12/4/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21919	11/20/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21920	11/20/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21921	11/20/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21922	11/20/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21752	11/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21750	11/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21751	11/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21168	11/8/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21170	11/8/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21169	11/8/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20520	10/30/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20519	10/30/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20518	10/30/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20521	10/30/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19754	10/17/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19753	10/17/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19752	10/17/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19070	10/9/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19069	10/9/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19068	10/9/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17986	9/26/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	17988	9/26/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17984	9/26/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17985	9/26/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17987	9/26/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16506	9/11/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16510	9/11/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16508	9/11/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16509	9/11/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16507	9/11/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14695	8/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14696	8/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14694	8/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14693	8/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14009	8/9/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14011	8/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14010	8/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13447	8/2/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13445	8/2/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13446	8/2/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12589	7/24/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12592	7/24/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12591	7/24/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12590	7/24/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11348	7/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11351	7/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11349	7/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11352	7/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11350	7/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11353	7/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10227	6/19/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10226	6/19/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	10229	6/19/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10228	6/19/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9741	6/12/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9743	6/12/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9742	6/12/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9206	6/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9205	6/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9204	6/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7907	5/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7908	5/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7905	5/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7906	5/16/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7264	5/8/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7265	5/8/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7266	5/8/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6863	5/1/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6861	5/1/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6862	5/1/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6447	4/24/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6448	4/24/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6449	4/24/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5621	4/10/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5619	4/10/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5620	4/10/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5473	4/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5475	4/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5474	4/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4343	3/20/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4345	3/20/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4344	3/20/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3891	3/13/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	3890	3/13/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3889	3/13/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3434	3/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3433	3/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3431	3/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3432	3/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2906	2/23/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2908	2/23/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2907	2/23/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2362	2/13/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2364	2/13/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2363	2/13/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1822	2/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1820	2/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1821	2/6/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1201	1/23/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1202	1/23/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1200	1/23/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1203	1/23/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	393	1/9/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	394	1/9/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	239	1/5/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	240	1/5/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	238	1/5/2006	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24052	12/21/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24050	12/21/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	24051	12/21/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23281	12/12/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23283	12/12/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23282	12/12/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22797	12/6/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	22796	12/6/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22798	12/6/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22023	11/22/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22022	11/22/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22024	11/22/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21475	11/15/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21474	11/15/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21476	11/15/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20857	11/7/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20858	11/7/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20856	11/7/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20083	10/26/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20081	10/26/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20082	10/26/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18818	10/10/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18819	10/10/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18817	10/10/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18360	10/4/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18358	10/4/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18359	10/4/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	17725	9/26/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17740	9/22/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17727	9/22/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17729	9/22/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17739	9/22/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17741	9/22/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17738	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17735	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17732	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17733	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17723	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No

Dist	105	17724	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17736	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17734	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17728	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17737	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17726	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17730	9/21/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17722	9/20/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	105	17731	9/20/2005	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	151	17103	9/19/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17102	9/19/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17101	9/19/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16627	9/13/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16610	9/13/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16609	9/13/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	16608	9/13/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15901	9/6/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15899	9/6/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15900	9/6/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15334	8/29/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14828	8/22/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14829	8/22/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14827	8/22/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13224	8/2/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13222	8/2/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13226	8/2/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13223	8/2/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13225	8/2/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13227	8/2/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12709	7/26/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12707	7/26/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

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Dist	151	12708	7/26/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12154	7/19/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12156	7/19/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12155	7/19/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11505	7/11/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11507	7/11/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11506	7/11/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10160	6/20/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10161	6/20/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10162	6/20/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9682	6/13/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9681	6/13/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9683	6/13/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9228	6/6/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9229	6/6/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9230	6/6/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7963	5/16/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7961	5/16/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7962	5/16/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7461	5/9/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7459	5/9/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7460	5/9/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6978	5/2/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6979	5/2/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6980	5/2/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6230	4/18/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6232	4/18/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6231	4/18/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5845	4/12/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5846	4/12/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5847	4/12/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	5220	4/4/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5219	4/4/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5218	4/4/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4557	3/21/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4555	3/21/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4556	3/21/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4197	3/14/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4198	3/14/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4199	3/14/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3694	3/7/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3693	3/7/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3692	3/7/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3181	2/24/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3179	2/24/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3180	2/24/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2515	2/14/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2517	2/14/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2516	2/14/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2323	2/9/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2140	2/7/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2138	2/7/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2139	2/7/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1335	1/24/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1333	1/24/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1334	1/24/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	620	1/10/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	618	1/10/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	619	1/10/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	347	1/5/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	348	1/4/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	349	1/4/2005	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	22577	12/13/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22576	12/13/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22578	12/13/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22058	12/6/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22059	12/6/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22060	12/6/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21968	12/2/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21970	12/2/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21969	12/2/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21062	11/15/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21063	11/15/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	21064	11/15/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20488	11/8/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20490	11/8/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20489	11/8/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20235	11/3/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20236	11/3/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20234	11/3/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19555	10/25/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19553	10/25/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19554	10/25/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18610	10/12/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18609	10/12/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18608	10/12/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18003	10/4/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18004	10/4/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18002	10/4/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17311	9/27/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17308	9/27/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17310	9/27/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17313	9/27/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	17309	9/27/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17312	9/27/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15821	9/7/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15822	9/7/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	15823	9/7/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	89	71123	8/31/2004	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	83243	8/31/2004	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	71125	8/31/2004	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	83245	8/31/2004	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	83241	8/30/2004	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	71127	8/30/2004	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	71124	8/30/2004	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	71122	8/30/2004	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	71126	8/30/2004	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	83242	8/30/2004	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	83246	8/30/2004	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	83248	8/30/2004	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	71128	8/30/2004	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	89	83244	8/30/2004	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	83247	8/29/2004	DBP	DISINFECTION BY PRODUCTS	HAA5	HALO-ACETIC ACIDS	No
Dist	89	71129	8/29/2004	DBP	DISINFECTION BY PRODUCTS	THM	TOTAL TRIHALOMETHANE	No
Dist	151	14372	8/16/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14374	8/16/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14373	8/16/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13937	8/11/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13939	8/11/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13938	8/11/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13283	8/2/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13282	8/2/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	13281	8/2/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12579	7/26/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	12580	7/26/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12072	7/19/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12070	7/19/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	12071	7/19/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11538	7/12/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11537	7/12/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11536	7/12/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	11539	7/12/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	10595	6/28/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9699	6/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9697	6/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9698	6/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9700	6/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9065	6/7/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	9064	6/7/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8631	6/1/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8632	6/1/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	8630	6/1/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7765	5/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7764	5/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7763	5/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	154	75561	5/12/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7302	5/10/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7303	5/10/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	7304	5/10/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6916	5/3/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6918	5/3/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6917	5/3/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6087	4/20/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6088	4/20/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6085	4/20/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	151	6086	4/20/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6089	4/20/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	6090	4/20/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5726	4/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5728	4/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	5727	4/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4133	3/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4135	3/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	4134	3/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3533	3/9/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3532	3/9/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3534	3/9/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3347	3/4/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3346	3/4/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	3348	3/4/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2410	2/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2408	2/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2412	2/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2413	2/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2411	2/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	2409	2/17/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1910	2/9/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1912	2/9/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1911	2/9/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1021	1/22/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1020	1/22/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	1019	1/22/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	591	1/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	592	1/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	590	1/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	594	1/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	589	1/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	593	1/14/2004	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23391	12/18/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23392	12/18/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	23390	12/18/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22524	12/8/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22527	12/8/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22528	12/8/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22038	12/1/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22040	12/1/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	22039	12/1/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20165	11/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20167	11/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20166	11/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20168	11/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20164	11/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	20169	11/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19422	11/3/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19423	11/3/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	19421	11/3/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18975	10/27/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18976	10/27/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	18977	10/27/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17125	10/7/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17124	10/7/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17129	10/7/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17126	10/7/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17127	10/7/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	17128	10/7/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14883	9/15/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14885	9/15/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	151	14884	9/15/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14181	9/8/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14179	9/8/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14178	9/8/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14176	9/8/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14180	9/8/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	151	14177	9/8/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	12299	8/19/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	12297	8/19/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	12296	8/19/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	11711	8/11/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	11710	8/11/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	11709	8/11/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	10870	8/5/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	10868	8/5/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	10869	8/5/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	8893	7/14/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	8891	7/14/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	8890	7/14/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	8888	7/14/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	8892	7/14/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	8889	7/14/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	8111	7/1/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	8112	7/1/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	105	8114	7/1/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3455	6/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3460	6/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3459	6/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3456	6/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3458	6/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3457	6/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	149	3294	6/2/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3293	6/2/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3295	6/2/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3068	5/19/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3069	5/19/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	3070	5/19/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2953	5/12/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2952	5/12/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2950	5/12/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2777	5/5/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2775	5/5/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2774	5/5/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2520	4/14/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2519	4/14/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2521	4/14/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2392	4/7/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2393	4/7/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2391	4/7/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2270	4/1/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2272	4/1/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2271	4/1/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2087	3/17/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2086	3/17/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2085	3/17/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2027	3/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2025	3/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	2026	3/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1898	3/3/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1899	3/3/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1897	3/3/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1652	2/18/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	149	1651	2/18/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1653	2/18/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1477	2/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1476	2/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1478	2/10/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1379	2/6/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1368	2/6/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1377	2/6/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1053	1/21/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1052	1/21/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	1051	1/21/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	904	1/13/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	905	1/13/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	903	1/13/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	745	1/6/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	746	1/6/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	149	747	1/6/2003	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49648	12/18/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49596	12/16/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49595	12/16/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49597	12/16/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49492	12/9/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49491	12/9/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49490	12/9/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49372	12/2/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49373	12/2/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49369	12/2/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49159	11/18/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49157	11/18/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49158	11/18/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49046	11/12/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	49045	11/12/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	49044	11/12/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48888	11/4/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48889	11/4/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48887	11/4/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48687	10/21/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48688	10/21/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48686	10/21/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48549	10/14/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48551	10/14/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48550	10/14/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48384	10/7/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48385	10/7/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48386	10/7/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48021	9/16/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48022	9/16/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	48020	9/16/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47881	9/9/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47882	9/9/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47886	9/9/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47883	9/9/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47885	9/9/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47884	9/9/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47437	8/19/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47441	8/19/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47438	8/19/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47436	8/19/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47440	8/19/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47439	8/19/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47152	8/5/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	47153	8/5/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	47154	8/5/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46716	7/15/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46717	7/15/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46718	7/15/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46530	7/8/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46531	7/8/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46532	7/8/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46417	7/1/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46415	7/1/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46416	7/1/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46142	6/17/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46140	6/17/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46141	6/17/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46050	6/10/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46053	6/10/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	46049	6/10/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45867	6/3/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45868	6/3/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45869	6/3/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45602	5/20/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45600	5/20/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45601	5/20/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45473	5/13/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45474	5/13/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45475	5/13/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45333	5/6/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45335	5/6/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45334	5/6/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45107	4/22/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45106	4/22/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	45105	4/22/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	44902	4/8/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44904	4/8/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44903	4/8/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44809	4/1/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44811	4/1/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44810	4/1/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44553	3/18/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44552	3/18/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44555	3/18/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44556	3/18/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44554	3/18/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44557	3/18/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44364	3/4/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44362	3/4/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44363	3/4/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44223	2/25/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44222	2/25/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44224	2/25/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44015	2/11/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44013	2/11/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	44014	2/11/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43914	2/4/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43915	2/4/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43913	2/4/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43626	1/14/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43624	1/14/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43625	1/14/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43497	1/7/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43493	1/7/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43494	1/7/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43495	1/7/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	14	43492	1/7/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43496	1/7/2002	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43243	12/17/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43242	12/17/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43244	12/17/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43090	12/11/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43089	12/11/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	43091	12/11/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42913	12/3/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42914	12/3/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42917	12/3/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42753	11/19/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42755	11/19/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42757	11/19/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42754	11/19/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42758	11/19/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42756	11/19/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42479	11/5/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42478	11/5/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42477	11/5/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42090	10/15/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42092	10/15/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	42091	10/15/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41992	10/8/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41990	10/8/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41991	10/8/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41863	10/1/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41864	10/1/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41865	10/1/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41712	9/24/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41710	9/24/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	41711	9/24/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41617	9/17/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41618	9/17/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41619	9/17/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41475	9/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41476	9/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41477	9/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41228	8/27/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41229	8/27/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41226	8/27/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	41227	8/27/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40950	8/14/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40948	8/14/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40954	8/14/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40952	8/14/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40946	8/14/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40625	7/26/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40626	7/26/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40623	7/26/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40624	7/26/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40622	7/26/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40493	7/19/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40428	7/17/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40426	7/17/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40429	7/17/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40427	7/17/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40051	6/28/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40052	6/28/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40053	6/28/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	40054	6/28/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39629	6/7/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	39627	6/7/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39630	6/7/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39628	6/7/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39631	6/7/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39378	5/23/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39377	5/23/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39381	5/23/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39379	5/23/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39182	5/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39185	5/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39184	5/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39186	5/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	39183	5/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38847	4/20/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38849	4/20/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38850	4/20/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38846	4/20/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38848	4/20/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38714	4/12/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38715	4/12/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38713	4/12/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38716	4/12/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38712	4/12/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38370	3/21/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38369	3/21/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38364	3/21/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38365	3/21/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38367	3/21/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38368	3/21/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38148	3/8/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	38149	3/8/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	14	38151	3/8/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37873	2/22/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37872	2/22/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37874	2/22/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37661	2/8/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37663	2/8/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37662	2/8/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37506	2/1/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37507	2/1/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37505	2/1/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37312	1/18/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37313	1/18/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37314	1/18/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37155	1/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37157	1/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37160	1/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37159	1/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37158	1/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	37156	1/10/2001	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36933	12/20/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36934	12/20/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36935	12/20/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36678	12/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36680	12/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36679	12/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36677	12/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36676	12/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36675	12/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36345	11/15/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36344	11/15/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36343	11/15/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	36212	11/9/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36214	11/9/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36215	11/9/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36211	11/9/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36216	11/9/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	36213	11/9/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35831	10/17/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35833	10/17/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35832	10/17/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35745	10/12/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35744	10/12/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35743	10/12/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35628	10/5/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35627	10/5/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35626	10/5/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35328	9/20/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35329	9/20/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35327	9/20/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35330	9/20/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35218	9/13/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35217	9/13/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35219	9/13/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35029	9/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35027	9/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	35028	9/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34875	8/28/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34876	8/28/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34874	8/28/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34845	8/25/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	14	34846	8/25/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34653	8/16/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	34651	8/16/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34652	8/16/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34525	8/8/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34526	8/8/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34524	8/8/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34443	8/3/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34442	8/3/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34444	8/3/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34069	7/17/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34068	7/17/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34070	7/17/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34027	7/13/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34026	7/13/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	34028	7/13/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33965	7/11/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33966	7/11/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33967	7/11/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	14	33894	7/7/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33895	7/7/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33893	7/7/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33843	7/5/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33842	7/5/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	14	33844	7/5/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33702	6/26/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33701	6/26/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33703	6/26/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33558	6/19/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33559	6/19/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33557	6/19/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33317	6/5/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33319	6/5/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	33318	6/5/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	33072	5/22/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32948	5/15/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32947	5/15/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32950	5/15/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32820	5/8/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32821	5/8/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32819	5/8/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32672	5/1/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32671	5/1/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32670	5/1/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	81	69153	4/26/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	69152	4/20/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68970	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68981	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68968	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68980	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68982	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68969	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68977	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68971	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68978	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	69151	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68967	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68974	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68972	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68976	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68973	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68983	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68975	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	68979	4/19/2000	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	32431	4/17/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32432	4/17/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32433	4/17/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32313	4/10/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32314	4/10/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32315	4/10/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32162	4/3/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32163	4/3/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	32161	4/3/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31951	3/20/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31952	3/20/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31953	3/20/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31853	3/13/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31855	3/13/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31854	3/13/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31735	3/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31733	3/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31734	3/6/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31510	2/22/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31509	2/22/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31511	2/22/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31402	2/14/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31398	2/14/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31401	2/14/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31330	2/9/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31332	2/9/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31331	2/9/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31005	1/24/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31003	1/24/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	31004	1/24/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30812	1/10/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	30811	1/10/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30810	1/10/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30696	1/4/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30695	1/4/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30694	1/4/2000	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30498	12/20/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30499	12/20/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30497	12/20/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30496	12/20/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30382	12/13/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30381	12/13/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30383	12/13/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30375	12/13/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	30376	12/13/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29937	11/15/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29935	11/15/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29936	11/15/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29814	11/8/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29815	11/8/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29813	11/8/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29675	11/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29674	11/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29676	11/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29433	10/18/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29434	10/18/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29432	10/18/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29319	10/11/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29318	10/11/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29317	10/11/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29123	10/4/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29124	10/4/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	14	29138	10/4/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29034	9/29/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29035	9/29/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	29036	9/29/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	119	95594	9/21/1999	IOC	INORGANIC CONTAMINANTS	ASB	ASBESTOS	No
Dist	14	28884	9/20/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28883	9/20/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28885	9/20/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28744	9/13/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28745	9/13/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28743	9/13/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28628	9/7/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28629	9/7/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28627	9/7/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28467	8/30/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28255	8/16/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28256	8/16/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28254	8/16/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28146	8/9/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28145	8/9/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	28147	8/9/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27948	8/2/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27949	8/2/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27950	8/2/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27607	7/19/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27609	7/19/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27608	7/19/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27455	7/12/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27485	7/12/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27484	7/12/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27336	7/6/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	27334	7/6/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	27335	7/6/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26968	6/14/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26967	6/14/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26966	6/14/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26839	6/7/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26840	6/7/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26842	6/7/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26700	6/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26701	6/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26702	6/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26439	5/17/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26438	5/17/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26437	5/17/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26331	5/10/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26330	5/10/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26332	5/10/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26154	5/3/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26155	5/3/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	26153	5/3/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25985	4/22/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25982	4/22/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25984	4/22/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25983	4/22/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25928	4/19/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	14	25926	4/19/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25927	4/19/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25798	4/12/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25797	4/12/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25796	4/12/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25696	4/5/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	25695	4/5/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25693	4/5/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25393	3/16/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25392	3/16/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25344	3/15/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25347	3/15/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25345	3/15/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25346	3/15/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25257	3/8/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25256	3/8/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25255	3/8/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	14	25140	3/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25142	3/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	25141	3/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24924	2/17/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24926	2/17/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24925	2/17/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24846	2/11/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24847	2/11/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24848	2/11/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24648	2/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24646	2/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24647	2/1/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24513	1/25/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24514	1/25/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24512	1/25/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24322	1/11/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24320	1/11/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24321	1/11/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24211	1/4/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24210	1/4/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	24212	1/4/1999	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24010	12/21/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24012	12/21/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	24011	12/21/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23790	12/7/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23791	12/7/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23792	12/7/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23676	12/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23674	12/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23675	12/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23440	11/16/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23437	11/16/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23439	11/16/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23340	11/10/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23341	11/10/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23339	11/10/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23174	11/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23176	11/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23175	11/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23056	10/27/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23058	10/27/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	23057	10/27/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22819	10/12/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22818	10/12/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22817	10/12/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22694	10/5/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22693	10/5/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22695	10/5/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22417	9/21/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22418	9/21/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22416	9/21/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	22311	9/14/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22312	9/14/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22310	9/14/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22201	9/8/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22200	9/8/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22199	9/8/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	22141	9/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21871	8/19/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21869	8/19/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21870	8/19/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21762	8/12/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21760	8/12/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21761	8/12/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21759	8/12/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21592	8/5/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21591	8/5/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21590	8/5/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21241	7/20/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21243	7/20/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21240	7/20/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21242	7/20/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21110	7/13/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21111	7/13/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	21109	7/13/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20955	7/6/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20952	7/6/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20950	7/6/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20718	6/22/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20656	6/17/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20659	6/17/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20658	6/17/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	14	20657	6/17/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20660	6/17/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20515	6/8/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20514	6/8/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20516	6/8/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20353	6/1/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20351	6/1/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20352	6/1/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20155	5/20/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20156	5/20/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	20157	5/20/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19985	5/11/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19987	5/11/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19986	5/11/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19879	5/4/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19880	5/4/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19878	5/4/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19614	4/20/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19612	4/20/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19613	4/20/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19560	4/15/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19562	4/15/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19561	4/15/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19406	4/6/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19407	4/6/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19408	4/6/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19172	3/23/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19170	3/23/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	19171	3/23/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18987	3/9/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18988	3/9/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	14	18989	3/9/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18832	3/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18831	3/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18830	3/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18829	3/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18651	2/18/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18650	2/18/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18559	2/11/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18558	2/11/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18556	2/11/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18557	2/11/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18431	2/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18430	2/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18432	2/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18429	2/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18428	2/2/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18261	1/21/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18260	1/21/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18154	1/14/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18105	1/12/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18106	1/12/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18104	1/12/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18006	1/5/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18003	1/5/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18004	1/5/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	18005	1/5/1998	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17762	12/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17761	12/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17759	12/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17760	12/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17699	12/10/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	14	17631	12/8/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17630	12/8/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17628	12/8/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17627	12/8/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17629	12/8/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17450	11/24/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17451	11/24/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17230	11/10/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17229	11/10/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17231	11/10/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17117	11/3/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17118	11/3/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17116	11/3/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17003	10/27/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	17002	10/27/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16897	10/21/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16820	10/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16821	10/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16819	10/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16657	10/6/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16656	10/6/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16658	10/6/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16438	9/22/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16439	9/22/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16286	9/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16284	9/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16285	9/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16189	9/8/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16188	9/8/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	16190	9/8/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15988	8/27/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	14	15989	8/27/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15657	8/11/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15655	8/11/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15656	8/11/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15654	8/11/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15511	8/4/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15510	8/4/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15312	7/23/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15248	7/21/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15247	7/21/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15213	7/16/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	85037	7/14/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	85036	7/14/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	85038	7/14/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15168	7/11/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	14	15169	7/11/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84942	7/7/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84945	7/7/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84944	7/7/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84764	6/16/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84763	6/16/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84696	6/9/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84697	6/9/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84695	6/9/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84616	6/2/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84618	6/2/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84617	6/2/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84534	5/28/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84536	5/28/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84535	5/28/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84537	5/28/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	87	84378	5/12/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84376	5/12/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84375	5/12/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84377	5/12/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84142	4/21/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84145	4/21/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84144	4/21/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84143	4/21/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84079	4/14/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84080	4/14/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84077	4/14/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	84078	4/14/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83932	3/31/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83931	3/31/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83825	3/17/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83828	3/17/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83826	3/17/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83827	3/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83726	3/5/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83724	3/5/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83725	3/5/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83584	2/19/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83585	2/19/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83518	2/10/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83519	2/10/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83520	2/10/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83488	2/5/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83486	2/5/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83487	2/5/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83314	1/22/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83325	1/22/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	87	83277	1/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83276	1/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83278	1/15/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83133	1/6/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83135	1/6/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83134	1/6/1997	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83010	12/16/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	83009	12/16/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82949	12/9/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82950	12/9/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82952	12/9/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82857	12/2/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82858	12/2/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82859	12/2/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82799	11/25/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82738	11/20/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82737	11/20/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82739	11/20/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82628	11/6/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82629	11/6/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82630	11/6/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82378	10/14/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82377	10/14/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82304	10/7/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82306	10/7/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82307	10/7/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82305	10/7/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82247	10/2/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	87	82249	10/2/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82248	10/2/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82081	9/18/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	87	82049	9/16/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	82050	9/16/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	**Yes**
Dist	87	81973	9/9/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81974	9/9/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81975	9/9/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81903	9/4/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81901	9/4/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81902	9/4/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81721	8/21/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81722	8/21/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81612	8/14/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81608	8/14/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81607	8/14/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81609	8/14/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81611	8/14/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81610	8/14/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81256	7/17/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81255	7/17/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	81	38875	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38779	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38790	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38791	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38787	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38788	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38784	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38786	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38778	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38789	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38776	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38785	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38780	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	81	38781	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38783	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38876	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38782	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38777	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	81	38775	7/10/1996	IOC	INORGANIC CONTAMINANTS	LCR	LEAD COPPER	No
Dist	87	81120	7/8/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81119	7/8/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81121	7/8/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81057	7/1/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81056	7/1/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	81058	7/1/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80873	6/17/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80872	6/17/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80787	6/10/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80789	6/10/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80788	6/10/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80706	6/3/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80707	6/3/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80705	6/1/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80569	5/22/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80512	5/20/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80513	5/20/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80418	5/13/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80417	5/13/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80419	5/13/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80329	5/6/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80322	5/6/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80323	5/6/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80208	4/29/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80209	4/29/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No

Dist	87	80084	4/17/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80085	4/17/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	80086	4/17/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79926	4/8/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79927	4/8/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79925	4/8/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79680	3/20/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79681	3/20/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79509	3/11/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79507	3/11/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79508	3/11/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79449	3/6/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79451	3/6/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79450	3/6/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79049	2/21/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	79048	2/21/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78750	2/12/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78752	2/12/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78701	2/7/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78700	2/7/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78699	2/7/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78485	1/17/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78486	1/17/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78392	1/8/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78391	1/8/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78393	1/8/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78394	1/8/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78357	1/3/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78358	1/3/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	87	78356	1/3/1996	MICRO	MICROBIOLOGICAL	COLI_AP	ABSENCE / PRESENCE	No
Dist	81	29918	6/30/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No

Dist	81	29915	6/30/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29916	6/30/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29920	6/30/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29917	6/30/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29919	6/30/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29945	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29950	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29943	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29935	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29937	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29921	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29951	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29947	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29939	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29927	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29946	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29941	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29933	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29948	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29928	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29954	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No

Dist	81	29953	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29925	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29942	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29926	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29930	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29931	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29932	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29923	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29929	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29949	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29940	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29938	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29952	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29936	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29924	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29922	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29944	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	81	29934	6/29/1995	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	53	11710	11/15/1993	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	53	11100	1/26/1993	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	53	10625	6/10/1992	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No

Dist	53	10350	2/3/1992	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	53	10349	2/3/1992	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	53	10351	2/3/1992	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	53	10167	11/5/1991	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	**Yes**
Dist	54	4445	8/5/1991	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
Dist	53	9916	7/24/1991	IOC	INORGANIC CONTAMINANTS	IOC	COMPLETE INORGANIC ANALYSIS	No
Dist	54	3286	3/5/1991	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
Dist	54	3022	1/7/1991	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
Dist	53	9029	7/31/1990	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	101	3082	1/29/1990	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No
Dist	53	8234	9/12/1989	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	53	8015	6/19/1989	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	53	7798	3/14/1989	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	52	18044	1/25/1989	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	52	18048	1/25/1989	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	52	18050	1/25/1989	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	54	488	7/18/1988	VOC	VOLATILE ORGANIC CONTAMINANTS	VOC1	VOLATILE ORGANIC	No
Dist	53	7187	6/27/1988	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	53	6620	10/22/1987	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	53	6306	6/15/1987	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	53	5896	12/10/1986	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	53	5674	8/13/1986	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	53	5512	5/28/1986	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

Dist	53	5288	2/6/1986	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	53	5145	11/26/1985	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	52	10954	11/1/1984	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	53	3638	10/17/1983	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	51	6058	10/11/1982	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
Dist	52	7566	11/16/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	52	7476	11/9/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	52	7478	11/5/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	No
Dist	51	4740	9/1/1981	IOC	INORGANIC CONTAMINANTS	ICHEM	PRE II/V INORGANIC ANALYSIS	**Yes**
Dist	101	115	11/5/1980	RAD	RADIONUCLIDES	RAD	RADIONUCLIDES	No

*Sample data summary extracted from WSDOH Sentry Internet.
Bold emphasis of exceedances added for clarity.

CITY OF GRANDVIEW

24.
COMPUTER PRINTOUT OF HYDRAULIC ANALYSIS RESULTS

HLA
Engineering and Land Surveying, Inc.

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-9	<None>	4	True	1,000.00	3,498.25	1,002.90	3,501.15	20.0	20.0	20.0
J-10	<None>	8	True	1,000.00	3,634.93	1,000.00	3,634.93	20.0	23.0	20.0
J-12	<None>	24	True	1,000.00	3,634.29	1,000.00	3,634.29	20.0	27.3	20.0
J-13	<None>	25	True	1,000.00	3,124.00	1,000.00	3,124.00	20.0	43.7	20.0
J-14	<None>	8	True	1,000.00	2,921.96	1,001.01	2,922.97	20.0	38.8	20.0
J-15	<None>	6	True	1,000.00	2,504.32	1,055.19	2,559.51	20.0	42.7	20.0
J-16	<None>	6	True	1,000.00	2,339.85	1,001.99	2,341.84	20.0	33.2	20.0
J-17	<None>	4	True	1,000.00	1,889.04	1,005.89	1,894.93	20.0	20.0	20.0
J-18	<None>	6	True	1,000.00	1,888.93	1,000.00	1,888.93	20.0	27.5	20.0
J-19	<None>	4	True	1,000.00	1,879.82	1,000.00	1,879.82	20.0	20.0	20.0
J-20	<None>	4	True	1,000.00	4,679.45	1,000.00	4,679.45	20.0	20.0	20.0
J-21	<None>	5	True	1,000.00	6,565.82	1,000.00	6,565.82	20.0	20.0	20.0
J-22	<None>	5	True	1,000.00	8,050.84	1,000.00	8,050.84	20.0	20.0	20.0
J-23	<None>	3	True	1,000.00	10,000.00	1,004.40	10,004.40	20.0	22.3	20.0
J-37	<None>	4	True	1,000.00	5,566.91	685.00	5,251.91	20.0	20.0	20.0
J-43	<None>	6	True	1,000.00	5,588.32	1,000.60	5,588.91	20.0	20.3	20.0
J-46	<None>	26	True	1,000.00	4,009.00	1,000.00	4,009.00	20.0	32.4	20.0
J-47	<None>	10	True	1,000.00	4,168.91	1,000.00	4,168.91	20.0	32.4	20.0
J-48	<None>	2	True	1,000.00	10,000.00	1,000.00	10,000.00	20.0	23.4	20.0
J-49	<None>	9	True	1,000.00	4,283.18	1,000.00	4,283.18	20.0	29.5	20.0
J-50	<None>	8	True	1,000.00	4,413.54	1,001.52	4,415.06	20.0	28.6	20.0
J-51	<None>	6	True	1,000.00	4,550.83	1,000.00	4,550.83	20.0	27.4	20.0
J-52	<None>	6	True	1,000.00	4,732.31	1,000.00	4,732.31	20.0	24.3	20.0
J-53	<None>	6	True	1,000.00	4,970.80	1,001.70	4,972.50	20.0	20.7	20.0
J-54	<None>	8	True	1,000.00	5,201.00	1,001.13	5,202.13	20.0	20.9	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-55	<None>	6	True	1,000.00	5,187.21	1,002.33	5,189.55	20.0	20.7	20.0
J-56	<None>	4	True	1,000.00	4,047.91	1,002.08	4,049.98	20.0	20.0	20.0
J-57	<None>	5	True	1,000.00	6,058.54	1,007.35	6,065.89	20.0	20.0	20.0
J-58	<None>	4	True	1,000.00	5,117.59	1,001.70	5,119.29	20.0	20.0	20.0
J-59	<None>	4	True	1,000.00	4,882.20	1,001.89	4,884.09	20.0	20.0	20.0
J-60	<None>	9	True	1,000.00	8,229.27	1,000.38	8,229.65	20.0	26.0	20.0
J-61	<None>	6	True	1,000.00	4,141.63	1,002.83	4,144.46	20.0	25.0	20.0
J-62	<None>	5	True	1,000.00	2,125.43	1,000.00	2,125.43	20.0	21.8	20.0
J-63	<None>	5	True	1,000.00	1,654.27	1,000.00	1,654.27	20.0	21.4	20.0
J-64	<None>	3	True	1,000.00	1,460.02	1,003.02	1,463.05	20.0	20.0	20.0
J-66	<None>	5	True	1,000.00	7,343.61	1,000.19	7,343.80	20.0	20.0	20.0
J-69	<None>	4	True	1,000.00	4,088.80	1,000.00	4,088.80	20.0	20.0	20.0
J-70	<None>	6	True	1,000.00	3,578.54	1,000.00	3,578.54	20.0	20.2	20.0
J-71	<None>	6	True	1,000.00	3,215.19	1,002.83	3,218.02	20.0	21.5	20.0
J-72	<None>	4	True	1,000.00	3,097.22	1,001.13	3,098.36	20.0	20.0	20.0
J-73	<None>	6	True	1,000.00	2,795.87	1,000.00	2,795.87	20.0	23.6	20.0
J-74	<None>	19	False	1,000.00	652.03	1,004.27	656.30	20.0	20.8	20.0
J-75	<None>	4	True	1,000.00	4,182.96	1,000.00	4,182.96	20.0	20.0	20.0
J-76	<None>	6	True	1,000.00	4,844.15	1,000.00	4,844.15	20.0	20.7	20.0
J-77	<None>	6	True	1,000.00	4,969.96	1,002.02	4,971.98	20.0	21.6	20.0
J-78	<None>	6	True	1,000.00	4,148.29	1,001.01	4,149.30	20.0	21.3	20.0
J-79	<None>	6	True	1,000.00	3,961.45	1,002.20	3,963.65	20.0	21.4	20.0
J-80	<None>	6	True	1,000.00	3,807.91	1,000.00	3,807.91	20.0	21.3	20.0
J-81	<None>	4	True	1,000.00	3,685.82	1,000.00	3,685.82	20.0	20.0	20.0
J-82	<None>	4	True	1,000.00	3,406.82	1,001.52	3,408.34	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-83	<None>	4	True	1,000.00	3,196.39	1,001.52	3,197.90	20.0	20.0	20.0
J-84	<None>	6	True	1,000.00	5,150.32	1,000.00	5,150.32	20.0	23.0	20.0
J-85	<None>	6	True	1,000.00	5,264.09	1,000.00	5,264.09	20.0	23.0	20.0
J-87	<None>	6	True	1,000.00	3,095.84	1,001.13	3,096.97	20.0	20.5	20.0
J-88	<None>	4	True	1,000.00	2,275.83	1,001.51	2,277.34	20.0	20.0	20.0
J-89	<None>	4	True	1,000.00	2,304.08	1,001.70	2,305.78	20.0	20.0	20.0
J-90	<None>	4	True	1,000.00	2,609.80	1,002.27	2,612.07	20.0	20.0	20.0
J-91	<None>	6	True	1,000.00	3,117.01	1,001.13	3,118.15	20.0	20.2	20.0
J-92	<None>	4	True	1,000.00	3,131.48	1,001.13	3,132.61	20.0	20.0	20.0
J-93	<None>	4	True	1,000.00	3,330.72	1,001.13	3,331.86	20.0	20.0	20.0
J-94	<None>	6	True	1,000.00	2,763.22	1,001.89	2,765.11	20.0	20.6	20.0
J-95	<None>	5	True	1,000.00	1,988.94	1,000.00	1,988.94	20.0	20.4	20.0
J-96	<None>	3	True	1,000.00	1,597.24	1,000.00	1,597.24	20.0	20.0	20.0
J-97	<None>	4	True	1,000.00	4,315.10	1,008.11	4,323.22	20.0	20.0	20.0
J-98	<None>	4	True	1,000.00	2,119.51	1,000.00	2,119.51	20.0	20.0	20.0
J-99	<None>	4	True	1,000.00	1,980.30	1,001.01	1,981.32	20.0	20.0	20.0
J-100	<None>	4	True	1,000.00	2,182.69	1,001.39	2,184.08	20.0	20.0	20.0
J-101	<None>	4	True	1,000.00	2,333.30	1,002.46	2,335.75	20.0	20.0	20.0
J-102	<None>	6	True	1,000.00	2,455.90	1,002.27	2,458.16	20.0	20.4	20.0
J-103	<None>	18	False	1,000.00	980.61	1,002.20	982.81	20.0	20.0	20.0
J-104	<None>	3	True	1,000.00	1,667.46	1,000.00	1,667.46	20.0	20.0	20.0
J-105	<None>	3	True	1,000.00	1,556.07	1,001.70	1,557.77	20.0	20.0	20.0
J-106	<None>	4	True	1,000.00	4,255.88	1,003.91	4,259.79	20.0	20.0	20.0
J-107	<None>	6	True	1,000.00	5,518.39	1,002.20	5,520.59	20.0	21.3	20.0
J-108	<None>	4	True	1,000.00	5,697.47	1,002.83	5,700.30	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-109	<None>	23	True	1,000.00	5,459.48	1,002.58	5,462.06	20.0	20.0	20.0
J-110	<None>	4	True	1,000.00	5,248.00	1,000.00	5,248.00	20.0	20.0	20.0
J-111	<None>	4	True	1,000.00	5,252.21	1,000.00	5,252.21	20.0	20.0	20.0
J-112	<None>	4	True	1,000.00	3,523.27	1,001.70	3,524.97	20.0	20.0	20.0
J-113	<None>	5	True	1,000.00	5,423.06	1,001.13	5,424.19	20.0	20.0	20.0
J-114	<None>	3	True	1,000.00	1,145.67	958.00	1,103.67	20.0	20.0	20.0
J-116	<None>	4	True	1,000.00	1,830.20	1,000.00	1,830.20	20.0	20.0	20.0
J-117	<None>	4	True	1,000.00	4,271.83	1,003.21	4,275.04	20.0	20.0	20.0
J-118	<None>	4	True	1,000.00	3,916.61	1,001.70	3,918.31	20.0	20.0	20.0
J-122	<None>	3	True	1,000.00	1,702.20	1,000.00	1,702.20	20.0	20.0	20.0
J-123	<None>	4	True	1,000.00	3,372.88	1,003.49	3,376.37	20.0	20.0	20.0
J-124	<None>	4	True	1,000.00	3,956.90	1,000.00	3,956.90	20.0	20.0	20.0
J-125	<None>	4	True	1,000.00	3,169.31	1,000.00	3,169.31	20.0	20.0	20.0
J-126	<None>	4	True	1,000.00	5,423.78	1,001.89	5,425.67	20.0	20.0	20.0
J-127	<None>	4	True	1,000.00	5,491.70	1,002.27	5,493.96	20.0	20.0	20.0
J-128	<None>	4	True	1,000.00	4,159.58	1,002.53	4,162.11	20.0	20.0	20.0
J-129	<None>	4	True	1,000.00	2,494.69	1,007.79	2,502.48	20.0	20.0	20.0
J-130	<None>	4	True	1,000.00	5,367.19	1,002.83	5,370.02	20.0	20.0	20.0
J-131	<None>	6	True	1,000.00	3,883.28	1,001.51	3,884.79	20.0	22.2	20.0
J-132	<None>	2	True	1,000.00	1,020.55	1,001.70	1,022.25	20.0	20.0	20.0
J-133	<None>	4	True	1,000.00	5,558.51	1,006.70	5,565.20	20.0	20.0	20.0
J-134	<None>	6	True	1,000.00	3,394.27	1,001.51	3,395.78	20.0	20.6	20.0
J-135	<None>	4	True	1,000.00	3,285.41	1,000.00	3,285.41	20.0	20.0	20.0
J-136	<None>	4	True	1,000.00	2,483.87	1,001.32	2,485.19	20.0	20.0	20.0
J-137	<None>	7	True	1,000.00	7,119.66	1,002.46	7,122.11	20.0	21.5	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-138	<None>	8	True	1,000.00	6,647.80	1,000.94	6,648.75	20.0	23.9	20.0
J-139	<None>	5	True	1,000.00	6,233.26	1,108.78	6,342.04	20.0	20.0	20.0
J-140	<None>	5	True	1,000.00	5,823.93	1,001.89	5,825.82	20.0	20.0	20.0
J-141	<None>	4	True	1,000.00	3,972.88	1,006.33	3,979.21	20.0	20.0	20.0
J-142	<None>	7	True	1,000.00	8,192.86	1,000.00	8,192.86	20.0	22.5	20.0
J-143	<None>	8	True	1,000.00	8,222.61	1,000.19	8,222.80	20.0	22.6	20.0
J-144	<None>	3	False	1,000.00	855.71	1,001.13	856.85	20.0	20.0	20.0
J-148	<None>	5	True	1,000.00	1,691.52	1,001.32	1,692.85	20.0	22.6	20.0
J-149	<None>	4	True	1,000.00	2,524.80	1,000.00	2,524.80	20.0	20.0	20.0
J-150	<None>	4	True	1,000.00	5,060.38	1,002.65	5,063.03	20.0	20.0	20.0
J-151	<None>	4	True	1,000.00	4,320.42	1,001.70	4,322.12	20.0	20.0	20.0
J-152	<None>	3	True	1,000.00	1,808.48	1,001.89	1,810.37	20.0	20.0	20.0
J-154	<None>	9	True	1,000.00	4,222.62	1,000.00	4,222.62	20.0	31.2	20.0
J-156	<None>	8	True	1,000.00	4,362.28	1,000.00	4,362.28	20.0	27.2	20.0
J-157	<None>	8	True	1,000.00	4,302.97	1,054.96	4,357.93	20.0	29.3	20.0
J-158	<None>	4	True	1,000.00	4,259.47	1,000.00	4,259.47	20.0	20.0	20.0
J-159	<None>	4	True	1,000.00	4,195.31	1,109.54	4,304.85	20.0	20.0	20.0
J-160	<None>	4	True	1,000.00	4,333.15	1,000.94	4,334.09	20.0	20.0	20.0
J-161	<None>	7	True	1,000.00	7,244.17	1,001.01	7,245.18	20.0	24.0	20.0
J-162	<None>	7	True	1,000.00	7,311.62	1,001.52	7,313.14	20.0	24.1	20.0
J-163	<None>	7	True	1,000.00	7,394.62	1,000.00	7,394.62	20.0	24.0	20.0
J-164	<None>	9	True	1,000.00	7,477.66	1,000.00	7,477.66	20.0	24.2	20.0
J-165	<None>	7	True	1,000.00	7,628.65	1,000.00	7,628.65	20.0	23.1	20.0
J-166	<None>	7	True	1,000.00	7,708.11	1,000.57	7,708.68	20.0	22.8	20.0
J-167	<None>	7	True	1,000.00	7,838.93	1,000.00	7,838.93	20.0	22.4	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-168	<None>	25	True	1,000.00	8,033.38	1,000.88	8,034.26	20.0	22.2	20.0
J-169	<None>	4	True	1,000.00	2,341.52	1,005.98	2,347.50	20.0	20.0	20.0
J-172	<None>	4	True	1,000.00	5,854.55	1,000.94	5,855.50	20.0	20.0	20.0
J-173	<None>	4	True	1,000.00	3,203.24	1,001.32	3,204.56	20.0	20.0	20.0
J-174	<None>	4	True	1,000.00	2,801.83	1,002.83	2,804.66	20.0	20.0	20.0
J-175	<None>	3	True	1,000.00	2,102.95	1,001.13	2,104.09	20.0	20.0	20.0
J-176	<None>	4	True	1,000.00	6,067.00	1,001.52	6,068.52	20.0	20.0	20.0
J-177	<None>	5	True	1,000.00	6,272.96	1,000.00	6,272.96	20.0	20.0	20.0
J-178	<None>	4	True	1,000.00	6,444.48	1,057.43	6,501.91	20.0	20.0	20.0
J-179	<None>	4	True	1,000.00	5,242.90	1,002.59	5,245.49	20.0	20.0	20.0
J-180	<None>	4	True	1,000.00	2,987.81	1,002.65	2,990.45	20.0	20.0	20.0
J-181	<None>	4	True	1,000.00	2,664.62	1,001.70	2,666.32	20.0	20.0	20.0
J-184	<None>	4	True	1,000.00	5,038.17	1,000.00	5,038.17	20.0	20.0	20.0
J-185	<None>	3	True	1,000.00	1,199.87	1,000.00	1,199.87	20.0	20.0	20.0
J-186	<None>	3	True	1,000.00	1,308.66	1,000.00	1,308.66	20.0	20.0	20.0
J-187	<None>	4	True	1,000.00	6,315.66	1,000.00	6,315.66	20.0	20.0	20.0
J-188	<None>	4	True	1,000.00	6,551.51	1,002.20	6,553.71	20.0	20.0	20.0
J-189	<None>	4	True	1,000.00	6,529.72	1,002.20	6,531.92	20.0	20.0	20.0
J-190	<None>	4	True	1,000.00	5,697.94	1,000.00	5,697.94	20.0	20.0	20.0
J-191	<None>	4	True	1,000.00	3,345.74	1,000.00	3,345.74	20.0	20.0	20.0
J-192	<None>	7	True	1,000.00	6,352.26	1,000.00	6,352.26	20.0	21.1	20.0
J-193	<None>	4	True	1,000.00	5,290.37	1,001.52	5,291.88	20.0	20.0	20.0
J-194	<None>	4	True	1,000.00	4,867.66	1,002.20	4,869.86	20.0	20.0	20.0
J-202	<None>	5	True	1,000.00	8,003.24	1,000.00	8,003.24	20.0	20.0	20.0
J-203	<None>	3	True	1,000.00	1,529.06	865.00	1,394.06	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-204	<None>	5	True	1,000.00	7,998.82	1,002.20	8,001.02	20.0	20.0	20.0
J-205	<None>	4	True	1,000.00	2,748.29	1,000.00	2,748.29	20.0	20.0	20.0
J-206	<None>	3	True	1,000.00	1,160.08	1,054.39	1,214.47	20.0	20.0	20.0
J-207	<None>	5	True	1,000.00	7,564.54	1,000.00	7,564.54	20.0	20.0	20.0
J-208	<None>	4	True	1,000.00	5,039.73	1,002.20	5,041.93	20.0	20.0	20.0
J-209	<None>	4	True	1,000.00	4,428.50	1,000.00	4,428.50	20.0	20.0	20.0
J-211	<None>	4	True	1,000.00	2,060.77	1,003.30	2,064.07	20.0	20.0	20.0
J-212	<None>	5	True	1,000.00	6,347.92	1,009.69	6,357.61	20.0	20.0	20.0
J-213	<None>	5	True	1,000.00	7,369.08	1,005.06	7,374.13	20.0	20.0	20.0
J-214	<None>	5	True	1,000.00	7,259.76	1,000.00	7,259.76	20.0	20.0	20.0
J-215	<None>	5	True	1,000.00	7,173.85	1,004.05	7,177.89	20.0	20.0	20.0
J-216	<None>	5	True	1,000.00	7,670.36	1,002.53	7,672.89	20.0	20.0	20.0
J-217	<None>	21	True	1,000.00	3,776.79	0.00	2,776.79	20.0	20.0	20.0
J-218	<None>	4	True	1,000.00	5,322.52	1,108.78	5,431.30	20.0	20.0	20.0
J-219	<None>	4	True	1,000.00	4,885.44	1,054.39	4,939.84	20.0	20.0	20.0
J-220	<None>	8	True	1,000.00	7,661.78	1,000.38	7,662.16	20.0	27.9	20.0
J-221	<None>	7	True	1,000.00	7,740.89	1,054.39	7,795.29	20.0	21.6	20.0
J-222	<None>	7	True	1,000.00	7,792.24	1,058.62	7,850.86	20.0	23.1	20.0
J-223	<None>	5	True	1,000.00	7,033.30	1,057.86	7,091.17	20.0	20.0	20.0
J-224	<None>	5	True	1,000.00	7,308.78	1,006.75	7,315.53	20.0	20.0	20.0
J-225	<None>	5	True	1,000.00	7,404.06	1,005.06	7,409.12	20.0	20.0	20.0
J-226	<None>	5	True	1,000.00	7,355.63	1,005.56	7,361.19	20.0	20.0	20.0
J-227	<None>	5	True	1,000.00	7,402.73	1,005.02	7,407.75	20.0	20.0	20.0
J-228	<None>	7	True	1,000.00	7,668.58	1,000.00	7,668.58	20.0	21.1	20.0
J-229	<None>	5	True	1,000.00	6,020.52	732.00	5,752.52	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-230	<None>	7	True	1,000.00	7,548.79	1,000.00	7,548.79	20.0	22.5	20.0
J-231	<None>	3	True	1,000.00	1,764.76	1,008.94	1,773.70	20.0	20.0	20.0
J-232	<None>	3	True	1,000.00	1,932.51	1,001.70	1,934.21	20.0	20.0	20.0
J-233	<None>	7	True	1,000.00	6,338.97	1,054.39	6,393.36	20.0	23.6	20.0
J-234	<None>	8	True	1,000.00	5,809.60	1,108.78	5,918.38	20.0	28.0	20.0
J-235	<None>	6	True	1,000.00	4,612.53	1,054.96	4,667.49	20.0	23.0	20.0
J-236	<None>	8	True	1,000.00	5,629.86	1,001.89	5,631.75	20.0	28.2	20.0
J-237	<None>	8	True	1,000.00	5,000.74	1,108.78	5,109.52	20.0	31.4	20.0
J-238	<None>	8	True	1,000.00	4,752.90	1,108.78	4,861.68	20.0	33.3	20.0
J-239	<None>	8	True	1,000.00	4,459.63	1,002.27	4,461.90	20.0	36.2	20.0
J-240	<None>	4	True	1,000.00	2,188.70	1,004.16	2,192.85	20.0	20.0	20.0
J-241	<None>	7	True	1,000.00	5,915.17	1,000.00	5,915.17	20.0	22.5	20.0
J-242	<None>	4	True	1,000.00	3,145.86	1,003.70	3,149.56	20.0	20.0	20.0
J-243	<None>	4	True	1,000.00	2,196.12	1,004.06	2,200.18	20.0	20.0	20.0
J-244	<None>	6	True	1,000.00	2,321.05	1,002.46	2,323.50	20.0	23.3	20.0
J-245	<None>	6	True	1,000.00	2,043.76	1,002.27	2,046.03	20.0	22.0	20.0
J-246	<None>	6	True	1,000.00	1,967.49	1,003.70	1,971.18	20.0	22.8	20.0
J-247	<None>	6	True	1,000.00	1,919.94	1,003.02	1,922.96	20.0	22.2	20.0
J-248	<None>	4	True	1,000.00	1,805.62	1,003.02	1,808.65	20.0	20.0	20.0
J-249	<None>	6	True	1,000.00	1,931.62	1,002.65	1,934.27	20.0	20.3	20.0
J-250	<None>	4	True	1,000.00	1,931.65	1,000.00	1,931.65	20.0	20.0	20.0
J-252	<None>	4	True	1,000.00	1,962.85	1,000.00	1,962.85	20.0	20.0	20.0
J-253	<None>	22	True	1,000.00	1,988.79	1,000.00	1,988.79	20.0	20.1	20.0
J-254	<None>	6	True	1,000.00	1,969.34	1,001.13	1,970.48	20.0	21.4	20.0
J-255	<None>	4	True	1,000.00	1,842.55	1,000.00	1,842.55	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-256	<None>	3	True	1,000.00	1,553.37	1,000.76	1,554.12	20.0	20.0	20.0
J-259	<None>	4	True	1,000.00	2,035.29	1,000.94	2,036.23	20.0	20.0	20.0
J-260	<None>	6	True	1,000.00	2,084.11	1,001.13	2,085.24	20.0	21.2	20.0
J-261	<None>	6	True	1,000.00	2,060.12	1,000.76	2,060.88	20.0	20.7	20.0
J-263	<None>	7	True	1,000.00	6,616.92	1,272.53	6,889.45	20.0	26.3	20.0
J-264	<None>	5	True	1,000.00	5,973.14	1,054.77	6,027.91	20.0	20.0	20.0
J-265	<None>	4	True	1,000.00	5,232.72	1,001.32	5,234.04	20.0	20.0	20.0
J-266	<None>	6	True	1,000.00	4,976.03	1,000.00	4,976.03	20.0	21.9	20.0
J-267	<None>	8	True	1,000.00	4,454.88	1,000.00	4,454.88	20.0	30.5	20.0
J-268	<None>	8	True	1,000.00	4,248.89	1,001.13	4,250.02	20.0	37.0	20.0
J-269	<None>	8	True	1,000.00	4,325.32	1,001.89	4,327.21	20.0	37.6	20.0
J-270	<None>	3	True	1,000.00	1,730.71	1,002.27	1,732.97	20.0	20.0	20.0
J-271	<None>	6	True	1,000.00	2,435.76	1,002.08	2,437.84	20.0	27.0	20.0
J-272	<None>	4	True	1,000.00	4,860.68	1,003.66	4,864.34	20.0	20.0	20.0
J-273	<None>	4	True	1,000.00	3,206.93	1,006.58	3,213.50	20.0	20.0	20.0
J-274	<None>	4	True	1,000.00	4,232.76	1,005.03	4,237.79	20.0	20.0	20.0
J-275	<None>	4	True	1,000.00	3,142.44	1,001.13	3,143.58	20.0	20.0	20.0
J-276	<None>	4	True	1,000.00	4,750.22	1,000.00	4,750.22	20.0	20.0	20.0
J-277	<None>	8	True	1,000.00	8,072.83	1,001.32	8,074.16	20.0	27.5	20.0
J-278	<None>	8	True	1,000.00	7,875.95	1,001.32	7,877.27	20.0	27.9	20.0
J-279	<None>	8	True	1,000.00	8,158.53	1,000.94	8,159.48	20.0	26.4	20.0
J-280	<None>	4	True	1,000.00	5,098.93	1,000.00	5,098.93	20.0	20.0	20.0
J-281	<None>	8	True	1,000.00	8,011.49	1,000.00	8,011.49	20.0	29.4	20.0
J-282	<None>	7	True	1,000.00	7,950.28	1,001.51	7,951.79	20.0	30.2	20.0
J-283	<None>	8	True	1,000.00	7,921.80	1,001.51	7,923.31	20.0	29.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-284	<None>	4	True	1,000.00	2,272.34	1,001.51	2,273.85	20.0	20.0	20.0
J-285	<None>	8	True	1,000.00	7,904.90	1,001.51	7,906.41	20.0	26.7	20.0
J-286	<None>	4	True	1,000.00	4,429.81	1,001.51	4,431.32	20.0	20.0	20.0
J-287	<None>	8	True	1,000.00	7,898.04	1,003.02	7,901.06	20.0	25.8	20.0
J-288	<None>	4	True	1,000.00	2,824.16	1,001.70	2,825.86	20.0	20.0	20.0
J-289	<None>	4	True	1,000.00	3,109.98	1,001.13	3,111.11	20.0	20.0	20.0
J-290	<None>	4	True	1,000.00	4,105.58	1,002.33	4,107.92	20.0	20.0	20.0
J-291	<None>	4	True	1,000.00	3,344.11	1,000.00	3,344.11	20.0	20.0	20.0
J-292	<None>	4	True	1,000.00	6,937.17	1,001.77	6,938.94	20.0	20.0	20.0
J-293	<None>	4	True	1,000.00	5,451.87	1,000.94	5,452.82	20.0	20.0	20.0
J-294	<None>	4	True	1,000.00	6,693.90	1,003.09	6,696.99	20.0	20.0	20.0
J-295	<None>	7	True	1,000.00	8,202.80	1,008.59	8,211.39	20.0	21.6	20.0
J-296	<None>	4	True	1,000.00	4,374.80	1,001.13	4,375.93	20.0	20.0	20.0
J-297	<None>	4	True	1,000.00	3,330.28	1,003.59	3,333.87	20.0	20.0	20.0
J-298	<None>	3	True	1,000.00	1,694.90	1,058.28	1,753.18	20.0	20.0	20.0
J-299	<None>	3	True	1,000.00	1,553.37	1,002.46	1,555.83	20.0	20.0	20.0
J-300	<None>	3	True	1,000.00	1,463.70	1,005.48	1,469.18	20.0	20.0	20.0
J-301	<None>	3	True	1,000.00	1,496.29	1,000.00	1,496.29	20.0	20.0	20.0
J-302	<None>	3	True	1,000.00	1,422.52	1,000.00	1,422.52	20.0	20.0	20.0
J-303	<None>	3	True	1,000.00	1,216.25	1,005.48	1,221.73	20.0	20.0	20.0
J-304	<None>	3	False	1,000.00	888.89	1,005.97	894.86	20.0	20.0	20.0
J-305	<None>	3	True	1,000.00	1,565.30	1,000.00	1,565.30	20.0	20.0	20.0
J-306	<None>	5	True	1,000.00	1,364.23	1,000.00	1,364.23	20.0	24.5	20.0
J-307	<None>	3	False	1,000.00	954.14	1,005.00	959.14	20.0	20.0	20.0
J-308	<None>	5	True	1,000.00	1,420.12	1,004.62	1,424.74	20.0	25.4	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-309	<None>	18	False	1,000.00	990.12	1,005.01	995.13	20.0	20.0	20.0
J-310	<None>	20	True	1,000.00	1,154.27	1,001.70	1,155.97	20.0	20.2	20.0
J-311	<None>	3	False	1,000.00	845.98	1,001.89	847.87	20.0	20.0	20.0
J-312	<None>	5	True	1,000.00	1,670.73	1,004.25	1,674.97	20.0	23.8	20.0
J-313	<None>	3	True	1,000.00	1,489.15	1,002.08	1,491.22	20.0	20.0	20.0
J-314	<None>	3	True	1,000.00	1,469.93	1,001.13	1,471.06	20.0	20.0	20.0
J-315	<None>	3	True	1,000.00	1,262.51	1,000.94	1,263.46	20.0	20.0	20.0
J-316	<None>	5	True	1,000.00	1,634.98	1,001.51	1,636.49	20.0	28.3	20.0
J-317	<None>	20	True	1,000.00	1,675.60	1,002.08	1,677.68	20.0	20.5	20.0
J-318	<None>	3	True	1,000.00	1,627.01	1,002.46	1,629.47	20.0	20.0	20.0
J-319	<None>	5	True	1,000.00	1,546.25	1,001.32	1,547.57	20.0	30.6	20.0
J-320	<None>	5	True	1,000.00	1,292.72	1,001.89	1,294.61	20.0	37.1	20.0
J-321	<None>	6	True	1,000.00	1,306.97	1,000.94	1,307.92	20.0	47.4	20.0
J-322	<None>	6	True	1,000.00	1,262.23	1,001.51	1,263.74	20.0	48.8	20.0
J-323	<None>	6	True	1,000.00	1,250.91	1,002.83	1,253.75	20.0	48.8	20.0
J-324	<None>	6	True	1,000.00	1,239.70	1,001.13	1,240.83	20.0	45.1	20.0
J-325	<None>	6	True	1,000.00	1,231.69	1,000.00	1,231.69	20.0	39.1	20.0
J-326	<None>	5	True	1,000.00	1,227.40	1,000.76	1,228.16	20.0	36.1	20.0
J-327	<None>	5	True	1,000.00	1,172.61	1,000.94	1,173.56	20.0	23.2	20.0
J-328	<None>	5	True	1,000.00	1,121.87	1,000.57	1,122.44	20.0	20.7	20.0
J-329	<None>	3	False	1,000.00	942.84	1,002.08	944.92	20.0	20.0	20.0
J-330	<None>	3	True	1,000.00	1,093.06	1,000.00	1,093.06	20.0	20.0	20.0
J-331	<None>	5	False	1,000.00	846.20	1,001.32	847.52	20.0	23.1	20.0
J-332	<None>	3	False	1,000.00	719.47	1,002.39	721.86	20.0	20.0	20.0
J-336	<None>	6	True	1,000.00	1,302.13	1,000.00	1,302.13	20.0	51.4	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-337	<None>	5	True	1,000.00	1,319.39	1,000.00	1,319.39	20.0	52.5	20.0
J-339	<None>	5	True	1,000.00	1,319.46	1,000.00	1,319.46	20.0	48.7	20.0
J-340	<None>	6	True	1,000.00	1,314.23	1,000.00	1,314.23	20.0	52.3	20.0
J-341	<None>	6	True	1,000.00	1,334.05	1,000.00	1,334.05	20.0	52.5	20.0
J-342	<None>	6	True	1,000.00	1,347.62	1,002.27	1,349.88	20.0	49.2	20.0
J-343	<None>	5	True	1,000.00	1,347.80	1,000.00	1,347.80	20.0	38.6	20.0
J-344	<None>	6	True	1,000.00	1,357.41	1,000.00	1,357.41	20.0	46.9	20.0
J-345	<None>	6	True	1,000.00	1,376.62	1,002.65	1,379.26	20.0	44.0	20.0
J-346	<None>	5	True	1,000.00	1,376.76	1,000.00	1,376.76	20.0	36.2	20.0
J-347	<None>	6	True	1,000.00	1,407.44	1,001.89	1,409.32	20.0	40.7	20.0
J-348	<None>	5	True	1,000.00	1,398.56	1,003.02	1,401.59	20.0	33.0	20.0
J-349	<None>	5	True	1,000.00	1,452.33	1,002.27	1,454.60	20.0	29.8	20.0
J-350	<None>	5	True	1,000.00	1,452.38	1,001.32	1,453.70	20.0	24.4	20.0
J-351	<None>	5	True	1,000.00	1,483.71	1,000.00	1,483.71	20.0	38.2	20.0
J-353	<None>	4	True	1,000.00	2,602.33	1,003.78	2,606.10	20.0	20.0	20.0
J-354	<None>	4	True	1,000.00	2,423.31	1,002.08	2,425.39	20.0	20.0	20.0
J-355	<None>	3	True	1,000.00	1,948.67	1,003.28	1,951.95	20.0	20.0	20.0
J-356	<None>	6	True	1,000.00	2,228.64	1,002.08	2,230.72	20.0	21.7	20.0
J-357	<None>	3	True	1,000.00	1,856.22	1,001.89	1,858.11	20.0	20.0	20.0
J-359	<None>	3	True	1,000.00	1,930.13	1,006.97	1,937.10	20.0	20.0	20.0
J-360	<None>	4	True	1,000.00	2,458.36	1,001.13	2,459.49	20.0	20.0	20.0
J-361	<None>	3	True	1,000.00	1,660.09	1,001.70	1,661.79	20.0	20.0	20.0
J-362	<None>	3	True	1,000.00	1,428.30	1,003.71	1,432.02	20.0	20.0	20.0
J-363	<None>	3	True	1,000.00	1,707.81	1,001.51	1,709.33	20.0	20.0	20.0
J-364	<None>	4	True	1,000.00	5,047.50	1,003.30	5,050.80	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-365	<None>	4	True	1,000.00	4,140.93	1,000.00	4,140.93	20.0	20.0	20.0
J-366	<None>	4	True	1,000.00	4,545.23	1,003.71	4,548.94	20.0	20.0	20.0
J-367	<None>	4	True	1,000.00	3,047.30	1,001.51	3,048.81	20.0	20.0	20.0
J-368	<None>	4	True	1,000.00	2,754.78	1,000.00	2,754.78	20.0	20.0	20.0
J-369	<None>	3	True	1,000.00	2,427.04	1,001.51	2,428.55	20.0	20.0	20.0
J-370	<None>	3	True	1,000.00	2,971.74	1,001.13	2,972.88	20.0	20.0	20.0
J-371	<None>	4	True	1,000.00	4,154.02	1,001.13	4,155.16	20.0	20.0	20.0
J-372	<None>	4	True	1,000.00	4,305.92	1,001.32	4,307.24	20.0	20.0	20.0
J-373	<None>	4	True	1,000.00	4,640.15	1,000.00	4,640.15	20.0	20.0	20.0
J-374	<None>	4	True	1,000.00	3,592.76	1,002.20	3,594.96	20.0	20.0	20.0
J-375	<None>	4	True	1,000.00	3,125.48	1,000.38	3,125.86	20.0	20.0	20.0
J-376	<None>	4	True	1,000.00	3,671.83	1,002.65	3,674.48	20.0	20.0	20.0
J-377	<None>	4	True	1,000.00	3,549.49	1,002.65	3,552.14	20.0	20.0	20.0
J-378	<None>	4	True	1,000.00	3,759.10	1,001.89	3,760.99	20.0	20.0	20.0
J-379	<None>	7	True	1,000.00	5,044.61	1,001.89	5,046.50	20.0	23.5	20.0
J-380	<None>	8	True	1,000.00	6,062.60	1,000.76	6,063.35	20.0	25.3	20.0
J-381	<None>	9	True	1,000.00	6,072.73	1,000.00	6,072.73	20.0	25.7	20.0
J-382	<None>	7	True	1,000.00	5,994.22	1,001.13	5,995.35	20.0	24.9	20.0
J-384	<None>	7	True	1,000.00	5,930.85	1,001.51	5,932.36	20.0	22.2	20.0
J-385	<None>	7	True	1,000.00	6,072.06	1,000.94	6,073.00	20.0	21.2	20.0
J-386	<None>	4	True	1,000.00	7,250.95	1,000.76	7,251.71	20.0	20.0	20.0
J-387	<None>	5	True	1,000.00	7,285.89	1,001.89	7,287.78	20.0	20.1	20.0
J-388	<None>	4	True	1,000.00	4,065.72	1,001.32	4,067.04	20.0	20.0	20.0
J-391	<None>	4	True	1,000.00	3,051.33	1,000.00	3,051.33	20.0	20.0	20.0
J-392	<None>	15	True	1,000.00	2,485.72	1,000.00	2,485.72	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-393	<None>	14	True	1,000.00	2,178.24	1,000.00	2,178.24	20.0	20.0	20.0
J-394	<None>	14	True	1,000.00	2,155.75	1,002.20	2,157.95	20.0	20.0	20.0
J-395	<None>	14	True	1,000.00	2,187.39	1,002.20	2,189.59	20.0	20.0	20.0
J-396	<None>	14	True	1,000.00	2,177.12	1,002.20	2,179.32	20.0	20.0	20.0
J-397	<None>	4	True	1,000.00	2,323.72	1,002.20	2,325.92	20.0	20.0	20.0
J-398	<None>	6	True	1,000.00	3,387.60	1,000.00	3,387.60	20.0	21.4	20.0
J-400	<None>	4	True	1,000.00	2,985.90	1,001.32	2,987.22	20.0	20.0	20.0
J-401	<None>	6	True	1,000.00	8,482.37	1,002.27	8,484.64	20.0	21.5	20.0
J-402	<None>	4	True	1,000.00	8,425.07	1,002.08	8,427.15	20.0	20.0	20.0
J-403	<None>	4	True	1,000.00	2,334.32	1,003.87	2,338.19	20.0	20.0	20.0
J-404	<None>	6	True	1,000.00	8,708.91	1,002.08	8,710.98	20.0	20.7	20.0
J-405	<None>	4	True	1,000.00	2,542.65	1,000.57	2,543.22	20.0	20.0	20.0
J-406	<None>	21	True	1,000.00	1,871.26	1,003.02	1,874.28	20.0	20.1	20.0
J-407	<None>	3	False	1,000.00	939.14	1,001.89	941.03	20.0	20.0	20.0
J-408	<None>	3	False	1,000.00	891.08	1,002.08	893.16	20.0	20.0	20.0
J-409	<None>	3	True	1,000.00	1,466.55	1,000.94	1,467.50	20.0	20.0	20.0
J-410	<None>	6	True	1,000.00	2,004.49	1,001.70	2,006.19	20.0	21.8	20.0
J-411	<None>	3	True	1,000.00	1,213.87	1,000.76	1,214.62	20.0	20.0	20.0
J-412	<None>	3	True	1,000.00	1,223.95	1,001.89	1,225.84	20.0	20.0	20.0
J-413	<None>	3	True	1,000.00	2,212.87	1,004.47	2,217.34	20.0	20.0	20.0
J-414	<None>	5	True	1,000.00	1,635.46	1,008.31	1,643.78	20.0	25.9	20.0
J-416	<None>	6	True	1,000.00	3,316.38	1,000.94	3,317.32	20.0	20.4	20.0
J-417	<None>	3	True	1,000.00	1,220.00	898.00	1,118.00	20.0	20.0	20.0
J-418	<None>	2	True	1,000.00	10,000.00	1,000.00	10,000.00	20.0	35.0	20.0
J-419	<None>	2	True	1,000.00	10,000.00	1,000.00	10,000.00	20.0	32.8	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-420	<None>	4	True	1,000.00	9,693.03	1,001.51	9,694.54	20.0	20.0	20.0
J-421	<None>	3	True	1,000.00	1,469.48	1,001.13	1,470.61	20.0	20.0	20.0
J-422	<None>	3	True	1,000.00	1,426.51	1,001.70	1,428.21	20.0	20.0	20.0
J-423	<None>	4	True	1,000.00	2,447.08	1,001.89	2,448.97	20.0	20.0	20.0
J-424	<None>	4	True	1,000.00	2,990.44	1,003.59	2,994.03	20.0	20.0	20.0
J-425	<None>	4	True	1,000.00	2,792.97	1,001.89	2,794.86	20.0	20.0	20.0
J-426	<None>	3	True	1,000.00	1,335.90	1,001.70	1,337.60	20.0	20.0	20.0
J-427	<None>	3	True	1,000.00	1,355.13	1,001.13	1,356.26	20.0	20.0	20.0
J-428	<None>	4	True	1,000.00	1,937.99	1,000.76	1,938.75	20.0	20.0	20.0
J-429	<None>	3	True	1,000.00	1,507.14	1,005.97	1,513.10	20.0	20.0	20.0
J-430	<None>	4	True	1,000.00	1,953.59	1,000.00	1,953.59	20.0	20.0	20.0
J-431	<None>	3	True	1,000.00	1,291.20	1,004.22	1,295.42	20.0	20.0	20.0
J-432	<None>	3	True	1,000.00	1,804.01	1,000.00	1,804.01	20.0	20.0	20.0
J-433	<None>	4	True	1,000.00	2,558.71	1,000.94	2,559.66	20.0	20.0	20.0
J-434	<None>	4	True	1,000.00	2,103.13	1,001.70	2,104.83	20.0	20.0	20.0
J-435	<None>	4	True	1,000.00	2,221.10	1,001.89	2,222.99	20.0	20.0	20.0
J-436	<None>	6	True	1,000.00	2,475.99	1,001.89	2,477.88	20.0	22.5	20.0
J-437	<None>	5	True	1,000.00	4,835.17	1,001.51	4,836.68	20.0	20.0	20.0
J-438	<None>	4	True	1,000.00	3,107.17	1,000.00	3,107.17	20.0	20.0	20.0
J-439	<None>	4	True	1,000.00	3,035.91	1,002.08	3,037.99	20.0	20.0	20.0
J-441	<None>	4	True	1,000.00	2,789.61	1,000.76	2,790.36	20.0	20.0	20.0
J-442	<None>	4	True	1,000.00	2,658.33	1,002.08	2,660.41	20.0	20.0	20.0
J-443	<None>	4	True	1,000.00	2,863.67	1,000.94	2,864.61	20.0	20.0	20.0
J-444	<None>	4	True	1,000.00	2,928.78	1,001.13	2,929.92	20.0	20.0	20.0
J-445	<None>	4	True	1,000.00	2,896.80	1,000.00	2,896.80	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-446	<None>	4	True	1,000.00	2,632.48	1,002.83	2,635.32	20.0	20.0	20.0
J-447	<None>	4	True	1,000.00	2,440.32	1,000.00	2,440.32	20.0	20.0	20.0
J-448	<None>	4	True	1,000.00	2,387.95	1,002.83	2,390.79	20.0	20.0	20.0
J-449	<None>	13	True	1,000.00	1,646.62	1,001.51	1,648.13	20.0	20.0	20.0
J-450	<None>	4	True	1,000.00	2,459.13	1,001.51	2,460.64	20.0	20.0	20.0
J-451	<None>	4	True	1,000.00	2,855.60	1,002.83	2,858.43	20.0	20.0	20.0
J-452	<None>	4	True	1,000.00	2,382.69	1,002.27	2,384.96	20.0	20.0	20.0
J-453	<None>	7	True	1,000.00	6,065.86	1,000.38	6,066.24	20.0	24.7	20.0
J-454	<None>	8	True	1,000.00	4,994.44	1,000.57	4,995.00	20.0	27.7	20.0
J-455	<None>	8	True	1,000.00	4,878.04	1,000.00	4,878.04	20.0	28.6	20.0
J-456	<None>	7	True	1,000.00	4,697.46	1,002.83	4,700.30	20.0	21.3	20.0
J-457	<None>	4	True	1,000.00	2,782.64	1,000.00	2,782.64	20.0	20.0	20.0
J-458	<None>	4	True	1,000.00	3,083.22	1,001.32	3,084.54	20.0	20.0	20.0
J-459	<None>	6	True	1,000.00	2,988.43	1,001.32	2,989.75	20.0	21.0	20.0
J-461	<None>	4	True	1,000.00	2,654.78	1,002.27	2,657.04	20.0	20.0	20.0
J-462	<None>	4	True	1,000.00	2,810.99	1,000.94	2,811.93	20.0	20.0	20.0
J-463	<None>	4	True	1,000.00	2,522.76	1,000.94	2,523.70	20.0	20.0	20.0
J-465	<None>	4	True	1,000.00	2,505.21	1,001.32	2,506.53	20.0	20.0	20.0
J-466	<None>	4	True	1,000.00	2,597.84	1,000.94	2,598.78	20.0	20.0	20.0
J-467	<None>	4	True	1,000.00	2,641.94	1,002.83	2,644.77	20.0	20.0	20.0
J-468	<None>	4	True	1,000.00	2,040.63	1,001.13	2,041.76	20.0	20.0	20.0
J-469	<None>	4	True	1,000.00	2,763.44	1,000.76	2,764.20	20.0	20.0	20.0
J-470	<None>	22	True	1,000.00	2,924.03	1,000.00	2,924.03	20.0	20.2	20.0
J-471	<None>	4	True	1,000.00	2,409.86	1,001.32	2,411.18	20.0	20.0	20.0
J-472	<None>	4	True	1,000.00	2,438.21	1,108.78	2,547.00	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-474	<None>	4	True	1,000.00	4,532.03	1,003.72	4,535.74	20.0	20.0	20.0
J-476	<None>	3	False	1,000.00	548.38	930.00	478.38	20.0	20.0	20.0
J-477	<None>	3	True	1,000.00	1,020.33	1,001.13	1,021.47	20.0	20.1	20.0
J-478	<None>	4	True	1,000.00	1,830.13	1,001.51	1,831.64	20.0	20.0	20.0
J-479	<None>	5	True	1,000.00	2,888.25	1,000.57	2,888.82	20.0	20.0	20.0
J-480	<None>	5	True	1,000.00	3,850.86	1,002.46	3,853.31	20.0	20.0	20.0
J-481	<None>	7	True	1,000.00	4,462.52	-275.00	3,187.52	20.0	31.1	20.0
J-482	<None>	8	True	1,000.00	4,462.78	1,001.51	4,464.29	20.0	33.3	20.0
J-483	<None>	8	True	1,000.00	4,358.55	1,003.89	4,362.44	20.0	32.9	20.0
J-484	<None>	8	True	1,000.00	4,503.54	1,001.70	4,505.24	20.0	33.1	20.0
J-485	<None>	8	True	1,000.00	3,974.67	1,000.76	3,975.42	20.0	30.8	20.0
J-486	<None>	8	True	1,000.00	3,536.32	1,000.57	3,536.89	20.0	28.4	20.0
J-487	<None>	8	True	1,000.00	3,484.16	1,000.38	3,484.54	20.0	28.1	20.0
J-488	<None>	7	True	1,000.00	3,337.44	1,000.38	3,337.81	20.0	25.9	20.0
J-489	<None>	7	True	1,000.00	3,044.42	1,000.00	3,044.42	20.0	20.5	20.0
J-490	<None>	3	False	1,000.00	657.67	908.00	565.67	20.0	20.0	20.0
J-491	<None>	5	True	1,000.00	3,005.83	1,001.13	3,006.97	20.0	20.0	20.0
J-492	<None>	6	True	1,000.00	2,711.05	1,000.00	2,711.05	20.0	22.6	20.0
J-493	<None>	4	True	1,000.00	1,956.89	1,001.13	1,958.02	20.0	20.0	20.0
J-494	<None>	4	True	1,000.00	1,696.16	1,001.51	1,697.67	20.0	20.0	20.0
J-495	<None>	14	True	1,000.00	1,581.74	1,001.51	1,583.25	20.0	20.0	20.0
J-496	<None>	4	True	1,000.00	1,879.76	1,002.08	1,881.84	20.0	20.0	20.0
J-497	<None>	3	True	1,000.00	1,013.42	1,000.00	1,013.42	20.0	20.0	20.0
J-498	<None>	6	True	1,000.00	2,034.33	1,000.00	2,034.33	20.0	20.9	20.0
J-499	<None>	25	True	1,000.00	3,032.37	1,000.00	3,032.37	20.0	41.6	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-500	<None>	25	True	1,000.00	2,948.82	1,000.00	2,948.82	20.0	40.1	20.0
J-501	<None>	5	True	1,000.00	7,948.60	1,000.00	7,948.60	20.0	20.0	20.0
J-504	<None>	4	True	1,000.00	3,743.26	1,000.00	3,743.26	20.0	20.0	20.0
J-505	<None>	4	True	1,000.00	2,188.03	1,005.93	2,193.96	20.0	20.0	20.0
J-506	<None>	3	True	1,000.00	1,359.31	1,001.51	1,360.83	20.0	20.0	20.0
J-507	<None>	3	True	1,000.00	1,171.17	1,001.89	1,173.06	20.0	20.0	20.0
J-508	<None>	3	True	1,000.00	1,341.97	1,000.00	1,341.97	20.0	20.0	20.0
J-509	<None>	3	True	1,000.00	1,518.34	1,001.89	1,520.23	20.0	20.0	20.0
J-510	<None>	4	True	1,000.00	1,918.77	1,001.32	1,920.10	20.0	20.0	20.0
J-511	<None>	4	True	1,000.00	1,801.87	1,001.89	1,803.76	20.0	20.0	20.0
J-512	<None>	4	True	1,000.00	1,776.44	1,001.89	1,778.33	20.0	20.0	20.0
J-513	<None>	4	True	1,000.00	1,802.22	1,002.46	1,804.68	20.0	20.0	20.0
J-514	<None>	6	True	1,000.00	1,967.20	1,000.00	1,967.20	20.0	21.5	20.0
J-517	<None>	5	True	1,000.00	5,646.00	1,002.08	5,648.08	20.0	20.0	20.0
J-518	<None>	4	True	1,000.00	5,544.01	1,002.65	5,546.66	20.0	20.0	20.0
J-519	<None>	4	True	1,000.00	2,242.50	1,001.70	2,244.20	20.0	20.0	20.0
J-520	<None>	4	True	1,000.00	2,490.21	1,055.40	2,545.61	20.0	20.0	20.0
J-521	<None>	4	True	1,000.00	4,410.60	1,000.57	4,411.17	20.0	20.0	20.0
J-523	<None>	7	True	1,000.00	5,965.92	1,000.00	5,965.92	20.0	20.9	20.0
J-524	<None>	5	True	1,000.00	2,593.12	1,008.77	2,601.89	20.0	20.0	20.0
J-527	<None>	4	True	1,000.00	2,022.92	1,000.38	2,023.30	20.0	20.0	20.0
J-529	<None>	3	False	1,000.00	455.41	1,000.00	455.41	20.0	20.0	20.0
J-530	<None>	4	True	1,000.00	1,918.93	1,004.26	1,923.18	20.0	20.0	20.0
J-531	<None>	6	True	1,000.00	1,951.35	1,000.00	1,951.35	20.0	20.7	20.0
J-532	<None>	4	True	1,000.00	4,575.04	1,000.00	4,575.04	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-533	<None>	4	True	1,000.00	5,011.49	1,002.65	5,014.13	20.0	20.0	20.0
J-534	<None>	3	False	1,000.00	887.33	1,011.34	898.67	20.0	20.0	20.0
J-535	<None>	4	True	1,000.00	2,783.67	1,054.39	2,838.06	20.0	20.0	20.0
J-536	<None>	4	True	1,000.00	4,959.58	1,002.20	4,961.78	20.0	20.0	20.0
J-537	<None>	6	True	1,000.00	2,513.63	1,000.00	2,513.63	20.0	22.7	20.0
J-538	<None>	5	True	1,000.00	1,042.29	1,000.00	1,042.29	20.0	22.5	20.0
J-539	<None>	3	True	1,000.00	1,887.79	1,002.33	1,890.13	20.0	20.0	20.0
J-540	<None>	4	True	1,000.00	2,744.00	1,002.27	2,746.27	20.0	20.0	20.0
J-541	<None>	4	True	1,000.00	2,885.87	1,002.08	2,887.95	20.0	20.0	20.0
J-542	<None>	4	True	1,000.00	5,148.98	1,000.00	5,148.98	20.0	20.0	20.0
J-544	<None>	5	True	1,000.00	2,694.48	1,000.57	2,695.05	20.0	20.0	20.0
J-545	<None>	5	True	1,000.00	2,900.48	1,000.94	2,901.42	20.0	20.0	20.0
J-546	<None>	3	True	1,000.00	1,462.22	1,000.76	1,462.97	20.0	20.0	20.0
J-547	<None>	3	True	1,000.00	1,380.87	1,000.00	1,380.87	20.0	20.0	20.0
J-548	<None>	3	True	1,000.00	1,322.60	1,004.47	1,327.07	20.0	20.0	20.0
J-551	<None>	8	True	1,000.00	3,634.93	1,000.00	3,634.93	20.0	23.5	20.0
J-552	<None>	4	True	1,000.00	3,521.47	1,000.00	3,521.47	20.0	20.0	20.0
J-553	<None>	4	True	1,000.00	3,543.58	1,000.00	3,543.58	20.0	20.0	20.0
J-554	<None>	6	True	1,000.00	3,634.94	1,054.39	3,689.33	20.0	21.0	20.0
J-555	<None>	6	True	1,000.00	3,634.93	1,000.00	3,634.93	20.0	21.3	20.0
J-556	<None>	8	True	1,000.00	4,405.50	1,000.00	4,405.50	20.0	25.0	20.0
J-557	<None>	4	True	1,000.00	2,490.23	1,001.10	2,491.33	20.0	20.0	20.0
J-558	<None>	4	True	1,000.00	3,035.21	1,002.20	3,037.41	20.0	20.0	20.0
J-559	<None>	4	True	1,000.00	2,979.18	1,000.00	2,979.18	20.0	20.0	20.0
J-560	<None>	3	False	1,000.00	776.44	1,108.78	885.22	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-561	<None>	3	True	1,000.00	1,425.90	1,055.40	1,481.30	20.0	20.0	20.0
J-562	<None>	3	False	1,000.00	959.77	1,001.01	960.78	20.0	20.0	20.0
J-563	<None>	6	True	1,000.00	1,941.54	1,000.76	1,942.29	20.0	20.5	20.0
J-564	<None>	4	True	1,000.00	1,715.40	1,000.00	1,715.40	20.0	20.0	20.0
J-565	<None>	7	True	1,000.00	2,982.42	1,002.08	2,984.50	20.0	31.2	20.0
J-566	<None>	4	True	1,000.00	2,485.62	1,001.32	2,486.94	20.0	20.0	20.0
J-567	<None>	3	True	1,000.00	1,442.89	1,000.76	1,443.65	20.0	20.0	20.0
J-568	<None>	3	True	1,000.00	1,418.23	1,004.43	1,422.66	20.0	20.0	20.0
J-569	<None>	3	True	1,000.00	1,511.28	1,000.00	1,511.28	20.0	20.0	20.0
J-570	<None>	3	True	1,000.00	1,482.75	1,003.88	1,486.63	20.0	20.0	20.0
J-571	<None>	4	True	1,000.00	4,474.35	1,000.00	4,474.35	20.0	20.0	20.0
J-572	<None>	4	True	1,000.00	2,984.38	1,000.00	2,984.38	20.0	20.0	20.0
J-573	<None>	4	True	1,000.00	5,578.70	1,000.00	5,578.70	20.0	20.0	20.0
J-574	<None>	4	True	1,000.00	3,411.87	1,001.10	3,412.97	20.0	20.0	20.0
J-575	<None>	4	True	1,000.00	5,939.97	1,001.70	5,941.67	20.0	20.0	20.0
J-577	<None>	3	True	1,000.00	1,213.69	1,002.27	1,215.95	20.0	20.0	20.0
J-582	<None>	4	True	1,000.00	2,483.67	1,001.32	2,485.00	20.0	20.0	20.0
J-583	<None>	14	False	1,000.00	71.56	1,001.98	73.55	20.0	20.2	20.0
J-584	<None>	4	True	1,000.00	1,996.84	1,000.00	1,996.84	20.0	20.0	20.0
J-585	<None>	3	False	1,000.00	163.89	1,002.20	166.09	20.0	20.0	20.0
J-586	<None>	4	True	1,000.00	3,630.06	1,002.83	3,632.89	20.0	20.0	20.0
J-587	<None>	4	True	1,000.00	3,420.01	1,001.32	3,421.33	20.0	20.0	20.0
J-588	<None>	6	True	1,000.00	3,353.57	1,001.32	3,354.90	20.0	20.2	20.0
J-589	<None>	4	True	1,000.00	2,169.95	1,000.38	2,170.33	20.0	20.0	20.0
J-590	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-592	<None>	4	True	1,000.00	1,430.57	1,001.79	1,432.36	20.0	20.0	20.0
J-594	<None>	4	True	1,000.00	6,366.34	1,057.86	6,424.19	20.0	20.0	20.0
J-595	<None>	6	True	1,000.00	3,087.82	1,000.94	3,088.76	20.0	21.9	20.0
J-596	<None>	3	False	1,000.00	947.86	1,000.00	947.86	20.0	20.0	20.0
J-597	<None>	3	False	1,000.00	552.15	1,004.46	556.61	20.0	20.0	20.0
J-598	<None>	3	False	1,000.00	881.47	1,000.00	881.47	20.0	20.0	20.0
J-599	<None>	6	True	1,000.00	7,894.21	1,000.00	7,894.21	20.0	47.3	20.0
J-600	<None>	4	True	1,000.00	5,692.53	1,001.32	5,693.85	20.0	20.0	20.0
J-601	<None>	4	True	1,000.00	3,353.96	1,001.13	3,355.09	20.0	20.0	20.0
J-602	<None>	3	False	1,000.00	436.14	1,002.27	438.40	20.0	20.0	20.0
J-603	<None>	5	True	1,000.00	1,093.06	1,000.57	1,093.63	20.0	23.1	20.0
J-604	<None>	4	True	1,000.00	1,927.26	1,000.99	1,928.26	20.0	20.0	20.0
J-605	<None>	4	True	1,000.00	4,854.82	1,001.70	4,856.52	20.0	20.0	20.0
J-607	<None>	3	True	1,000.00	1,389.94	1,004.16	1,394.10	20.0	20.0	20.0
J-609	<None>	5	True	1,000.00	6,890.54	1,007.70	6,898.24	20.0	20.0	20.0
J-610	<None>	6	True	1,000.00	4,684.37	1,002.71	4,687.08	20.0	25.2	20.0
J-616	<None>	3	True	1,000.00	1,045.36	1,006.07	1,051.43	20.0	20.0	20.0
J-618	<None>	5	True	1,000.00	7,062.91	1,003.22	7,066.14	20.0	20.0	20.0
J-619	<None>	5	True	1,000.00	8,098.86	1,000.00	8,098.86	20.0	20.0	20.0
J-620	<None>	4	True	1,000.00	5,496.79	1,001.13	5,497.93	20.0	20.0	20.0
J-622	<None>	3	True	1,000.00	1,266.94	1,000.00	1,266.94	20.0	20.0	20.0
J-624	<None>	6	True	1,000.00	9,212.59	1,000.00	9,212.59	20.0	20.3	20.0
J-630	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-631	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-632	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-633	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-634	<None>	4	True	1,000.00	6,875.26	1,000.00	6,875.26	20.0	20.0	20.0
J-635	<None>	25	True	1,000.00	3,171.30	1,000.00	3,171.30	20.0	46.3	20.0
J-636	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-637	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-638	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-639	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-640	<None>	6	True	1,000.00	5,015.85	1,000.00	5,015.85	20.0	22.0	20.0
J-641	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-642	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-643	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-644	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-645	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-646	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-647	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-648	<None>	6	True	1,000.00	2,287.38	1,000.00	2,287.38	20.0	20.5	20.0
J-649	<None>	4	True	1,000.00	2,187.90	1,000.00	2,187.90	20.0	20.0	20.0
J-650	<None>	4	True	1,000.00	2,177.55	1,000.00	2,177.55	20.0	20.0	20.0
J-651	<None>	6	True	1,000.00	4,772.44	1,000.00	4,772.44	20.0	21.6	20.0
J-652	<None>	5	True	1,000.00	4,634.23	1,000.00	4,634.23	20.0	378.9	20.0
J-653	<None>	6	True	1,000.00	4,508.51	1,000.00	4,508.51	20.0	21.4	20.0

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
34	J-9	735.8	<None>	2.90	910.0	75.4
35	J-10	746.7	<None>	0.00	910.0	70.7
39	J-12	774.9	<None>	0.00	910.0	58.5
41	J-13	740.5	<None>	0.00	910.1	73.4
43	J-14	754.3	<None>	1.01	910.1	67.4
45	J-15	753.4	<None>	55.19	910.2	67.8
47	J-16	780.6	<None>	1.99	910.3	56.1
49	J-17	830.7	<None>	5.89	910.7	34.6
51	J-18	805.9	<None>	0.00	910.7	45.3
54	J-19	831.2	<None>	0.00	910.7	34.4
57	J-20	830.3	<None>	0.00	911.3	35.0
59	J-21	830.5	<None>	0.00	911.3	35.0
61	J-22	831.6	<None>	0.00	911.3	34.5
63	J-23	844.2	<None>	4.40	911.9	29.3
86	J-37	850.6	<None>	-315.00	912.1	26.6
98	J-43	851.3	<None>	0.60	911.9	26.2
102	J-46	762.6	<None>	0.00	910.0	63.8
104	J-47	762.6	<None>	0.00	910.0	63.8
106	J-48	851.1	<None>	0.00	912.0	26.4
112	J-49	765.5	<None>	0.00	910.0	62.5
114	J-50	763.7	<None>	1.52	910.1	63.3
116	J-51	763.2	<None>	0.00	910.1	63.6
118	J-52	766.8	<None>	0.00	910.1	62.0
120	J-53	772.0	<None>	1.70	910.2	59.8
122	J-54	769.9	<None>	1.13	910.2	60.7
124	J-55	772.4	<None>	2.33	910.2	59.6
126	J-56	772.9	<None>	2.08	910.2	59.4
128	J-57	782.0	<None>	7.35	910.3	55.5
130	J-58	782.7	<None>	1.70	910.4	55.2
132	J-59	785.0	<None>	1.89	910.5	54.3
134	J-60	793.0	<None>	0.38	910.7	50.9
136	J-61	789.7	<None>	2.83	910.7	52.3
138	J-62	797.0	<None>	0.00	910.7	49.2
140	J-63	798.0	<None>	0.00	910.7	48.7
142	J-64	801.2	<None>	3.02	910.7	47.4
146	J-66	829.8	<None>	0.19	911.1	35.2
154	J-69	821.9	<None>	0.00	911.1	38.6
156	J-70	821.4	<None>	0.00	911.0	38.8
158	J-71	821.3	<None>	2.83	911.0	38.8
160	J-72	821.0	<None>	1.13	911.0	38.9
162	J-73	820.7	<None>	0.00	910.9	39.0
164	J-74	827.1	<None>	4.27	910.9	36.3
167	J-75	852.6	<None>	0.00	911.8	25.6
169	J-76	839.3	<None>	0.00	911.5	31.2
171	J-77	832.4	<None>	2.02	911.3	34.2
173	J-78	833.3	<None>	1.01	911.3	33.8
175	J-79	832.8	<None>	2.20	911.3	34.0
177	J-80	833.2	<None>	0.00	911.3	33.8

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
179	J-81	836.2	<None>	0.00	911.3	32.5
181	J-82	835.2	<None>	1.52	911.3	32.9
183	J-83	834.3	<None>	1.52	911.3	33.3
186	J-84	826.4	<None>	0.00	911.3	36.7
188	J-85	824.6	<None>	0.00	911.2	37.5
192	J-87	822.0	<None>	1.13	911.1	38.5
194	J-88	824.4	<None>	1.51	911.1	37.5
196	J-89	822.8	<None>	1.70	911.1	38.2
198	J-90	822.0	<None>	2.27	911.1	38.5
200	J-91	820.8	<None>	1.13	911.1	39.1
202	J-92	820.4	<None>	1.13	911.1	39.2
206	J-93	821.0	<None>	1.13	911.1	39.0
208	J-94	820.4	<None>	1.89	911.1	39.2
210	J-95	820.7	<None>	0.00	911.1	39.1
212	J-96	821.7	<None>	0.00	911.1	38.7
214	J-97	819.3	<None>	8.11	910.8	39.6
216	J-98	824.3	<None>	0.00	910.8	37.4
218	J-99	827.2	<None>	1.01	910.8	36.2
220	J-100	825.2	<None>	1.39	910.8	37.1
222	J-101	825.0	<None>	2.46	910.9	37.1
224	J-102	823.6	<None>	2.27	910.9	37.8
226	J-103	824.5	<None>	2.20	910.9	37.4
228	J-104	823.2	<None>	0.00	910.9	37.9
230	J-105	818.8	<None>	1.70	910.8	39.8
232	J-106	816.0	<None>	3.91	910.8	41.0
235	J-107	822.6	<None>	2.20	911.2	38.3
237	J-108	822.2	<None>	2.83	911.0	38.4
240	J-109	812.8	<None>	2.58	910.8	42.4
241	J-110	815.9	<None>	0.00	910.9	41.1
243	J-111	819.1	<None>	0.00	910.9	39.7
247	J-112	819.6	<None>	1.70	911.0	39.6
249	J-113	809.1	<None>	1.13	910.3	43.8
251	J-114	814.7	<None>	-42.00	911.0	41.7
256	J-116	814.8	<None>	0.00	910.9	41.6
260	J-117	818.2	<None>	3.21	911.0	40.1
263	J-118	817.7	<None>	1.70	911.0	40.4
271	J-122	815.1	<None>	0.00	910.9	41.5
273	J-123	809.1	<None>	3.49	910.2	43.7
275	J-124	805.2	<None>	0.00	910.1	45.4
277	J-125	815.9	<None>	0.00	910.8	41.1
279	J-126	810.2	<None>	1.89	910.6	43.5
282	J-127	810.0	<None>	2.27	910.5	43.5
286	J-128	813.9	<None>	2.53	910.6	41.8
288	J-129	812.2	<None>	7.79	910.6	42.6
291	J-130	806.3	<None>	2.83	910.4	45.0
293	J-131	806.8	<None>	1.51	910.4	44.8
296	J-132	811.9	<None>	1.70	910.4	42.6
298	J-133	811.2	<None>	6.70	910.5	43.0

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
300	J-134	811.4	<None>	1.51	910.5	42.9
302	J-135	811.4	<None>	0.00	910.5	42.9
304	J-136	815.1	<None>	1.32	910.5	41.3
306	J-137	803.2	<None>	2.46	910.3	46.4
308	J-138	800.6	<None>	0.94	910.2	47.4
310	J-139	803.5	<None>	108.78	910.3	46.2
312	J-140	806.1	<None>	1.89	910.3	45.1
315	J-141	804.2	<None>	6.33	910.4	45.9
318	J-142	799.9	<None>	0.00	910.6	47.9
320	J-143	801.2	<None>	0.19	910.5	47.3
322	J-144	806.1	<None>	1.13	910.5	45.2
329	J-148	800.1	<None>	1.32	910.5	47.8
331	J-149	799.8	<None>	0.00	910.5	47.9
333	J-150	802.9	<None>	2.65	910.5	46.6
337	J-151	804.9	<None>	1.70	910.5	45.7
339	J-152	809.5	<None>	1.89	910.5	43.7
345	J-154	760.8	<None>	0.00	910.0	64.6
349	J-156	758.4	<None>	0.00	910.0	65.6
350	J-157	758.4	<None>	54.96	910.0	65.6
354	J-158	770.5	<None>	0.00	909.9	60.3
356	J-159	770.3	<None>	109.54	909.9	60.4
358	J-160	770.0	<None>	0.94	910.1	60.6
360	J-161	785.0	<None>	1.01	910.4	54.2
362	J-162	785.9	<None>	1.52	910.4	53.9
364	J-163	789.2	<None>	0.00	910.4	52.4
366	J-164	790.8	<None>	0.00	910.4	51.7
368	J-165	793.4	<None>	0.00	910.4	50.6
370	J-166	794.6	<None>	0.57	910.4	50.1
372	J-167	796.5	<None>	0.00	910.5	49.3
374	J-168	798.9	<None>	0.88	910.5	48.3
377	J-169	790.8	<None>	5.98	910.4	51.7
384	J-172	782.7	<None>	0.94	910.4	55.2
386	J-173	787.9	<None>	1.32	910.4	53.0
388	J-174	790.6	<None>	2.83	910.4	51.8
390	J-175	791.2	<None>	1.13	910.4	51.6
394	J-176	783.8	<None>	1.52	910.4	54.8
396	J-177	786.9	<None>	0.00	910.4	53.4
398	J-178	787.5	<None>	57.43	910.4	53.2
407	J-179	788.1	<None>	2.59	910.4	52.9
410	J-180	790.1	<None>	2.65	910.4	52.0
413	J-181	794.4	<None>	1.70	910.4	50.2
422	J-184	792.1	<None>	0.00	910.8	51.4
424	J-185	791.8	<None>	0.00	910.8	51.5
426	J-186	791.0	<None>	0.00	910.8	51.8
428	J-187	795.0	<None>	0.00	910.9	50.1
430	J-188	790.0	<None>	2.20	910.8	52.3
432	J-189	794.1	<None>	2.20	910.8	50.5
434	J-190	796.4	<None>	0.00	910.7	49.4

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
436	J-191	799.8	<None>	0.00	910.5	47.9
438	J-192	794.4	<None>	0.00	910.4	50.2
441	J-193	797.5	<None>	1.52	910.4	48.8
444	J-194	795.6	<None>	2.20	910.7	49.8
463	J-202	800.9	<None>	0.00	910.5	47.4
465	J-203	800.5	<None>	-135.00	911.3	47.9
467	J-204	800.3	<None>	2.20	910.5	47.7
469	J-205	800.0	<None>	0.00	910.5	47.8
471	J-206	798.2	<None>	54.39	910.3	48.5
473	J-207	799.3	<None>	0.00	910.5	48.1
475	J-208	798.4	<None>	2.20	910.5	48.5
477	J-209	797.3	<None>	0.00	910.6	49.0
483	J-211	794.0	<None>	3.30	910.5	50.4
485	J-212	808.7	<None>	9.69	910.5	44.0
487	J-213	806.2	<None>	5.06	910.5	45.1
489	J-214	805.8	<None>	0.00	910.5	45.3
491	J-215	803.4	<None>	4.05	910.5	46.3
493	J-216	800.6	<None>	2.53	910.5	47.5
499	J-217	838.8	<None>	-1,000.00	915.9	33.4
502	J-218	798.9	<None>	108.78	910.4	48.2
504	J-219	798.0	<None>	54.39	910.4	48.6
506	J-220	796.6	<None>	0.38	910.4	49.3
508	J-221	797.9	<None>	54.39	910.4	48.7
510	J-222	796.5	<None>	58.62	910.4	49.3
512	J-223	798.5	<None>	57.87	910.4	48.4
515	J-224	802.1	<None>	6.75	910.5	46.9
517	J-225	804.8	<None>	5.06	910.5	45.7
519	J-226	803.7	<None>	5.56	910.5	46.2
521	J-227	803.1	<None>	5.02	910.5	46.4
523	J-228	798.7	<None>	0.00	910.5	48.4
525	J-229	798.8	<None>	-268.00	910.5	48.3
527	J-230	798.1	<None>	0.00	910.5	48.6
531	J-231	807.3	<None>	8.94	910.4	44.6
533	J-232	801.9	<None>	1.70	910.4	46.9
536	J-233	800.6	<None>	54.39	910.2	47.4
538	J-234	795.7	<None>	108.78	910.1	49.5
540	J-235	794.6	<None>	54.96	910.1	50.0
542	J-236	793.5	<None>	1.89	910.1	50.4
544	J-237	785.2	<None>	108.78	910.0	54.0
546	J-238	782.4	<None>	108.78	910.0	55.2
548	J-239	779.7	<None>	2.27	910.1	56.4
550	J-240	788.9	<None>	4.16	910.1	52.4
552	J-241	791.6	<None>	0.00	910.1	51.3
555	J-242	791.9	<None>	3.70	910.1	51.1
557	J-243	798.0	<None>	4.06	910.1	48.5
559	J-244	804.7	<None>	2.46	910.1	45.6
561	J-245	797.9	<None>	2.27	910.0	48.5
563	J-246	800.0	<None>	3.70	910.0	47.6

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
565	J-247	798.9	<None>	3.02	910.0	48.1
567	J-248	810.8	<None>	3.02	910.0	42.9
569	J-249	809.6	<None>	2.65	910.0	43.5
571	J-250	805.2	<None>	0.00	910.0	45.4
576	J-252	812.7	<None>	0.00	910.0	42.1
578	J-253	814.4	<None>	0.00	910.0	41.4
580	J-254	815.4	<None>	1.13	910.0	41.0
582	J-255	816.2	<None>	0.00	910.0	40.6
584	J-256	812.7	<None>	0.76	910.0	42.1
591	J-259	811.6	<None>	0.94	910.1	42.6
593	J-260	807.5	<None>	1.13	910.0	44.4
598	J-261	808.8	<None>	0.76	910.0	43.8
602	J-263	794.2	<None>	272.53	910.2	50.2
604	J-264	792.3	<None>	54.77	910.1	51.0
607	J-265	790.8	<None>	1.32	910.1	51.6
609	J-266	789.1	<None>	0.00	910.1	52.4
611	J-267	784.7	<None>	0.00	910.1	54.2
613	J-268	777.9	<None>	1.13	910.1	57.2
615	J-269	776.0	<None>	1.89	910.1	58.0
618	J-270	786.3	<None>	2.27	910.1	53.6
621	J-271	803.2	<None>	2.08	910.1	46.2
625	J-272	797.5	<None>	3.66	910.8	49.0
627	J-273	795.2	<None>	6.58	910.8	50.0
629	J-274	790.6	<None>	5.03	910.7	51.9
631	J-275	787.7	<None>	1.13	910.6	53.2
633	J-276	796.5	<None>	0.00	910.6	49.4
635	J-277	793.3	<None>	1.32	910.6	50.7
637	J-278	794.5	<None>	1.32	910.5	50.2
641	J-279	794.8	<None>	0.94	910.6	50.1
644	J-280	794.9	<None>	0.00	910.7	50.1
646	J-281	792.9	<None>	0.00	910.7	51.0
649	J-282	792.6	<None>	1.51	910.8	51.1
651	J-283	797.0	<None>	1.51	910.8	49.2
653	J-284	797.9	<None>	1.51	910.8	48.8
656	J-285	804.6	<None>	1.51	910.9	46.0
658	J-286	801.4	<None>	1.51	910.9	47.4
662	J-287	808.4	<None>	3.02	911.0	44.4
664	J-288	803.2	<None>	1.70	911.1	46.7
666	J-289	802.1	<None>	1.13	911.1	47.1
668	J-290	797.7	<None>	2.33	911.1	49.0
670	J-291	797.1	<None>	0.00	911.0	49.3
673	J-292	800.0	<None>	1.77	911.1	48.1
675	J-293	800.0	<None>	0.94	911.1	48.1
678	J-294	807.1	<None>	3.09	911.1	45.0
681	J-295	817.4	<None>	8.59	911.2	40.6
684	J-296	794.0	<None>	1.13	910.8	50.5
686	J-297	793.4	<None>	3.59	910.7	50.8
688	J-298	790.0	<None>	58.28	910.3	52.0

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
690	J-299	785.4	<None>	2.46	910.3	54.0
692	J-300	788.9	<None>	5.48	910.1	52.5
694	J-301	791.2	<None>	0.00	910.1	51.5
697	J-302	790.6	<None>	0.00	910.1	51.7
699	J-303	786.3	<None>	5.48	910.1	53.6
705	J-304	782.7	<None>	5.97	910.3	55.2
707	J-305	799.0	<None>	0.00	910.1	48.0
709	J-306	789.6	<None>	0.00	910.1	52.1
711	J-307	800.0	<None>	5.00	910.1	47.6
713	J-308	783.8	<None>	4.62	910.1	54.6
715	J-309	796.3	<None>	5.01	910.1	49.2
717	J-310	774.2	<None>	1.70	910.1	58.8
719	J-311	774.6	<None>	1.89	910.1	58.6
721	J-312	775.6	<None>	4.25	910.1	58.2
723	J-313	792.0	<None>	2.08	910.1	51.1
725	J-314	800.7	<None>	1.13	910.1	47.4
727	J-315	804.2	<None>	0.94	910.2	45.9
729	J-316	770.0	<None>	1.51	910.3	60.7
731	J-317	767.2	<None>	2.08	910.2	61.9
734	J-318	767.9	<None>	2.46	910.2	61.6
737	J-319	770.1	<None>	1.32	910.4	60.7
739	J-320	775.4	<None>	1.89	910.6	58.5
741	J-321	759.5	<None>	0.94	910.9	65.5
743	J-322	761.8	<None>	1.51	910.9	64.5
745	J-323	762.0	<None>	2.83	910.9	64.4
747	J-324	770.9	<None>	1.13	910.9	60.6
749	J-325	784.8	<None>	0.00	910.9	54.6
751	J-326	791.6	<None>	0.76	910.9	51.6
753	J-327	821.4	<None>	0.94	910.9	38.7
755	J-328	827.2	<None>	0.57	910.9	36.2
757	J-329	823.0	<None>	2.08	910.9	38.0
759	J-330	828.9	<None>	0.00	910.9	35.5
761	J-331	815.1	<None>	1.32	910.9	41.5
763	J-332	800.5	<None>	2.39	910.9	47.8
770	J-336	748.8	<None>	0.00	911.0	70.2
772	J-337	740.6	<None>	0.00	911.0	73.7
777	J-339	746.0	<None>	0.00	911.0	71.4
779	J-340	748.2	<None>	0.00	911.0	70.4
782	J-341	747.6	<None>	0.00	911.0	70.7
785	J-342	754.8	<None>	2.27	911.0	67.6
787	J-343	771.5	<None>	0.00	911.0	60.4
791	J-344	759.7	<None>	0.00	911.0	65.5
793	J-345	765.8	<None>	2.65	911.0	62.8
795	J-346	776.2	<None>	0.00	911.0	58.3
797	J-347	772.9	<None>	1.89	911.0	59.8
799	J-348	772.7	<None>	3.02	911.0	59.8
801	J-349	783.1	<None>	2.27	911.0	55.3
803	J-350	785.8	<None>	1.32	911.0	54.2

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
805	J-351	771.4	<None>	0.00	911.0	60.4
814	J-353	819.4	<None>	3.78	911.0	39.6
816	J-354	802.3	<None>	2.08	911.0	47.0
819	J-355	828.7	<None>	3.28	911.1	35.7
822	J-356	813.8	<None>	2.08	911.0	42.1
824	J-357	802.5	<None>	1.89	911.0	46.9
831	J-359	830.2	<None>	6.97	911.1	35.0
834	J-360	806.2	<None>	1.13	911.1	45.4
836	J-361	788.6	<None>	1.70	911.0	52.9
838	J-362	792.6	<None>	3.71	910.9	51.2
840	J-363	791.5	<None>	1.51	910.8	51.6
843	J-364	799.6	<None>	3.30	911.2	48.3
845	J-365	797.5	<None>	0.00	911.5	49.3
847	J-366	795.9	<None>	3.71	911.9	50.2
849	J-367	805.2	<None>	1.51	911.9	46.2
851	J-368	810.0	<None>	0.00	911.8	44.0
853	J-369	808.8	<None>	1.51	911.4	44.4
855	J-370	814.9	<None>	1.13	911.9	42.0
857	J-371	817.1	<None>	1.13	912.1	41.1
859	J-372	808.7	<None>	1.32	912.1	44.7
862	J-373	799.9	<None>	0.00	912.1	48.6
865	J-374	803.6	<None>	2.20	912.5	47.1
867	J-375	809.4	<None>	0.38	913.2	44.9
869	J-376	815.1	<None>	2.65	914.1	42.8
871	J-377	822.5	<None>	2.65	914.2	39.7
873	J-378	822.9	<None>	1.89	914.3	39.5
875	J-379	812.7	<None>	1.89	914.5	44.0
877	J-380	808.3	<None>	0.76	914.6	46.0
879	J-381	809.1	<None>	0.00	914.4	45.5
881	J-382	818.3	<None>	1.13	913.6	41.2
886	J-384	828.9	<None>	1.51	913.2	36.5
888	J-385	831.0	<None>	0.94	913.1	35.5
890	J-386	833.8	<None>	0.76	912.4	34.0
892	J-387	833.5	<None>	1.89	912.3	34.1
894	J-388	825.8	<None>	1.32	912.1	37.4
902	J-391	831.0	<None>	0.00	913.2	35.6
904	J-392	825.9	<None>	0.00	913.2	37.8
906	J-393	828.3	<None>	0.00	913.2	36.7
908	J-394	825.8	<None>	2.20	913.2	37.8
910	J-395	824.2	<None>	2.20	913.2	38.5
912	J-396	826.9	<None>	2.20	913.2	37.4
915	J-397	834.0	<None>	2.20	913.2	34.3
917	J-398	830.7	<None>	0.00	913.2	35.7
922	J-400	820.9	<None>	1.32	911.9	39.4
925	J-401	817.4	<None>	2.27	911.6	40.8
928	J-402	826.8	<None>	2.08	911.8	36.8
930	J-403	825.2	<None>	3.87	911.3	37.3
933	J-404	831.0	<None>	2.08	912.0	35.1

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
936	J-405	804.0	<None>	0.57	911.1	46.3
938	J-406	809.1	<None>	3.02	911.1	44.2
940	J-407	820.3	<None>	1.89	911.2	39.3
942	J-408	831.0	<None>	2.08	911.2	34.7
944	J-409	831.4	<None>	0.94	911.3	34.6
948	J-410	816.0	<None>	1.70	910.1	40.7
950	J-411	817.2	<None>	0.76	910.1	40.2
952	J-412	811.1	<None>	1.89	910.1	42.8
955	J-413	793.3	<None>	4.47	911.1	51.0
958	J-414	791.3	<None>	8.31	911.5	52.0
964	J-416	821.5	<None>	0.94	911.1	38.8
968	J-417	827.2	<None>	-102.00	912.5	36.9
969	J-418	826.7	<None>	0.00	912.0	36.9
974	J-419	826.8	<None>	0.00	912.0	36.9
976	J-420	834.0	<None>	1.51	912.0	33.8
979	J-421	818.2	<None>	1.13	912.0	40.6
981	J-422	823.0	<None>	1.70	912.1	38.5
983	J-423	821.5	<None>	1.89	912.2	39.3
985	J-424	820.8	<None>	3.59	912.3	39.6
987	J-425	827.2	<None>	1.89	912.3	36.8
990	J-426	821.0	<None>	1.70	912.0	39.4
992	J-427	821.8	<None>	1.13	912.0	39.0
994	J-428	821.6	<None>	0.76	912.0	39.1
996	J-429	819.0	<None>	5.97	911.7	40.1
998	J-430	821.8	<None>	0.00	912.0	39.0
1000	J-431	814.7	<None>	4.22	912.2	42.2
1002	J-432	823.2	<None>	0.00	912.7	38.7
1004	J-433	827.5	<None>	0.94	912.7	36.9
1007	J-434	833.0	<None>	1.70	912.6	34.4
1009	J-435	829.1	<None>	1.89	912.5	36.1
1011	J-436	817.8	<None>	1.89	912.4	40.9
1015	J-437	805.4	<None>	1.51	914.4	47.1
1017	J-438	804.9	<None>	0.00	914.4	47.4
1019	J-439	803.5	<None>	2.08	914.4	48.0
1023	J-441	800.7	<None>	0.76	914.4	49.2
1025	J-442	800.3	<None>	2.08	914.4	49.4
1027	J-443	797.0	<None>	0.94	914.4	50.8
1029	J-444	796.4	<None>	1.13	914.4	51.1
1031	J-445	797.3	<None>	0.00	914.4	50.7
1034	J-446	794.1	<None>	2.83	914.4	52.1
1036	J-447	793.4	<None>	0.00	914.4	52.4
1038	J-448	793.0	<None>	2.83	914.5	52.6
1040	J-449	783.5	<None>	1.51	914.5	56.7
1043	J-450	797.1	<None>	1.51	914.6	50.9
1045	J-451	802.6	<None>	2.83	914.7	48.5
1047	J-452	796.8	<None>	2.27	914.7	51.0
1050	J-453	807.5	<None>	0.38	914.8	46.4
1053	J-454	802.1	<None>	0.57	917.4	49.9

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1055	J-455	800.4	<None>	0.00	917.8	50.8
1057	J-456	801.0	<None>	2.83	917.8	50.5
1059	J-457	804.0	<None>	0.00	917.8	49.2
1061	J-458	809.3	<None>	1.32	914.1	45.4
1063	J-459	807.9	<None>	1.32	914.2	46.0
1067	J-461	811.4	<None>	2.27	914.2	44.5
1069	J-462	811.8	<None>	0.94	914.2	44.3
1071	J-463	814.0	<None>	0.94	914.2	43.4
1077	J-465	813.1	<None>	1.32	914.2	43.8
1079	J-466	812.1	<None>	0.94	914.3	44.2
1081	J-467	813.3	<None>	2.83	914.3	43.7
1083	J-468	813.3	<None>	1.13	914.4	43.7
1087	J-469	815.2	<None>	0.76	914.2	42.8
1089	J-470	809.5	<None>	0.00	914.2	45.3
1092	J-471	817.4	<None>	1.32	914.2	41.9
1095	J-472	766.5	<None>	108.78	909.8	62.0
1099	J-474	801.4	<None>	3.72	910.5	47.2
1103	J-476	775.7	<None>	-70.00	923.9	64.1
1104	J-477	776.0	<None>	1.13	922.0	63.1
1106	J-478	778.5	<None>	1.51	921.5	61.9
1108	J-479	784.7	<None>	0.57	921.5	59.2
1110	J-480	784.9	<None>	2.46	921.5	59.1
1114	J-481	784.0	<None>	-1,275.00	921.9	59.6
1116	J-482	791.1	<None>	1.51	919.4	55.5
1118	J-483	792.0	<None>	3.89	919.4	55.1
1120	J-484	791.3	<None>	1.70	919.3	55.4
1124	J-485	796.7	<None>	0.76	919.4	53.1
1126	J-486	802.1	<None>	0.57	919.5	50.8
1128	J-487	803.0	<None>	0.38	919.5	50.4
1130	J-488	808.0	<None>	0.38	919.5	48.2
1132	J-489	820.8	<None>	0.00	919.6	42.7
1134	J-490	804.0	<None>	-92.00	921.7	50.9
1136	J-491	822.0	<None>	1.13	919.6	42.2
1139	J-492	809.2	<None>	0.00	919.6	47.8
1141	J-493	798.9	<None>	1.13	919.8	52.3
1143	J-494	790.2	<None>	1.51	920.2	56.3
1145	J-495	791.6	<None>	1.51	920.7	55.9
1147	J-496	800.4	<None>	2.08	919.5	51.5
1149	J-497	811.3	<None>	0.00	919.6	46.9
1150	J-498	809.2	<None>	0.00	919.6	47.8
1153	J-499	746.3	<None>	0.00	910.1	70.9
1156	J-500	750.9	<None>	0.00	910.1	68.9
1159	J-501	831.0	<None>	0.00	911.3	34.8
1168	J-504	815.3	<None>	0.00	910.6	41.2
1171	J-505	813.5	<None>	5.93	910.6	42.0
1175	J-506	814.7	<None>	1.51	912.0	42.1
1177	J-507	809.5	<None>	1.89	912.0	44.3
1179	J-508	815.4	<None>	0.00	912.0	41.8

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1181	J-509	812.6	<None>	1.89	912.0	43.0
1188	J-510	818.6	<None>	1.32	910.1	39.6
1189	J-511	818.0	<None>	1.89	910.0	39.8
1191	J-512	817.8	<None>	1.89	910.0	39.9
1193	J-513	819.1	<None>	2.46	910.0	39.3
1195	J-514	815.3	<None>	0.00	910.0	41.0
1202	J-517	809.1	<None>	2.08	910.3	43.8
1206	J-518	822.2	<None>	2.65	911.0	38.4
1210	J-519	799.7	<None>	1.70	910.5	47.9
1213	J-520	794.7	<None>	55.40	910.5	50.1
1216	J-521	767.6	<None>	0.57	909.9	61.6
1220	J-523	795.3	<None>	0.00	910.4	49.8
1224	J-524	808.3	<None>	8.77	919.6	48.2
1229	J-527	780.0	<None>	0.38	921.4	61.2
1239	J-529	804.7	<None>	0.00	910.7	45.8
1242	J-530	821.5	<None>	4.26	910.1	38.3
1244	J-531	818.0	<None>	0.00	910.1	39.8
1247	J-532	774.0	<None>	0.00	910.2	58.9
1250	J-533	782.0	<None>	2.65	910.4	55.6
1253	J-534	795.0	<None>	11.34	910.6	50.0
1255	J-535	788.0	<None>	54.39	910.3	52.9
1258	J-536	778.0	<None>	2.20	910.3	57.2
1261	J-537	795.0	<None>	0.00	910.7	50.0
1264	J-538	823.0	<None>	0.00	910.9	38.0
1267	J-539	809.0	<None>	2.33	910.5	43.9
1270	J-540	823.5	<None>	2.27	911.1	37.9
1273	J-541	819.5	<None>	2.08	911.1	39.6
1276	J-542	794.0	<None>	0.00	910.8	50.5
1281	J-544	819.7	<None>	0.57	919.6	43.2
1284	J-545	821.0	<None>	0.94	919.6	42.6
1287	J-546	810.0	<None>	0.76	912.5	44.3
1290	J-547	808.5	<None>	0.00	912.4	44.9
1293	J-548	821.0	<None>	4.47	912.1	39.4
1304	J-551	739.0	<None>	0.00	910.0	74.0
1306	J-552	747.0	<None>	0.00	910.0	70.5
1308	J-553	746.0	<None>	0.00	910.0	71.0
1310	J-554	744.0	<None>	54.39	910.0	71.8
1312	J-555	761.0	<None>	0.00	910.0	64.5
1316	J-556	760.0	<None>	0.00	910.0	64.9
1319	J-557	758.5	<None>	1.10	909.8	65.5
1321	J-558	765.5	<None>	2.20	909.9	62.5
1323	J-559	791.0	<None>	0.00	910.4	51.7
1326	J-560	784.5	<None>	108.78	908.9	53.8
1328	J-561	791.0	<None>	55.40	910.2	51.6
1330	J-562	824.0	<None>	1.01	910.8	37.6
1332	J-563	819.0	<None>	0.76	910.1	39.4
1335	J-564	817.0	<None>	0.00	910.1	40.3
1337	J-565	789.0	<None>	2.08	910.1	52.4

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1340	J-566	785.0	<None>	1.32	910.1	54.1
1342	J-567	798.0	<None>	0.76	910.1	48.5
1345	J-568	791.0	<None>	4.43	910.1	51.5
1347	J-569	799.0	<None>	0.00	910.1	48.0
1350	J-570	796.0	<None>	3.88	910.1	49.3
1352	J-571	796.5	<None>	0.00	910.6	49.4
1355	J-572	793.0	<None>	0.00	910.6	50.9
1357	J-573	792.0	<None>	0.00	910.8	51.4
1360	J-574	791.0	<None>	1.10	910.8	51.9
1362	J-575	801.0	<None>	1.70	910.5	47.4
1371	J-577	760.6	<None>	2.27	910.9	65.0
1413	J-582	815.0	<None>	1.32	910.5	41.3
1416	J-583	812.8	<None>	1.98	910.8	42.4
1418	J-584	814.5	<None>	0.00	910.7	41.6
1421	J-585	813.0	<None>	2.20	910.7	42.3
1425	J-586	809.7	<None>	2.83	910.5	43.6
1428	J-587	812.0	<None>	1.32	910.5	42.6
1430	J-588	811.0	<None>	1.32	910.5	43.0
1435	J-589	801.0	<None>	0.38	919.7	51.4
1438	J-590	776.0	<None>	(N/A)	(N/A)	(N/A)
1442	J-592	799.0	<None>	1.79	919.7	52.2
1446	J-594	781.5	<None>	57.86	910.3	55.7
1451	J-595	821.5	<None>	0.94	911.0	38.7
1454	J-596	826.0	<None>	0.00	911.0	36.8
1456	J-597	829.0	<None>	4.46	910.9	35.4
1464	J-598	776.5	<None>	0.00	922.2	63.0
1469	J-599	749.5	<None>	0.00	910.5	69.7
1472	J-600	797.0	<None>	1.32	910.6	49.2
1476	J-601	797.0	<None>	1.13	910.6	49.2
1479	J-602	822.3	<None>	2.27	910.9	38.3
1485	J-603	820.0	<None>	0.57	910.9	39.3
1489	J-604	821.5	<None>	0.99	910.1	38.3
1494	J-605	797.4	<None>	1.70	910.6	49.0
1503	J-607	821.3	<None>	4.16	912.1	39.3
1512	J-609	799.5	<None>	7.70	910.4	48.0
1518	J-610	765.5	<None>	2.71	910.1	62.6
1558	J-616	803.9	<None>	6.07	910.4	46.1
1567	J-618	801.0	<None>	3.22	910.5	47.4
1570	J-619	801.0	<None>	0.00	910.5	47.4
1585	J-620	794.7	<None>	1.13	910.7	50.2
1610	J-622	815.0	<None>	0.00	910.6	41.4
1625	J-624	851.1	<None>	0.00	912.0	26.3
1645	J-630	855.0	<None>	(N/A)	(N/A)	(N/A)
1647	J-631	833.0	<None>	(N/A)	(N/A)	(N/A)
1649	J-632	832.4	<None>	(N/A)	(N/A)	(N/A)
1650	J-633	832.4	<None>	(N/A)	(N/A)	(N/A)
1660	J-634	810.6	<None>	0.00	911.2	43.5
1664	J-635	734.0	<None>	0.00	910.1	76.2

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1667	J-636	751.0	<None>	(N/A)	(N/A)	(N/A)
1669	J-637	740.1	<None>	(N/A)	(N/A)	(N/A)
1671	J-638	870.0	<None>	(N/A)	(N/A)	(N/A)
1676	J-639	758.0	<None>	(N/A)	(N/A)	(N/A)
1678	J-640	830.9	<None>	0.00	911.3	34.8
1681	J-641	831.0	<None>	(N/A)	(N/A)	(N/A)
1689	J-642	807.0	<None>	(N/A)	(N/A)	(N/A)
1691	J-643	807.0	<None>	(N/A)	(N/A)	(N/A)
1693	J-644	807.0	<None>	(N/A)	(N/A)	(N/A)
1695	J-645	783.0	<None>	(N/A)	(N/A)	(N/A)
1697	J-646	780.0	<None>	(N/A)	(N/A)	(N/A)
1699	J-647	782.0	<None>	(N/A)	(N/A)	(N/A)
1702	J-648	823.4	<None>	0.00	910.8	37.8
1705	J-649	821.0	<None>	0.00	910.8	38.9
1707	J-650	826.0	<None>	0.00	910.8	36.7
1711	J-651	832.6	<None>	0.00	911.3	34.1
1714	J-652	0.0	<None>	0.00	911.3	394.3
1716	J-653	832.9	<None>	0.00	911.3	33.9

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
36	P-6	836	J-9	J-10	12.0	Ductile Iron	-2.90	0.01	0.000
46	P-11	2,718	J-14	J-15	12.0	Ductile Iron	-80.27	0.23	0.000
48	P-12	1,455	J-15	J-16	12.0	Ductile Iron	-135.46	0.38	0.000
50	P-13	5,229	J-16	J-17	12.0	Ductile Iron	-137.45	0.39	0.000
52	P-14	776	J-17	J-18	12.0	Ductile Iron	0.00	0.00	0.000
56	P-17	134	J-19	J-17	12.0	Ductile Iron	143.34	0.41	0.000
58	P-18	3,031	J-19	J-20	10.0	Ductile Iron	-143.34	0.59	0.000
60	P-19	161	J-20	J-21	10.0	Ductile Iron	-143.34	0.59	0.000
62	P-20	83	J-21	J-22	10.0	Ductile Iron	-260.01	1.06	0.001
64	P-21	1,479	J-22	J-23	16.0	Ductile Iron	-708.95	1.13	0.000
103	P-36	779	J-12	J-46	12.0	Ductile Iron	21.97	0.06	0.000
105	P-37	262	J-46	J-47	12.0	Ductile Iron	21.97	0.06	0.000
107	P-38	241	J-23	J-48	16.0	Ductile Iron	-713.35	1.14	0.000
111	P-41	166	J-48	T-1	16.0	Ductile Iron	198.55	0.32	0.000
113	P-42	363	J-47	J-49	12.0	Ductile Iron	-131.21	0.37	0.000
115	P-43	394	J-49	J-50	12.0	Ductile Iron	-131.21	0.37	0.000
117	P-44	391	J-50	J-51	12.0	Ductile Iron	-132.73	0.38	0.000
121	P-46	556	J-52	J-53	12.0	Ductile Iron	-135.44	0.38	0.000
123	P-47	467	J-53	J-54	12.0	Ductile Iron	-137.14	0.39	0.000
125	P-48	104	J-54	J-55	12.0	Ductile Iron	-138.28	0.39	0.000
129	P-50	538	J-55	J-57	10.0	Ductile Iron	-142.69	0.58	0.000
131	P-51	559	J-57	J-58	10.0	Ductile Iron	-108.90	0.44	0.000
135	P-53	1,328	J-59	J-60	10.0	Ductile Iron	-115.14	0.47	0.000
137	P-54	152	J-60	J-61	8.0	Ductile Iron	5.86	0.04	0.000
141	P-56	426	J-62	J-63	8.0	Ductile Iron	3.02	0.02	0.000
143	P-57	299	J-63	J-64	8.0	Ductile Iron	3.02	0.02	0.000
147	P-59	2,599	J-60	J-66	16.0	Ductile Iron	-474.70	0.76	0.000
153	P-63	1,260	J-21	J-66	10.0	Ductile Iron	116.67	0.48	0.000
155	P-64	586	J-66	J-69	10.0	Ductile Iron	90.72	0.37	0.000
157	P-65	363	J-69	J-70	10.0	Ductile Iron	90.72	0.37	0.000
159	P-66	303	J-70	J-71	10.0	Ductile Iron	90.72	0.37	0.000
163	P-68	253	J-72	J-73	8.0	Ductile Iron	86.48	0.55	0.000
168	P-71	958	J-43	J-75	16.0	Ductile Iron	402.50	0.64	0.000
170	P-72	1,854	J-75	J-76	16.0	Ductile Iron	402.50	0.64	0.000
172	P-73	1,288	J-76	J-77	16.0	Ductile Iron	400.55	0.64	0.000
176	P-75	316	J-78	J-79	16.0	Ductile Iron	5.28	0.01	0.000
178	P-76	344	J-79	J-80	16.0	Ductile Iron	3.08	0.00	0.000
180	P-77	331	J-80	J-81	16.0	Ductile Iron	3.08	0.00	0.000
182	P-78	163	J-81	J-82	10.0	Ductile Iron	3.08	0.01	0.000
184	P-79	320	J-82	J-83	10.0	Ductile Iron	1.57	0.01	0.000
185	P-80	947	J-83	J-78	10.0	Ductile Iron	0.05	0.00	0.000
189	P-82	310	J-84	J-85	16.0	Ductile Iron	392.28	0.63	0.000
197	P-86	444	J-88	J-89	8.0	Ductile Iron	16.06	0.10	0.000
199	P-87	332	J-89	J-90	8.0	Ductile Iron	14.36	0.09	0.000
201	P-88	178	J-90	J-91	8.0	Ductile Iron	12.09	0.08	0.000
203	P-89	447	J-91	J-92	8.0	Ductile Iron	16.38	0.10	0.000
205	P-91	261	J-87	J-91	8.0	Ductile Iron	39.71	0.25	0.000
207	P-92	274	J-92	J-93	8.0	Ductile Iron	50.07	0.32	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
209	P-93	449	J-93	J-94	8.0	Ductile Iron	-32.40	0.21	0.000
211	P-94	252	J-94	J-95	8.0	Ductile Iron	0.00	0.00	0.000
213	P-95	278	J-95	J-96	8.0	Ductile Iron	0.00	0.00	0.000
215	P-96	443	J-73	J-97	8.0	Ductile Iron	79.03	0.50	0.000
219	P-98	334	J-98	J-99	8.0	Ductile Iron	-13.66	0.09	0.000
223	P-100	116	J-100	J-101	6.0	Ductile Iron	-30.21	0.34	0.000
225	P-101	203	J-101	J-102	6.0	Ductile Iron	-48.24	0.55	0.000
227	P-102	327	J-102	J-103	6.0	Ductile Iron	2.20	0.02	0.000
229	P-103	240	J-101	J-104	6.0	Ductile Iron	15.58	0.18	0.000
231	P-104	511	J-104	J-105	6.0	Ductile Iron	15.58	0.18	0.000
233	P-105	642	J-105	J-106	6.0	Ductile Iron	13.88	0.16	0.000
234	P-106	377	J-106	J-97	8.0	Ductile Iron	3.60	0.02	0.000
236	P-107	224	J-85	J-107	12.0	Ductile Iron	293.75	0.83	0.000
238	P-108	446	J-107	J-108	12.0	Ductile Iron	291.55	0.83	0.000
242	P-110	473	J-109	J-110	12.0	Ductile Iron	-177.91	0.50	0.000
244	P-111	425	J-110	J-111	12.0	Ductile Iron	-177.91	0.50	0.000
246	P-113	514	J-109	J-106	8.0	Ductile Iron	37.79	0.24	0.000
248	P-114	138	J-93	J-112	8.0	Ductile Iron	81.33	0.52	0.000
257	P-119	651	J-112	J-116	6.0	Ductile Iron	30.14	0.34	0.000
258	P-120	692	J-116	J-113	6.0	Ductile Iron	77.34	0.88	0.001
259	P-121	33	J-114	J-116	4.0	Ductile Iron	42.00	1.07	0.002
261	P-122	371	J-108	J-117	8.0	Ductile Iron	55.46	0.35	0.000
262	P-123	443	J-117	J-112	8.0	Ductile Iron	-49.50	0.32	0.000
264	P-124	78	J-117	J-118	8.0	Ductile Iron	101.74	0.65	0.000
272	P-128	940	J-118	J-122	4.0	Ductile Iron	5.20	0.13	0.000
274	P-129	577	J-113	J-123	8.0	Ductile Iron	77.16	0.49	0.000
276	P-130	479	J-123	J-124	8.0	Ductile Iron	73.67	0.47	0.000
278	P-131	603	J-118	J-125	8.0	Ductile Iron	94.84	0.61	0.000
280	P-132	636	J-125	J-126	8.0	Ductile Iron	94.84	0.61	0.000
281	P-133	396	J-126	J-109	8.0	Ductile Iron	-135.55	0.87	0.001
283	P-134	71	J-126	J-127	8.0	Ductile Iron	228.50	1.46	0.001
289	P-137	405	J-128	J-129	6.0	Ductile Iron	4.45	0.05	0.000
294	P-140	375	J-130	J-131	8.0	Ductile Iron	-77.03	0.49	0.000
295	P-141	444	J-131	J-127	8.0	Ductile Iron	-80.24	0.51	0.000
297	P-142	443	J-132	J-131	6.0	Ductile Iron	-1.70	0.02	0.000
299	P-143	364	J-128	J-133	8.0	Ductile Iron	90.74	0.58	0.000
301	P-144	406	J-133	J-134	8.0	Ductile Iron	-17.70	0.11	0.000
303	P-145	157	J-134	J-135	8.0	Ductile Iron	-14.63	0.09	0.000
305	P-146	466	J-134	J-136	8.0	Ductile Iron	-4.58	0.03	0.000
307	P-147	355	J-130	J-137	10.0	Ductile Iron	108.15	0.44	0.000
309	P-148	365	J-137	J-138	12.0	Ductile Iron	255.89	0.73	0.000
311	P-149	382	J-138	J-139	12.0	Ductile Iron	-32.28	0.09	0.000
313	P-150	347	J-139	J-140	12.0	Ductile Iron	-141.06	0.40	0.000
316	P-152	359	J-137	J-141	8.0	Ductile Iron	-53.28	0.34	0.000
317	P-153	999	J-141	J-133	8.0	Ductile Iron	-59.61	0.38	0.000
319	P-154	749	J-60	J-142	16.0	Ductile Iron	353.32	0.56	0.000
321	P-155	549	J-142	J-143	16.0	Ductile Iron	341.99	0.55	0.000
330	P-159	541	J-144	J-148	6.0	Ductile Iron	-1.13	0.01	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
332	P-160	266	J-148	J-149	6.0	Ductile Iron	-19.64	0.22	0.000
334	P-161	662	J-149	J-150	6.0	Ductile Iron	-7.21	0.08	0.000
338	P-164	275	J-150	J-151	10.0	Ductile Iron	30.93	0.13	0.000
340	P-165	934	J-151	J-152	6.0	Ductile Iron	4.91	0.06	0.000
346	P-169	218	J-47	J-154	12.0	Ductile Iron	153.19	0.43	0.000
351	P-171	335	J-154	J-157	12.0	Ductile Iron	153.19	0.43	0.000
353	P-173	256	J-156	J-157	12.0	Ductile Iron	-98.23	0.28	0.000
357	P-175	245	J-158	J-159	10.0	Ductile Iron	-14.42	0.06	0.000
359	P-176	1,125	J-159	J-160	10.0	Ductile Iron	-123.96	0.51	0.000
363	P-178	298	J-161	J-162	16.0	Ductile Iron	-199.77	0.32	0.000
365	P-179	446	J-162	J-163	16.0	Ductile Iron	-201.28	0.32	0.000
367	P-180	242	J-163	J-164	16.0	Ductile Iron	-201.28	0.32	0.000
369	P-181	429	J-164	J-165	16.0	Ductile Iron	-277.16	0.44	0.000
371	P-182	212	J-165	J-166	16.0	Ductile Iron	-277.16	0.44	0.000
373	P-183	307	J-166	J-167	16.0	Ductile Iron	-296.02	0.47	0.000
375	P-184	417	J-167	J-168	16.0	Ductile Iron	-296.02	0.47	0.000
376	P-185	361	J-168	J-143	16.0	Ductile Iron	-296.90	0.47	0.000
378	P-186	1,314	J-148	J-169	6.0	Ductile Iron	17.18	0.19	0.000
387	P-191	439	J-172	J-173	6.0	Ductile Iron	-7.47	0.08	0.000
389	P-192	282	J-173	J-174	6.0	Ductile Iron	-10.36	0.12	0.000
391	P-193	291	J-174	J-175	6.0	Ductile Iron	-12.86	0.15	0.000
392	P-194	449	J-175	J-169	6.0	Ductile Iron	-14.00	0.16	0.000
395	P-196	322	J-172	J-176	12.0	Ductile Iron	-36.24	0.10	0.000
397	P-197	254	J-176	J-177	12.0	Ductile Iron	-37.76	0.11	0.000
405	P-204	102	J-177	J-178	12.0	Ductile Iron	-37.76	0.11	0.000
406	P-205	620	J-178	J-164	12.0	Ductile Iron	-85.39	0.24	0.000
408	P-206	89	J-178	J-179	8.0	Ductile Iron	-9.80	0.06	0.000
409	P-207	467	J-173	J-179	6.0	Ductile Iron	1.57	0.02	0.000
411	P-208	274	J-179	J-180	6.0	Ductile Iron	-10.82	0.12	0.000
412	P-209	467	J-180	J-174	6.0	Ductile Iron	0.33	0.00	0.000
414	P-210	466	J-169	J-181	6.0	Ductile Iron	-2.79	0.03	0.000
415	P-211	469	J-181	J-166	6.0	Ductile Iron	-18.29	0.21	0.000
416	P-212	740	J-180	J-181	6.0	Ductile Iron	-13.80	0.16	0.000
425	P-217	65	J-184	J-185	4.0	Ductile Iron	0.00	0.00	0.000
427	P-218	398	J-184	J-186	6.0	Ductile Iron	0.00	0.00	0.000
431	P-220	521	J-187	J-188	10.0	Ductile Iron	76.21	0.31	0.000
433	P-221	366	J-188	J-189	10.0	Ductile Iron	127.03	0.52	0.000
435	P-222	418	J-189	J-190	10.0	Ductile Iron	156.70	0.64	0.000
437	P-223	326	J-190	J-191	6.0	Ductile Iron	66.43	0.75	0.001
440	P-225	303	J-192	J-164	12.0	Ductile Iron	9.51	0.03	0.000
442	P-226	543	J-191	J-193	6.0	Ductile Iron	28.91	0.33	0.000
445	P-228	448	J-190	J-194	10.0	Ductile Iron	90.26	0.37	0.000
466	P-240	44	J-202	J-203	4.0	Ductile Iron	-135.00	3.45	0.018
468	P-241	82	J-202	J-204	16.0	Ductile Iron	124.98	0.20	0.000
470	P-242	373	J-204	J-205	8.0	Ductile Iron	56.09	0.36	0.000
474	P-244	91	J-204	J-207	8.0	Ductile Iron	66.69	0.43	0.000
476	P-245	186	J-207	J-208	8.0	Ductile Iron	-27.16	0.17	0.000
478	P-246	284	J-208	J-209	8.0	Ductile Iron	-88.06	0.56	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
486	P-251	352	J-133	J-212	8.0	Ductile Iron	42.13	0.27	0.000
488	P-252	352	J-212	J-213	12.0	Ductile Iron	7.33	0.02	0.000
490	P-253	44	J-213	J-214	12.0	Ductile Iron	-10.31	0.03	0.000
496	P-257	334	J-215	J-214	12.0	Ductile Iron	10.31	0.03	0.000
497	P-258	172	J-207	J-216	8.0	Ductile Iron	93.85	0.60	0.000
498	P-259	369	J-216	J-215	12.0	Ductile Iron	34.19	0.10	0.000
500	P-260	545	J-217	J-48	10.0	Ductile Iron	1,000.00	4.08	0.007
507	P-264	251	J-219	J-220	8.0	Ductile Iron	-57.80	0.37	0.000
509	P-265	413	J-220	J-221	12.0	Ductile Iron	44.24	0.13	0.000
511	P-266	350	J-221	J-222	12.0	Ductile Iron	-10.15	0.03	0.000
513	P-267	339	J-222	J-223	10.0	Ductile Iron	140.31	0.57	0.000
514	P-268	360	J-223	J-137	10.0	Ductile Iron	96.92	0.40	0.000
516	P-269	462	J-215	J-224	8.0	Ductile Iron	19.84	0.13	0.000
518	P-270	471	J-213	J-225	12.0	Ductile Iron	31.92	0.09	0.000
520	P-271	419	J-225	J-226	12.0	Ductile Iron	-26.94	0.08	0.000
522	P-272	100	J-226	J-227	12.0	Ductile Iron	-47.83	0.14	0.000
524	P-273	179	J-227	J-228	12.0	Ductile Iron	-52.85	0.15	0.000
526	P-274	44	J-228	J-229	8.0	Ductile Iron	-268.00	1.71	0.002
528	P-275	60	J-228	J-230	12.0	Ductile Iron	215.15	0.61	0.000
529	P-276	127	J-230	J-222	12.0	Ductile Iron	209.08	0.59	0.000
532	P-278	486	J-212	J-231	6.0	Ductile Iron	25.11	0.28	0.000
534	P-279	472	J-231	J-232	6.0	Ductile Iron	16.17	0.18	0.000
535	P-280	399	J-232	J-223	6.0	Ductile Iron	14.47	0.16	0.000
537	P-281	212	J-138	J-233	12.0	Ductile Iron	287.23	0.81	0.000
539	P-282	418	J-233	J-234	12.0	Ductile Iron	232.84	0.66	0.000
541	P-283	1,057	J-234	J-235	12.0	Ductile Iron	-18.71	0.05	0.000
543	P-284	122	J-234	J-236	12.0	Ductile Iron	152.16	0.43	0.000
545	P-285	510	J-236	J-237	12.0	Ductile Iron	150.26	0.43	0.000
547	P-286	274	J-237	J-238	12.0	Ductile Iron	41.48	0.12	0.000
549	P-287	379	J-238	J-239	12.0	Ductile Iron	-67.30	0.19	0.000
551	P-288	575	J-239	J-240	6.0	Ductile Iron	-13.93	0.16	0.000
553	P-289	496	J-240	J-241	6.0	Ductile Iron	-18.09	0.21	0.000
554	P-290	842	J-241	J-234	12.0	Ductile Iron	9.39	0.03	0.000
556	P-291	442	J-242	J-239	8.0	Ductile Iron	-7.66	0.05	0.000
558	P-292	327	J-242	J-243	6.0	Ductile Iron	3.96	0.04	0.000
560	P-293	299	J-243	J-244	6.0	Ductile Iron	-0.09	0.00	0.000
562	P-294	708	J-244	J-245	6.0	Ductile Iron	3.81	0.04	0.000
564	P-295	249	J-245	J-246	8.0	Ductile Iron	4.38	0.03	0.000
566	P-296	208	J-246	J-247	8.0	Ductile Iron	2.35	0.01	0.000
568	P-297	638	J-247	J-248	8.0	Ductile Iron	-0.67	0.00	0.000
570	P-298	206	J-248	J-249	8.0	Ductile Iron	-3.70	0.02	0.000
572	P-299	278	J-249	J-250	8.0	Ductile Iron	1.67	0.01	0.000
573	P-300	359	J-250	J-246	8.0	Ductile Iron	1.67	0.01	0.000
577	P-302	222	J-249	J-252	8.0	Ductile Iron	-8.01	0.05	0.000
579	P-303	115	J-252	J-253	8.0	Ductile Iron	-8.01	0.05	0.000
581	P-304	264	J-253	J-254	10.0	Ductile Iron	-8.01	0.03	0.000
585	P-306	328	J-255	J-256	8.0	Ductile Iron	0.76	0.00	0.000
592	P-310	517	J-244	J-259	8.0	Ductile Iron	5.88	0.04	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
594	P-311	449	J-259	J-260	8.0	Ductile Iron	4.93	0.03	0.000
597	P-314	541	J-245	J-260	6.0	Ductile Iron	-2.84	0.03	0.000
599	P-315	121	J-260	J-261	8.0	Ductile Iron	0.96	0.01	0.000
600	P-316	405	J-261	J-254	8.0	Ductile Iron	0.21	0.00	0.000
603	P-317	403	J-220	J-263	12.0	Ductile Iron	435.26	1.23	0.001
605	P-318	308	J-263	J-264	8.0	Ductile Iron	90.59	0.58	0.000
606	P-319	327	J-264	J-241	12.0	Ductile Iron	27.48	0.08	0.000
608	P-320	273	J-263	J-265	8.0	Ductile Iron	72.15	0.46	0.000
610	P-321	153	J-265	J-266	8.0	Ductile Iron	73.32	0.47	0.000
612	P-322	169	J-266	J-267	8.0	Ductile Iron	80.98	0.52	0.000
614	P-323	473	J-267	J-268	12.0	Ductile Iron	80.98	0.23	0.000
616	P-324	224	J-268	J-269	12.0	Ductile Iron	59.12	0.17	0.000
617	P-325	434	J-269	J-239	12.0	Ductile Iron	63.30	0.18	0.000
619	P-326	687	J-269	J-270	4.0	Ductile Iron	-6.07	0.16	0.000
620	P-327	372	J-270	J-264	6.0	Ductile Iron	-8.34	0.09	0.000
623	P-329	171	J-271	J-244	6.0	Ductile Iron	12.24	0.14	0.000
628	P-332	354	J-272	J-273	6.0	Ductile Iron	26.44	0.30	0.000
630	P-333	380	J-273	J-274	6.0	Ductile Iron	39.54	0.45	0.000
632	P-334	167	J-274	J-275	6.0	Ductile Iron	26.87	0.30	0.000
636	P-336	384	J-276	J-277	8.0	Ductile Iron	30.83	0.20	0.000
642	P-340	198	J-277	J-279	16.0	Ductile Iron	-446.28	0.71	0.000
643	P-341	904	J-279	J-275	2.0	Ductile Iron	-0.90	0.09	0.000
645	P-342	405	J-274	J-280	8.0	Ductile Iron	7.64	0.05	0.000
648	P-344	167	J-281	J-279	12.0	Ductile Iron	446.32	1.27	0.001
650	P-345	32	J-281	J-282	12.0	Ductile Iron	-513.19	1.46	0.001
652	P-346	329	J-282	J-283	16.0	Ductile Iron	-530.84	0.85	0.000
654	P-347	353	J-283	J-284	6.0	Ductile Iron	21.20	0.24	0.000
655	P-348	557	J-284	J-273	6.0	Ductile Iron	19.68	0.22	0.000
657	P-349	369	J-283	J-285	16.0	Ductile Iron	-553.55	0.88	0.000
659	P-350	365	J-285	J-286	8.0	Ductile Iron	63.48	0.41	0.000
661	P-352	546	J-286	J-272	8.0	Ductile Iron	61.96	0.40	0.000
663	P-353	365	J-285	J-287	16.0	Ductile Iron	-618.54	0.99	0.000
665	P-354	371	J-287	J-288	6.0	Ductile Iron	-19.01	0.22	0.000
667	P-355	77	J-288	J-289	6.0	Ductile Iron	-20.71	0.23	0.000
669	P-356	460	J-289	J-290	6.0	Ductile Iron	8.30	0.09	0.000
671	P-357	67	J-290	J-291	6.0	Ductile Iron	53.02	0.60	0.000
672	P-358	401	J-291	J-188	6.0	Ductile Iron	53.02	0.60	0.000
674	P-359	470	J-187	J-292	10.0	Ductile Iron	-225.06	0.92	0.000
676	P-360	84	J-292	J-293	8.0	Ductile Iron	47.99	0.31	0.000
677	P-361	434	J-293	J-290	8.0	Ductile Iron	47.05	0.30	0.000
679	P-362	456	J-292	J-294	10.0	Ductile Iron	-103.20	0.42	0.000
680	P-363	522	J-294	J-289	6.0	Ductile Iron	30.14	0.34	0.000
683	P-365	525	J-295	J-287	16.0	Ductile Iron	598.55	0.96	0.000
685	P-366	380	J-282	J-296	8.0	Ductile Iron	16.14	0.10	0.000
687	P-367	60	J-296	J-297	6.0	Ductile Iron	64.52	0.73	0.001
689	P-368	371	J-297	J-298	6.0	Ductile Iron	87.83	1.00	0.001
691	P-369	217	J-298	J-299	6.0	Ductile Iron	29.55	0.34	0.000
693	P-370	212	J-299	J-300	4.0	Ductile Iron	21.12	0.54	0.001

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
695	P-371	232	J-300	J-301	4.0	Ductile Iron	4.64	0.12	0.000
696	P-372	244	J-301	J-265	4.0	Ductile Iron	2.49	0.06	0.000
698	P-373	245	J-266	J-302	4.0	Ductile Iron	-7.67	0.20	0.000
700	P-374	233	J-302	J-303	4.0	Ductile Iron	-1.46	0.04	0.000
701	P-375	561	J-303	J-302	4.0	Ductile Iron	0.91	0.02	0.000
702	P-376	151	J-300	J-303	4.0	Ductile Iron	7.84	0.20	0.000
703	P-377	152	J-301	J-302	4.0	Ductile Iron	5.30	0.14	0.000
704	P-378	473	J-300	J-301	4.0	Ductile Iron	3.16	0.08	0.000
706	P-379	631	J-299	J-304	6.0	Ductile Iron	5.97	0.07	0.000
708	P-380	419	J-271	J-305	6.0	Ductile Iron	-4.66	0.05	0.000
712	P-382	320	J-306	J-307	6.0	Ductile Iron	5.00	0.06	0.000
714	P-383	259	J-306	J-308	6.0	Ductile Iron	-18.73	0.21	0.000
716	P-384	318	J-308	J-309	6.0	Ductile Iron	5.01	0.06	0.000
718	P-385	320	J-308	J-310	6.0	Ductile Iron	3.59	0.04	0.000
720	P-386	514	J-310	J-311	6.0	Ductile Iron	1.89	0.02	0.000
722	P-387	290	J-308	J-312	6.0	Ductile Iron	-31.95	0.36	0.000
724	P-388	331	J-312	J-313	6.0	Ductile Iron	-7.39	0.08	0.000
726	P-389	323	J-313	J-314	6.0	Ductile Iron	-7.89	0.09	0.000
728	P-390	300	J-314	J-315	6.0	Ductile Iron	-28.96	0.33	0.000
730	P-391	795	J-315	J-316	6.0	Ductile Iron	-29.90	0.34	0.000
732	P-392	289	J-316	J-317	6.0	Ductile Iron	34.91	0.40	0.000
733	P-393	793	J-317	J-313	2.0	Ductile Iron	1.58	0.16	0.000
735	P-394	254	J-317	J-318	6.0	Ductile Iron	31.26	0.35	0.000
736	P-395	503	J-318	J-312	6.0	Ductile Iron	28.80	0.33	0.000
738	P-396	99	J-316	J-319	6.0	Ductile Iron	-66.32	0.75	0.001
740	P-397	363	J-319	J-320	6.0	Ductile Iron	-67.65	0.77	0.001
742	P-398	313	J-320	J-321	6.0	Ductile Iron	-69.54	0.79	0.001
744	P-399	72	J-321	J-322	6.0	Ductile Iron	-70.48	0.80	0.001
746	P-400	11	J-322	J-323	6.0	Ductile Iron	-38.83	0.44	0.000
748	P-401	328	J-323	J-324	12.0	Ductile Iron	-43.93	0.12	0.000
750	P-402	145	J-324	J-325	12.0	Ductile Iron	-16.73	0.05	0.000
752	P-403	80	J-325	J-326	12.0	Ductile Iron	-16.73	0.05	0.000
754	P-404	591	J-326	J-327	12.0	Ductile Iron	10.13	0.03	0.000
756	P-405	622	J-327	J-328	12.0	Ductile Iron	9.19	0.03	0.000
758	P-406	169	J-328	J-329	6.0	Ductile Iron	2.08	0.02	0.000
760	P-407	392	J-328	J-330	12.0	Ductile Iron	6.54	0.02	0.000
764	P-409	588	J-331	J-332	6.0	Ductile Iron	2.39	0.03	0.000
771	P-412	402	J-326	J-336	6.0	Ductile Iron	-27.62	0.31	0.000
773	P-413	203	J-336	J-337	6.0	Ductile Iron	-16.40	0.19	0.000
778	P-416	95	J-337	J-339	8.0	Ductile Iron	0.00	0.00	0.000
780	P-417	409	J-324	J-340	6.0	Ductile Iron	-28.34	0.32	0.000
781	P-418	127	J-340	J-336	6.0	Ductile Iron	11.22	0.13	0.000
783	P-419	282	J-340	J-341	8.0	Ductile Iron	-39.56	0.25	0.000
784	P-420	162	J-341	J-337	6.0	Ductile Iron	16.40	0.19	0.000
786	P-421	94	J-341	J-342	8.0	Ductile Iron	-55.96	0.36	0.000
788	P-422	211	J-342	J-343	8.0	Ductile Iron	0.00	0.00	0.000
792	P-425	67	J-342	J-344	8.0	Ductile Iron	-58.22	0.37	0.000
794	P-426	128	J-344	J-345	8.0	Ductile Iron	-58.22	0.37	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
796	P-427	200	J-345	J-346	8.0	Ductile Iron	0.00	0.00	0.000
798	P-428	196	J-345	J-347	8.0	Ductile Iron	-60.87	0.39	0.000
800	P-429	314	J-347	J-348	6.0	Ductile Iron	14.93	0.17	0.000
802	P-430	633	J-348	J-349	6.0	Ductile Iron	11.91	0.14	0.000
804	P-431	48	J-349	J-350	6.0	Ductile Iron	1.32	0.02	0.000
806	P-432	131	J-349	J-351	6.0	Ductile Iron	8.32	0.09	0.000
811	P-437	539	J-351	J-322	6.0	Ductile Iron	33.16	0.38	0.000
815	P-439	385	J-287	J-353	6.0	Ductile Iron	-4.00	0.05	0.000
817	P-440	563	J-353	J-354	6.0	Ductile Iron	29.10	0.33	0.000
818	P-441	506	J-354	J-296	6.0	Ductile Iron	49.51	0.56	0.000
820	P-442	385	J-295	J-355	1.3	Ductile Iron	0.51	0.13	0.000
821	P-443	521	J-355	J-353	6.0	Ductile Iron	30.25	0.34	0.000
823	P-444	416	J-353	J-356	6.0	Ductile Iron	-6.64	0.08	0.000
825	P-445	488	J-356	J-357	6.0	Ductile Iron	24.38	0.28	0.000
826	P-446	384	J-357	J-354	6.0	Ductile Iron	22.49	0.26	0.000
832	P-450	397	J-355	J-359	6.0	Ductile Iron	28.49	0.32	0.000
833	P-451	568	J-359	J-356	8.0	Ductile Iron	33.09	0.21	0.000
835	P-452	618	J-359	J-360	6.0	Ductile Iron	-11.57	0.13	0.000
837	P-453	484	J-360	J-361	6.0	Ductile Iron	33.82	0.38	0.000
839	P-454	590	J-361	J-362	6.0	Ductile Iron	32.12	0.36	0.000
841	P-455	780	J-362	J-363	6.0	Ductile Iron	28.41	0.32	0.000
842	P-456	434	J-363	J-297	6.0	Ductile Iron	26.90	0.31	0.000
844	P-457	149	J-292	J-364	8.0	Ductile Iron	-171.62	1.10	0.001
846	P-458	380	J-364	J-365	8.0	Ductile Iron	-174.92	1.12	0.001
848	P-459	455	J-365	J-366	8.0	Ductile Iron	-174.92	1.12	0.001
850	P-460	304	J-366	J-367	6.0	Ductile Iron	-19.73	0.22	0.000
852	P-461	605	J-367	J-368	6.0	Ductile Iron	37.12	0.42	0.000
854	P-462	323	J-368	J-369	6.0	Ductile Iron	86.46	0.98	0.001
856	P-463	306	J-368	J-370	6.0	Ductile Iron	-49.34	0.56	0.000
858	P-464	326	J-370	J-371	6.0	Ductile Iron	-61.97	0.70	0.001
860	P-465	300	J-371	J-372	8.0	Ductile Iron	-1.98	0.01	0.000
861	P-466	327	J-372	J-367	6.0	Ductile Iron	58.36	0.66	0.001
863	P-467	327	J-366	J-373	8.0	Ductile Iron	-158.90	1.01	0.001
864	P-468	303	J-373	J-372	8.0	Ductile Iron	61.67	0.39	0.000
866	P-469	311	J-373	J-374	8.0	Ductile Iron	-220.57	1.41	0.001
868	P-470	500	J-374	J-375	8.0	Ductile Iron	-222.77	1.42	0.001
870	P-471	687	J-375	J-376	8.0	Ductile Iron	-223.15	1.42	0.001
872	P-472	341	J-376	J-377	10.0	Ductile Iron	-171.79	0.70	0.000
874	P-473	239	J-377	J-378	10.0	Ductile Iron	-190.32	0.78	0.000
876	P-474	597	J-378	J-379	10.0	Ductile Iron	-201.91	0.82	0.000
878	P-475	165	J-379	J-380	10.0	Ductile Iron	-247.33	1.01	0.001
880	P-476	144	J-380	J-381	14.0	Ductile Iron	1,086.95	2.27	0.002
882	P-477	412	J-381	J-382	14.0	Ductile Iron	1,127.80	2.35	0.002
887	P-480	244	J-382	J-384	14.0	Ductile Iron	1,091.42	2.27	0.002
889	P-481	74	J-384	J-385	14.0	Ductile Iron	1,081.10	2.25	0.002
891	P-482	593	J-385	J-386	14.0	Ductile Iron	964.09	2.01	0.001
893	P-483	9	J-386	J-387	14.0	Ductile Iron	944.83	1.97	0.001
895	P-484	403	J-387	J-388	8.0	Ductile Iron	131.86	0.84	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
896	P-485	302	J-388	J-371	8.0	Ductile Iron	61.12	0.39	0.000
905	P-490	300	J-391	J-392	8.0	Ductile Iron	3.52	0.02	0.000
907	P-491	269	J-392	J-393	8.0	Ductile Iron	3.52	0.02	0.000
909	P-492	273	J-393	J-394	8.0	Ductile Iron	3.52	0.02	0.000
911	P-493	300	J-394	J-395	8.0	Ductile Iron	1.32	0.01	0.000
913	P-494	274	J-395	J-396	8.0	Ductile Iron	-0.88	0.01	0.000
916	P-496	451	J-396	J-397	8.0	Ductile Iron	-3.08	0.02	0.000
918	P-497	277	J-397	J-398	8.0	Ductile Iron	-5.28	0.03	0.000
919	P-498	106	J-398	J-384	8.0	Ductile Iron	-8.80	0.06	0.000
920	P-499	68	J-391	J-398	8.0	Ductile Iron	-3.52	0.02	0.000
923	P-500	302	J-370	J-400	6.0	Ductile Iron	11.49	0.13	0.000
924	P-501	325	J-400	J-388	6.0	Ductile Iron	-69.42	0.79	0.001
926	P-502	324	J-400	J-401	6.0	Ductile Iron	79.59	0.90	0.001
927	P-503	669	J-401	J-295	14.0	Ductile Iron	659.13	1.37	0.001
929	P-504	394	J-401	J-402	14.0	Ductile Iron	-581.81	1.21	0.001
931	P-505	267	J-402	J-403	6.0	Ductile Iron	110.98	1.26	0.002
932	P-506	405	J-403	J-355	6.0	Ductile Iron	61.50	0.70	0.001
934	P-507	334	J-387	J-404	14.0	Ductile Iron	811.08	1.69	0.001
935	P-508	314	J-404	J-402	14.0	Ductile Iron	694.87	1.45	0.001
937	P-509	48	J-360	J-405	6.0	Ductile Iron	-46.53	0.53	0.000
939	P-510	248	J-405	J-406	6.0	Ductile Iron	-37.67	0.43	0.000
941	P-511	297	J-406	J-407	4.0	Ductile Iron	-13.30	0.34	0.000
943	P-512	337	J-407	J-408	6.0	Ductile Iron	-15.19	0.17	0.000
945	P-513	549	J-408	J-409	6.0	Ductile Iron	-17.27	0.20	0.000
946	P-514	245	J-409	J-403	6.0	Ductile Iron	-45.60	0.52	0.000
947	P-515	908	J-409	J-406	6.0	Ductile Iron	27.39	0.31	0.000
949	P-516	655	J-271	J-410	8.0	Ductile Iron	7.67	0.05	0.000
951	P-517	545	J-410	J-411	6.0	Ductile Iron	-17.28	0.20	0.000
953	P-518	516	J-411	J-412	6.0	Ductile Iron	-18.04	0.20	0.000
954	P-519	412	J-412	J-314	6.0	Ductile Iron	-19.93	0.23	0.000
956	P-520	275	J-405	J-413	6.0	Ductile Iron	-9.43	0.11	0.000
957	P-521	846	J-413	J-351	6.0	Ductile Iron	24.84	0.28	0.000
959	P-522	539	J-347	J-414	6.0	Ductile Iron	-77.69	0.88	0.001
960	P-523	2,343	J-71	J-76	2.0	Ductile Iron	-1.95	0.20	0.000
965	P-526	79	J-87	J-416	8.0	Ductile Iron	-60.68	0.39	0.000
967	P-528	262	J-91	J-94	8.0	Ductile Iron	34.29	0.22	0.000
970	P-529	43	J-417	J-418	4.0	Ductile Iron	102.00	2.60	0.011
973	P-532	51	J-418	T-2	14.0	Ductile Iron	214.62	0.45	0.000
975	P-533	72	J-418	J-419	14.0	Ductile Iron	-112.62	0.23	0.000
977	P-534	550	J-419	J-420	14.0	Ductile Iron	-112.62	0.23	0.000
978	P-535	367	J-420	J-404	14.0	Ductile Iron	-114.13	0.24	0.000
982	P-537	253	J-421	J-422	6.0	Ductile Iron	-44.11	0.50	0.000
984	P-538	394	J-422	J-423	6.0	Ductile Iron	-45.81	0.52	0.000
986	P-539	343	J-423	J-424	8.0	Ductile Iron	-105.08	0.67	0.000
988	P-540	293	J-424	J-425	8.0	Ductile Iron	-16.61	0.11	0.000
989	P-541	675	J-425	J-386	8.0	Ductile Iron	-18.50	0.12	0.000
991	P-542	437	J-421	J-426	4.0	Ductile Iron	6.97	0.18	0.000
993	P-543	225	J-426	J-427	6.0	Ductile Iron	-2.75	0.03	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
995	P-544	419	J-427	J-428	6.0	Ductile Iron	-3.89	0.04	0.000
997	P-545	258	J-428	J-429	6.0	Ductile Iron	91.97	1.04	0.001
999	P-546	24	J-428	J-430	6.0	Ductile Iron	-96.61	1.10	0.001
1005	P-549	209	J-432	J-433	6.0	Ductile Iron	-17.59	0.20	0.000
1006	P-550	230	J-433	J-385	6.0	Ductile Iron	-116.07	1.32	0.002
1008	P-551	429	J-433	J-434	8.0	Ductile Iron	97.53	0.62	0.000
1010	P-552	245	J-434	J-435	8.0	Ductile Iron	95.83	0.61	0.000
1012	P-553	255	J-435	J-436	8.0	Ductile Iron	93.94	0.60	0.000
1013	P-554	364	J-436	J-424	8.0	Ductile Iron	92.05	0.59	0.000
1014	P-555	646	J-382	J-432	4.0	Ductile Iron	35.25	0.90	0.001
1016	P-556	108	J-381	J-437	8.0	Ductile Iron	-40.85	0.26	0.000
1018	P-557	376	J-437	J-438	8.0	Ductile Iron	-42.36	0.27	0.000
1020	P-558	56	J-438	J-439	8.0	Ductile Iron	-42.36	0.27	0.000
1024	P-560	177	J-439	J-441	8.0	Ductile Iron	-17.63	0.11	0.000
1026	P-561	475	J-441	J-442	8.0	Ductile Iron	-18.38	0.12	0.000
1028	P-562	250	J-442	J-443	8.0	Ductile Iron	-20.46	0.13	0.000
1030	P-563	50	J-443	J-444	8.0	Ductile Iron	-21.41	0.14	0.000
1032	P-564	248	J-444	J-445	8.0	Ductile Iron	26.81	0.17	0.000
1033	P-565	254	J-445	J-439	8.0	Ductile Iron	26.81	0.17	0.000
1035	P-566	397	J-444	J-446	8.0	Ductile Iron	-49.35	0.31	0.000
1037	P-567	55	J-446	J-447	6.0	Ductile Iron	-37.34	0.42	0.000
1039	P-568	256	J-447	J-448	6.0	Ductile Iron	-37.34	0.42	0.000
1041	P-569	636	J-448	J-449	6.0	Ductile Iron	16.36	0.19	0.000
1042	P-570	955	J-449	J-446	6.0	Ductile Iron	14.85	0.17	0.000
1044	P-571	295	J-448	J-450	6.0	Ductile Iron	-56.53	0.64	0.000
1046	P-572	873	J-450	J-451	6.0	Ductile Iron	-22.62	0.26	0.000
1048	P-573	283	J-451	J-452	6.0	Ductile Iron	37.69	0.43	0.000
1049	P-574	63	J-452	J-450	6.0	Ductile Iron	35.42	0.40	0.000
1051	P-575	141	J-451	J-453	6.0	Ductile Iron	-63.14	0.72	0.001
1052	P-576	45	J-453	J-380	12.0	Ductile Iron	1,335.04	3.79	0.005
1054	P-577	474	J-453	J-454	12.0	Ductile Iron	-1,398.56	3.97	0.005
1056	P-578	70	J-454	J-455	12.0	Ductile Iron	-1,399.13	3.97	0.005
1058	P-579	54	J-455	J-456	8.0	Ductile Iron	2.83	0.02	0.000
1060	P-580	306	J-456	J-457	8.0	Ductile Iron	0.00	0.00	0.000
1062	P-581	376	J-376	J-458	8.0	Ductile Iron	-54.00	0.34	0.000
1064	P-582	290	J-458	J-459	8.0	Ductile Iron	-55.32	0.35	0.000
1068	P-584	394	J-459	J-461	8.0	Ductile Iron	-24.23	0.15	0.000
1070	P-585	266	J-461	J-462	8.0	Ductile Iron	-26.50	0.17	0.000
1072	P-586	372	J-462	J-463	8.0	Ductile Iron	-46.05	0.29	0.000
1078	P-590	266	J-463	J-465	8.0	Ductile Iron	-47.00	0.30	0.000
1080	P-591	352	J-465	J-466	8.0	Ductile Iron	-48.32	0.31	0.000
1082	P-592	145	J-466	J-467	8.0	Ductile Iron	-49.26	0.31	0.000
1084	P-593	382	J-467	J-468	6.0	Ductile Iron	-42.39	0.48	0.000
1085	P-594	385	J-468	J-379	6.0	Ductile Iron	-43.53	0.49	0.000
1086	P-595	405	J-467	J-378	6.0	Ductile Iron	-9.70	0.11	0.000
1088	P-596	436	J-462	J-469	8.0	Ductile Iron	18.61	0.12	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1090	P-597	188	J-469	J-470	8.0	Ductile Iron	32.41	0.21	0.000
1091	P-598	69	J-470	J-459	8.0	Ductile Iron	32.41	0.21	0.000
1093	P-599	312	J-469	J-471	8.0	Ductile Iron	-14.56	0.09	0.000
1094	P-600	352	J-471	J-377	6.0	Ductile Iron	-15.88	0.18	0.000
1096	P-601	283	J-158	J-472	6.0	Ductile Iron	65.06	0.74	0.001
1100	P-603	412	J-224	J-474	8.0	Ductile Iron	-11.61	0.07	0.000
1101	P-604	384	J-474	J-226	8.0	Ductile Iron	-15.33	0.10	0.000
1107	P-606	683	J-477	J-478	6.0	Ductile Iron	68.87	0.78	0.001
1113	P-610	90	J-479	J-480	6.0	Ductile Iron	-21.09	0.24	0.000
1115	P-611	104	J-480	J-481	6.0	Ductile Iron	-184.76	2.10	0.004
1117	P-612	710	J-481	J-482	12.0	Ductile Iron	1,090.24	3.09	0.003
1119	P-613	62	J-482	J-483	12.0	Ductile Iron	-153.72	0.44	0.000
1121	P-614	640	J-480	J-484	6.0	Ductile Iron	161.21	1.83	0.003
1122	P-615	33	J-484	J-482	12.0	Ductile Iron	-1,242.45	3.52	0.004
1123	P-616	267	J-484	J-455	12.0	Ductile Iron	1,401.96	3.98	0.005
1125	P-617	280	J-483	J-485	12.0	Ductile Iron	-157.61	0.45	0.000
1127	P-618	450	J-485	J-486	12.0	Ductile Iron	-158.37	0.45	0.000
1129	P-619	66	J-486	J-487	12.0	Ductile Iron	-161.01	0.46	0.000
1131	P-620	203	J-487	J-488	12.0	Ductile Iron	-161.39	0.46	0.000
1133	P-621	504	J-488	J-489	12.0	Ductile Iron	-161.77	0.46	0.000
1137	P-623	78	J-489	J-491	12.0	Ductile Iron	-161.77	0.46	0.000
1144	P-627	362	J-493	J-494	6.0	Ductile Iron	-84.48	0.96	0.001
1146	P-628	459	J-494	J-495	6.0	Ductile Iron	-85.99	0.98	0.001
1148	P-629	171	J-486	J-496	6.0	Ductile Iron	2.08	0.02	0.000
1151	P-630	55	J-497	J-498	4.0	Ductile Iron	0.00	0.00	0.000
1152	P-631	72	J-498	J-492	6.0	Ductile Iron	0.00	0.00	0.000
1154	P-632	400	J-13	J-499	12.0	Ductile Iron	-79.26	0.22	0.000
1157	P-634	400	J-499	J-500	12.0	Ductile Iron	-79.26	0.22	0.000
1158	P-635	140	J-500	J-14	12.0	Ductile Iron	-79.26	0.22	0.000
1160	P-636	1,235	J-66	J-501	16.0	Ductile Iron	-448.94	0.72	0.000
1161	P-637	88	J-501	J-22	16.0	Ductile Iron	-448.94	0.72	0.000
1169	P-642	564	J-97	J-504	8.0	Ductile Iron	101.31	0.65	0.000
1170	P-643	236	J-504	J-128	8.0	Ductile Iron	97.71	0.62	0.000
1172	P-644	236	J-129	J-505	6.0	Ductile Iron	-39.62	0.45	0.000
1174	P-646	405	J-504	J-505	4.0	Ductile Iron	3.60	0.09	0.000
1176	P-647	171	J-426	J-506	6.0	Ductile Iron	8.02	0.09	0.000
1178	P-648	127	J-506	J-507	6.0	Ductile Iron	1.89	0.02	0.000
1180	P-649	198	J-506	J-508	6.0	Ductile Iron	4.62	0.05	0.000
1182	P-650	502	J-413	J-509	4.0	Ductile Iron	-38.74	0.99	0.002
1183	P-651	171	J-509	J-421	6.0	Ductile Iron	-36.00	0.41	0.000
1186	P-654	429	J-85	J-416	8.0	Ductile Iron	98.53	0.63	0.000
1187	P-655	239	J-509	J-508	6.0	Ductile Iron	-4.62	0.05	0.000
1190	P-656	250	J-510	J-511	8.0	Ductile Iron	5.87	0.04	0.000
1192	P-657	213	J-511	J-512	8.0	Ductile Iron	3.98	0.03	0.000
1194	P-658	329	J-512	J-513	8.0	Ductile Iron	2.09	0.01	0.000
1196	P-659	13	J-254	J-514	10.0	Ductile Iron	-8.93	0.04	0.000
1197	P-660	329	J-514	J-255	10.0	Ductile Iron	0.76	0.00	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1198	P-661	224	J-513	J-514	8.0	Ductile Iron	-0.37	0.00	0.000
1203	P-663	18	J-113	J-517	8.0	Ductile Iron	-0.96	0.01	0.000
1204	P-664	448	J-517	J-140	12.0	Ductile Iron	142.95	0.41	0.000
1205	P-665	365	J-517	J-127	8.0	Ductile Iron	-145.99	0.93	0.001
1207	P-666	21	J-108	J-518	8.0	Ductile Iron	233.26	1.49	0.001
1208	P-667	138	J-518	J-102	6.0	Ductile Iron	52.71	0.60	0.000
1209	P-668	421	J-518	J-111	12.0	Ductile Iron	177.91	0.50	0.000
1211	P-669	199	J-205	J-519	8.0	Ductile Iron	56.09	0.36	0.000
1212	P-670	315	J-519	J-206	6.0	Ductile Iron	54.39	0.62	0.000
1214	P-671	418	J-208	J-520	8.0	Ductile Iron	58.70	0.37	0.000
1215	P-672	53	J-520	J-211	6.0	Ductile Iron	3.30	0.04	0.000
1218	P-674	306	J-521	J-158	10.0	Ductile Iron	50.63	0.21	0.000
1221	P-675	250	J-193	J-523	12.0	Ductile Iron	27.39	0.08	0.000
1222	P-676	132	J-523	J-192	12.0	Ductile Iron	64.91	0.18	0.000
1223	P-677	412	J-423	J-430	6.0	Ductile Iron	57.38	0.65	0.001
1225	P-678	1,612	J-491	J-524	12.0	Ductile Iron	-83.23	0.24	0.000
1226	P-679	239	J-524	J-490	4.0	Ductile Iron	-92.00	2.35	0.009
1230	P-680	59	J-478	J-527	6.0	Ductile Iron	67.35	0.76	0.001
1231	P-681	346	J-527	J-479	6.0	Ductile Iron	-20.53	0.23	0.000
1232	P-682	640	J-495	J-527	6.0	Ductile Iron	-87.50	0.99	0.001
1233	P-683	83	J-48	J-37	10.0	Ductile Iron	-315.00	1.29	0.001
1240	P-685	81	J-529	J-18	3.0	Ductile Iron	0.00	0.00	0.000
1246	P-688	528	J-531	J-514	10.0	Ductile Iron	10.06	0.04	0.000
1248	P-689	147	J-55	J-532	10.0	Ductile Iron	2.08	0.01	0.000
1249	P-690	193	J-532	J-56	10.0	Ductile Iron	2.08	0.01	0.000
1251	P-691	220	J-58	J-533	10.0	Ductile Iron	-110.60	0.45	0.000
1252	P-692	558	J-533	J-59	10.0	Ductile Iron	-113.25	0.46	0.000
1254	P-693	812	J-534	J-142	6.0	Ductile Iron	-11.34	0.13	0.000
1256	P-694	319	J-161	J-535	6.0	Ductile Iron	15.42	0.18	0.000
1259	P-696	969	J-160	J-536	10.0	Ductile Iron	-124.91	0.51	0.000
1260	P-697	674	J-536	J-161	10.0	Ductile Iron	-127.11	0.52	0.000
1262	P-698	316	J-61	J-537	8.0	Ductile Iron	3.02	0.02	0.000
1263	P-699	192	J-537	J-62	8.0	Ductile Iron	3.02	0.02	0.000
1265	P-700	282	J-73	J-538	6.0	Ductile Iron	7.45	0.08	0.000
1266	P-701	493	J-538	J-74	6.0	Ductile Iron	7.45	0.08	0.000
1268	P-702	464	J-129	J-539	6.0	Ductile Iron	36.28	0.41	0.000
1269	P-703	490	J-539	J-130	6.0	Ductile Iron	33.95	0.39	0.000
1271	P-704	95	J-87	J-540	8.0	Ductile Iron	19.84	0.13	0.000
1272	P-705	369	J-540	J-88	8.0	Ductile Iron	17.57	0.11	0.000
1274	P-706	319	J-416	J-541	8.0	Ductile Iron	36.91	0.24	0.000
1275	P-707	309	J-541	J-92	8.0	Ductile Iron	34.83	0.22	0.000
1277	P-708	208	J-189	J-542	8.0	Ductile Iron	-31.87	0.20	0.000
1278	P-709	250	J-542	J-272	8.0	Ductile Iron	-31.87	0.20	0.000
1283	P-711	322	J-544	J-492	12.0	Ductile Iron	-81.18	0.23	0.000
1285	P-712	294	J-491	J-545	12.0	Ductile Iron	-79.67	0.23	0.000
1286	P-713	651	J-545	J-544	12.0	Ductile Iron	-80.61	0.23	0.000
1289	P-715	404	J-546	J-432	6.0	Ductile Iron	-52.84	0.60	0.000
1291	P-716	318	J-431	J-547	6.0	Ductile Iron	-52.08	0.59	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1292	P-717	282	J-547	J-546	6.0	Ductile Iron	-52.08	0.59	0.000
1295	P-719	357	J-548	J-431	6.0	Ductile Iron	-47.86	0.54	0.000
1305	P-726	549	J-10	J-551	12.0	Ductile Iron	17.28	0.05	0.000
1307	P-727	459	J-551	J-552	10.0	Ductile Iron	17.28	0.07	0.000
1309	P-728	501	J-552	J-553	10.0	Ductile Iron	17.28	0.07	0.000
1311	P-729	388	J-553	J-554	10.0	Ductile Iron	17.28	0.07	0.000
1313	P-730	510	J-10	J-555	12.0	Ductile Iron	-20.18	0.06	0.000
1314	P-731	844	J-555	J-12	12.0	Ductile Iron	-57.29	0.16	0.000
1315	P-732	450	J-554	J-555	10.0	Ductile Iron	-37.11	0.15	0.000
1317	P-733	189	J-156	J-556	12.0	Ductile Iron	98.23	0.28	0.000
1318	P-734	333	J-556	J-521	12.0	Ductile Iron	53.40	0.15	0.000
1320	P-735	392	J-556	J-557	6.0	Ductile Iron	44.83	0.51	0.000
1322	P-736	284	J-521	J-558	8.0	Ductile Iron	2.20	0.01	0.000
1324	P-737	182	J-535	J-559	6.0	Ductile Iron	-38.97	0.44	0.000
1325	P-738	147	J-559	J-184	6.0	Ductile Iron	-147.75	1.68	0.003
1327	P-739	891	J-559	J-560	6.0	Ductile Iron	108.78	1.23	0.002
1329	P-740	321	J-192	J-561	6.0	Ductile Iron	55.40	0.63	0.000
1331	P-741	326	J-98	J-562	6.0	Ductile Iron	1.01	0.01	0.000
1333	P-742	151	J-530	J-563	10.0	Ductile Iron	18.00	0.07	0.000
1334	P-743	66	J-563	J-531	10.0	Ductile Iron	17.25	0.07	0.000
1336	P-744	202	J-563	J-564	8.0	Ductile Iron	0.00	0.00	0.000
1338	P-745	293	J-268	J-565	8.0	Ductile Iron	20.73	0.13	0.000
1339	P-746	327	J-565	J-271	8.0	Ductile Iron	17.33	0.11	0.000
1341	P-747	375	J-565	J-566	8.0	Ductile Iron	1.32	0.01	0.000
1344	P-749	264	J-567	J-306	6.0	Ductile Iron	-13.73	0.16	0.000
1346	P-750	221	J-567	J-568	8.0	Ductile Iron	4.43	0.03	0.000
1348	P-751	72	J-305	J-569	6.0	Ductile Iron	-4.66	0.05	0.000
1349	P-752	163	J-569	J-567	6.0	Ductile Iron	-8.54	0.10	0.000
1351	P-753	117	J-569	J-570	8.0	Ductile Iron	3.88	0.02	0.000
1353	P-754	191	J-194	J-571	8.0	Ductile Iron	88.06	0.56	0.000
1354	P-755	138	J-571	J-209	8.0	Ductile Iron	88.06	0.56	0.000
1356	P-756	238	J-571	J-572	8.0	Ductile Iron	0.00	0.00	0.000
1358	P-757	136	J-184	J-573	10.0	Ductile Iron	-147.75	0.60	0.000
1359	P-758	146	J-573	J-187	10.0	Ductile Iron	-148.85	0.61	0.000
1361	P-759	208	J-573	J-574	8.0	Ductile Iron	1.10	0.01	0.000
1363	P-760	222	J-150	J-575	10.0	Ductile Iron	-40.78	0.17	0.000
1364	P-761	21	J-575	J-143	6.0	Ductile Iron	-54.91	0.62	0.000
1365	P-762	408	J-575	J-149	6.0	Ductile Iron	12.43	0.14	0.000
1372	P-763	481	J-323	J-577	6.0	Ductile Iron	2.27	0.03	0.000
1380	P-768	45	J-122	J-116	6.0	Ductile Iron	5.20	0.06	0.000
1415	P-771	222	J-582	J-136	8.0	Ductile Iron	5.90	0.04	0.000
1417	P-772	301	J-109	J-583	2.0	Ductile Iron	1.98	0.20	0.000
1419	P-773	197	J-505	J-584	6.0	Ductile Iron	-41.96	0.48	0.000
1422	P-775	476	J-584	J-585	3.0	Ductile Iron	2.20	0.10	0.000
1423	P-776	69	J-583	J-585	6.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1424	P-777	76	J-585	J-132	6.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1426	P-778	307	J-152	J-586	6.0	Ductile Iron	3.02	0.03	0.000
1427	P-779	659	J-586	J-151	10.0	Ductile Iron	-24.31	0.10	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1429	P-780	301	J-586	J-587	10.0	Ductile Iron	24.50	0.10	0.000
1431	P-781	66	J-135	J-588	8.0	Ductile Iron	-14.63	0.09	0.000
1432	P-782	471	J-588	J-582	8.0	Ductile Iron	7.22	0.05	0.000
1433	P-783	310	J-587	J-588	8.0	Ductile Iron	23.18	0.15	0.000
1434	P-784	858	J-235	J-124	12.0	Ductile Iron	-73.67	0.21	0.000
1436	P-785	150	J-492	J-589	6.0	Ductile Iron	-81.18	0.92	0.001
1437	P-786	101	J-589	J-493	6.0	Ductile Iron	-83.35	0.95	0.001
1443	P-789	229	J-589	J-592	6.0	Ductile Iron	1.79	0.02	0.000
1444	P-790	715	J-592	J-590	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1447	P-791	355	J-57	J-594	10.0	Ductile Iron	-41.13	0.17	0.000
1448	P-792	154	J-594	J-172	6.0	Ductile Iron	-42.77	0.49	0.000
1450	P-794	939	J-594	J-161	10.0	Ductile Iron	-56.22	0.23	0.000
1452	P-795	44	J-71	J-595	8.0	Ductile Iron	89.84	0.57	0.000
1453	P-796	245	J-595	J-72	8.0	Ductile Iron	88.90	0.57	0.000
1455	P-797	368	J-595	J-596	6.0	Ductile Iron	0.00	0.00	0.000
1457	P-798	323	J-74	J-597	6.0	Ductile Iron	3.17	0.04	0.000
1458	P-799	711	J-597	J-72	2.0	Ductile Iron	-1.29	0.13	0.000
1459	P-800	563	J-596	J-597	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1460	P-801	355	J-220	J-278	16.0	Ductile Iron	-537.68	0.86	0.000
1461	P-802	339	J-523	J-191	6.0	Ductile Iron	-37.52	0.43	0.000
1462	P-803	400	J-106	J-584	6.0	Ductile Iron	44.16	0.50	0.000
1463	P-804	56	J-531	J-510	8.0	Ductile Iron	7.19	0.05	0.000
1465	P-805	318	J-476	J-598	4.0	Ductile Iron	70.00	1.79	0.005
1466	P-806	47	J-598	J-477	4.0	Ductile Iron	70.00	1.79	0.005
1467	P-807	189	J-590	J-598	2.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1470	P-808	354	J-277	J-599	16.0	Ductile Iron	475.78	0.76	0.000
1471	P-809	30	J-599	J-278	16.0	Ductile Iron	539.00	0.86	0.000
1474	P-811	65	J-600	J-276	6.0	Ductile Iron	30.83	0.35	0.000
1477	P-813	219	J-275	J-601	6.0	Ductile Iron	24.84	0.28	0.000
1478	P-814	376	J-601	J-600	8.0	Ductile Iron	23.70	0.15	0.000
1480	P-815	1,820	J-331	J-602	6.0	Ductile Iron	2.27	0.03	0.000
1486	P-820	444	J-330	J-603	12.0	Ductile Iron	6.54	0.02	0.000
1487	P-821	246	J-603	J-331	6.0	Ductile Iron	5.98	0.07	0.000
1490	P-823	347	J-410	J-604	10.0	Ductile Iron	23.25	0.09	0.000
1491	P-824	99	J-604	J-530	10.0	Ductile Iron	22.26	0.09	0.000
1492	P-825	5,362	J-604	J-603	10.0	Ductile Iron	0.00	0.00	0.000
1495	P-827	449	J-599	J-605	8.0	Ductile Iron	-63.22	0.40	0.000
1496	P-828	356	J-605	J-600	8.0	Ductile Iron	-64.92	0.41	0.000
1502	P-833	563	J-218	J-219	8.0	Ductile Iron	-3.41	0.02	0.000
1504	P-834	281	J-430	J-607	6.0	Ductile Iron	-39.23	0.45	0.000
1505	P-835	94	J-607	J-548	6.0	Ductile Iron	-43.39	0.49	0.000
1506	P-836	1,409	J-548	J-607	6.0	Ductile Iron	0.00	0.00	0.000
1513	P-841	418	J-216	J-609	8.0	Ductile Iron	34.57	0.22	0.000
1514	P-842	113	J-609	J-218	8.0	Ductile Iron	105.37	0.67	0.000
1519	P-844	354	J-51	J-610	12.0	Ductile Iron	-132.73	0.38	0.000
1520	P-845	121	J-610	J-52	12.0	Ductile Iron	-135.44	0.38	0.000
1559	P-877	519	J-230	J-616	6.0	Ductile Iron	6.07	0.07	0.000
1568	P-884	193	J-216	J-618	12.0	Ductile Iron	22.56	0.06	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1569	P-885	921	J-618	J-213	12.0	Ductile Iron	19.34	0.05	0.000
1571	P-886	746	J-143	J-619	16.0	Ductile Iron	-10.02	0.02	0.000
1572	P-887	173	J-619	J-202	16.0	Ductile Iron	-10.02	0.02	0.000
1586	P-889	45	J-280	J-620	8.0	Ductile Iron	7.64	0.05	0.000
1587	P-890	455	J-620	J-281	8.0	Ductile Iron	-66.86	0.43	0.000
1588	P-891	362	J-600	J-620	8.0	Ductile Iron	-73.37	0.47	0.000
1592	P-894	371	J-609	J-224	12.0	Ductile Iron	-78.50	0.22	0.000
1593	P-895	380	J-224	J-225	12.0	Ductile Iron	-53.81	0.15	0.000
1611	P-896	445	J-320	J-622	12.0	Ductile Iron	0.00	0.00	0.000
1619	P-897	103	T-3	J-159	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1626	P-898	221	J-48	J-624	16.0	Ductile Iron	403.10	0.64	0.000
1627	P-899	709	J-624	J-43	16.0	Ductile Iron	403.10	0.64	0.000
1628	P-900	78	J-624	T-4	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1638	P-905	220	J-79	T-5	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1646	P-910	118	J-630	J-624	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1648	P-911	171	J-79	J-631	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1651	P-912	836	J-603	J-633	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1652	P-913	108	J-633	T-6	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1653	P-914	78	J-632	J-633	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1655	P-915	817	J-429	J-414	8.0	Ductile Iron	86.00	0.55	0.000
1659	P-917	1,144	J-587	J-71	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1661	P-918	153	J-294	J-634	10.0	Ductile Iron	-136.43	0.56	0.000
1662	P-919	301	J-634	J-295	10.0	Ductile Iron	-51.48	0.21	0.000
1663	P-920	362	J-369	J-634	6.0	Ductile Iron	84.95	0.96	0.001
1665	P-921	1,467	J-12	J-635	12.0	Ductile Iron	-79.26	0.22	0.000
1666	P-922	192	J-635	J-13	12.0	Ductile Iron	-79.26	0.22	0.000
1668	P-923	3,122	J-635	J-636	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1670	P-924	1,759	J-14	J-637	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1672	P-925	7,439	J-14	J-638	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1674	P-926	139	J-638	T-7	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1675	P-927	1,232	J-472	J-557	8.0	Ductile Iron	-43.73	0.28	0.000
1677	P-928	153	J-557	J-639	10.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1679	P-929	131	J-77	J-640	16.0	Ductile Iron	392.28	0.63	0.000
1680	P-930	377	J-640	J-84	16.0	Ductile Iron	392.28	0.63	0.000
1682	P-931	188	J-640	J-641	6.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1690	P-932	466	J-461	J-642	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1692	P-933	257	J-642	J-643	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1694	P-934	176	J-643	J-644	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1696	P-935	862	J-642	J-645	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1698	P-936	246	J-645	J-646	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1700	P-937	143	J-646	J-647	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1701	P-938	848	J-646	J-643	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1703	P-97 (1)	770	J-97	J-648	8.0	Ductile Iron	-26.79	0.17	0.000
1704	P-97 (2)	171	J-648	J-98	8.0	Ductile Iron	-12.65	0.08	0.000
1706	P-939	267	J-648	J-649	8.0	Ductile Iron	-14.15	0.09	0.000
1708	P-99 (1)	278	J-99	J-650	8.0	Ductile Iron	-14.67	0.09	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1709	P-99 (2)	180	J-650	J-100	8.0	Ductile Iron	-28.82	0.18	0.000
1710	P-940	602	J-649	J-650	8.0	Ductile Iron	-14.15	0.09	0.000
1712	P-74 (1)	151	J-77	J-651	16.0	Ductile Iron	6.25	0.01	0.000
1715	P-941	827	J-651	J-652	12.0	Ductile Iron	1.48	0.00	0.000
1717	P-74 (2)(1)	352	J-651	J-653	16.0	Ductile Iron	4.76	0.01	0.000
1718	P-74 (2)(2)	388	J-653	J-78	16.0	Ductile Iron	6.25	0.01	0.000
1719	P-942	466	J-652	J-653	12.0	Ductile Iron	1.48	0.00	0.000

FlexTable: Tank Table

ID	Label	Zone	Elevation (Base) (ft)	Elevation (Minimum) (ft)	Elevation (Initial) (ft)	Elevation (Maximum) (ft)	Diameter (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
110	T-1	<None>	855.0	855.0	912.0	941.6	77.00	-198.55	912.0
285	T-2	<None>	834.0	906.0	912.0	941.6	51.00	-214.62	912.0
1618	T-3	<None>	770.5	770.5	919.8	941.6	75.00	(N/A)	(N/A)
1623	T-4	<None>	855.0	855.0	919.8	941.6	77.00	(N/A)	(N/A)
1629	T-5	<None>	833.0	833.0	919.8	941.6	110.86	(N/A)	(N/A)
1639	T-6	<None>	834.0	834.0	919.8	941.6	110.86	(N/A)	(N/A)
1673	T-7	<None>	897.5	897.5	919.8	941.6	75.00	(N/A)	(N/A)

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
34	J-9	735.8	<None>	5.22	929.1	83.6
35	J-10	746.7	<None>	0.00	929.1	78.9
39	J-12	774.9	<None>	0.00	929.2	66.7
41	J-13	740.5	<None>	0.00	929.3	81.7
43	J-14	754.3	<None>	1.82	929.4	75.8
45	J-15	753.4	<None>	99.31	929.7	76.3
47	J-16	780.6	<None>	3.58	930.1	64.7
49	J-17	830.7	<None>	10.59	931.5	43.6
51	J-18	805.9	<None>	0.00	931.5	54.3
54	J-19	831.2	<None>	0.00	931.5	43.4
57	J-20	830.3	<None>	0.00	933.6	44.7
59	J-21	830.5	<None>	0.00	933.7	44.6
61	J-22	831.6	<None>	0.00	933.9	44.3
63	J-23	844.2	<None>	7.92	936.1	39.8
86	J-37	850.6	<None>	-315.00	936.5	37.2
98	J-43	851.3	<None>	1.07	936.0	36.6
102	J-46	762.6	<None>	0.00	929.2	72.1
104	J-47	762.6	<None>	0.00	929.1	72.1
106	J-48	851.1	<None>	0.00	936.5	36.9
112	J-49	765.5	<None>	0.00	929.2	70.8
114	J-50	763.7	<None>	2.73	929.3	71.6
116	J-51	763.2	<None>	0.00	929.4	71.9
118	J-52	766.8	<None>	0.00	929.4	70.4
120	J-53	772.0	<None>	3.06	929.6	68.2
122	J-54	769.9	<None>	2.04	929.6	69.1
124	J-55	772.4	<None>	4.20	929.7	68.0
126	J-56	772.9	<None>	3.74	929.7	67.8
128	J-57	782.0	<None>	13.22	929.9	64.0
130	J-58	782.7	<None>	3.06	930.2	63.8
132	J-59	785.0	<None>	3.40	930.5	62.9
134	J-60	793.0	<None>	0.68	931.1	59.7
136	J-61	789.7	<None>	5.10	931.1	61.2
138	J-62	797.0	<None>	0.00	931.1	58.0
140	J-63	798.0	<None>	0.00	931.1	57.6
142	J-64	801.2	<None>	5.44	931.1	56.2
146	J-66	829.8	<None>	0.34	933.0	44.7
154	J-69	821.9	<None>	0.00	932.8	48.0
156	J-70	821.4	<None>	0.00	932.7	48.2
158	J-71	821.3	<None>	5.10	932.6	48.2
160	J-72	821.0	<None>	2.04	932.3	48.2
162	J-73	820.7	<None>	0.00	932.1	48.2
164	J-74	827.1	<None>	7.69	932.1	45.4
167	J-75	852.6	<None>	0.00	935.5	35.9
169	J-76	839.3	<None>	0.00	934.5	41.2
171	J-77	832.4	<None>	3.64	933.8	43.9
173	J-78	833.3	<None>	1.82	933.8	43.5
175	J-79	832.8	<None>	3.96	933.8	43.7
177	J-80	833.2	<None>	0.00	933.8	43.5

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
179	J-81	836.2	<None>	0.00	933.8	42.2
181	J-82	835.2	<None>	2.73	933.8	42.7
183	J-83	834.3	<None>	2.73	933.8	43.1
186	J-84	826.4	<None>	0.00	933.5	46.4
188	J-85	824.6	<None>	0.00	933.4	47.1
192	J-87	822.0	<None>	2.04	932.8	48.0
194	J-88	824.4	<None>	2.72	932.8	46.9
196	J-89	822.8	<None>	3.06	932.8	47.6
198	J-90	822.0	<None>	4.08	932.8	47.9
200	J-91	820.8	<None>	2.04	932.8	48.4
202	J-92	820.4	<None>	2.04	932.8	48.6
206	J-93	821.0	<None>	2.04	932.7	48.3
208	J-94	820.4	<None>	3.40	932.7	48.6
210	J-95	820.7	<None>	0.00	932.7	48.5
212	J-96	821.7	<None>	0.00	932.7	48.0
214	J-97	819.3	<None>	14.60	931.8	48.7
216	J-98	824.3	<None>	0.00	931.8	46.5
218	J-99	827.2	<None>	1.82	931.9	45.3
220	J-100	825.2	<None>	2.50	931.9	46.2
222	J-101	825.0	<None>	4.42	932.0	46.3
224	J-102	823.6	<None>	4.08	932.2	47.0
226	J-103	824.5	<None>	3.96	932.2	46.6
228	J-104	823.2	<None>	0.00	931.9	47.0
230	J-105	818.8	<None>	3.06	931.8	48.9
232	J-106	816.0	<None>	7.04	931.8	50.1
235	J-107	822.6	<None>	3.96	933.1	47.8
237	J-108	822.2	<None>	5.10	932.6	47.8
240	J-109	812.8	<None>	2.38	931.9	51.5
241	J-110	815.9	<None>	0.00	932.1	50.3
243	J-111	819.1	<None>	0.00	932.3	49.0
247	J-112	819.6	<None>	3.06	932.5	48.9
249	J-113	809.1	<None>	2.04	929.9	52.3
251	J-114	814.7	<None>	-42.00	931.9	50.7
256	J-116	814.8	<None>	0.00	931.9	50.7
260	J-117	818.2	<None>	5.78	932.4	49.4
263	J-118	817.7	<None>	3.06	932.3	49.6
271	J-122	815.1	<None>	0.00	931.9	50.5
273	J-123	809.1	<None>	6.28	929.6	52.1
275	J-124	805.2	<None>	0.00	929.3	53.7
277	J-125	815.9	<None>	0.00	931.7	50.1
279	J-126	810.2	<None>	3.40	931.1	52.3
282	J-127	810.0	<None>	4.08	930.7	52.2
286	J-128	813.9	<None>	4.55	930.8	50.6
288	J-129	812.2	<None>	14.01	930.8	51.3
291	J-130	806.3	<None>	5.10	930.1	53.6
293	J-131	806.8	<None>	2.72	930.4	53.5
296	J-132	811.9	<None>	3.06	930.4	51.3
298	J-133	811.2	<None>	12.05	930.3	51.5

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
300	J-134	811.4	<None>	2.72	930.4	51.5
302	J-135	811.4	<None>	0.00	930.4	51.5
304	J-136	815.1	<None>	2.38	930.4	49.9
306	J-137	803.2	<None>	4.42	929.9	54.8
308	J-138	800.6	<None>	1.70	929.7	55.9
310	J-139	803.5	<None>	195.76	929.7	54.6
312	J-140	806.1	<None>	3.40	929.8	53.5
315	J-141	804.2	<None>	11.39	930.0	54.4
318	J-142	799.9	<None>	0.00	930.7	56.6
320	J-143	801.2	<None>	0.34	930.5	55.9
322	J-144	806.1	<None>	2.04	930.4	53.8
329	J-148	800.1	<None>	2.38	930.4	56.4
331	J-149	799.8	<None>	0.00	930.4	56.5
333	J-150	802.9	<None>	4.76	930.4	55.2
337	J-151	804.9	<None>	3.06	930.4	54.3
339	J-152	809.5	<None>	3.40	930.4	52.3
345	J-154	760.8	<None>	0.00	929.1	72.8
349	J-156	758.4	<None>	0.00	929.0	73.8
350	J-157	758.4	<None>	98.90	929.0	73.8
354	J-158	770.5	<None>	0.00	928.9	68.5
356	J-159	770.3	<None>	197.12	928.9	68.6
358	J-160	770.0	<None>	1.70	929.3	68.9
360	J-161	785.0	<None>	1.82	930.0	62.7
362	J-162	785.9	<None>	2.73	930.1	62.4
364	J-163	789.2	<None>	0.00	930.1	61.0
366	J-164	790.8	<None>	0.00	930.1	60.3
368	J-165	793.4	<None>	0.00	930.2	59.2
370	J-166	794.6	<None>	1.02	930.2	58.7
372	J-167	796.5	<None>	0.00	930.3	57.9
374	J-168	798.9	<None>	1.59	930.4	56.9
377	J-169	790.8	<None>	10.76	930.2	60.3
384	J-172	782.7	<None>	1.70	930.1	63.8
386	J-173	787.9	<None>	2.38	930.1	61.5
388	J-174	790.6	<None>	5.10	930.1	60.4
390	J-175	791.2	<None>	2.04	930.1	60.1
394	J-176	783.8	<None>	2.73	930.1	63.3
396	J-177	786.9	<None>	0.00	930.1	61.9
398	J-178	787.5	<None>	103.34	930.1	61.7
407	J-179	788.1	<None>	4.66	930.1	61.4
410	J-180	790.1	<None>	4.76	930.1	60.6
413	J-181	794.4	<None>	3.06	930.2	58.7
422	J-184	792.1	<None>	0.00	931.2	60.2
424	J-185	791.8	<None>	0.00	931.2	60.3
426	J-186	791.0	<None>	0.00	931.2	60.7
428	J-187	795.0	<None>	0.00	931.4	59.0
430	J-188	790.0	<None>	3.96	931.3	61.1
432	J-189	794.1	<None>	3.96	931.2	59.3
434	J-190	796.4	<None>	0.00	930.9	58.2

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
436	J-191	799.8	<None>	0.00	930.3	56.5
438	J-192	794.4	<None>	0.00	930.1	58.7
441	J-193	797.5	<None>	2.73	930.1	57.4
444	J-194	795.6	<None>	3.96	930.8	58.5
463	J-202	800.9	<None>	0.00	930.5	56.1
465	J-203	800.5	<None>	-135.00	931.2	56.6
467	J-204	800.3	<None>	3.96	930.5	56.3
469	J-205	800.0	<None>	0.00	930.3	56.4
471	J-206	798.2	<None>	97.88	929.9	57.0
473	J-207	799.3	<None>	0.00	930.4	56.7
475	J-208	798.4	<None>	3.96	930.4	57.1
477	J-209	797.3	<None>	0.00	930.6	57.7
483	J-211	794.0	<None>	5.94	930.3	59.0
485	J-212	808.7	<None>	17.43	930.2	52.6
487	J-213	806.2	<None>	9.10	930.2	53.6
489	J-214	805.8	<None>	0.00	930.2	53.8
491	J-215	803.4	<None>	7.28	930.2	54.8
493	J-216	800.6	<None>	4.55	930.2	56.1
499	J-217	838.8	<None>	-1,000.00	940.4	43.9
502	J-218	798.9	<None>	195.76	930.0	56.7
504	J-219	798.0	<None>	97.88	930.0	57.1
506	J-220	796.6	<None>	0.68	930.1	57.8
508	J-221	797.9	<None>	97.88	930.1	57.2
510	J-222	796.5	<None>	105.48	930.1	57.8
512	J-223	798.5	<None>	104.13	930.0	56.9
515	J-224	802.1	<None>	12.15	930.1	55.4
517	J-225	804.8	<None>	9.10	930.1	54.2
519	J-226	803.7	<None>	10.01	930.1	54.7
521	J-227	803.1	<None>	9.03	930.1	55.0
523	J-228	798.7	<None>	0.00	930.1	56.9
525	J-229	798.8	<None>	-268.00	930.2	56.9
527	J-230	798.1	<None>	0.00	930.1	57.1
531	J-231	807.3	<None>	16.08	930.0	53.1
533	J-232	801.9	<None>	3.06	930.0	55.4
536	J-233	800.6	<None>	97.88	929.5	55.8
538	J-234	795.7	<None>	195.76	929.3	57.8
540	J-235	794.6	<None>	98.90	929.3	58.3
542	J-236	793.5	<None>	3.41	929.2	58.7
544	J-237	785.2	<None>	195.76	929.1	62.3
546	J-238	782.4	<None>	195.76	929.1	63.5
548	J-239	779.7	<None>	4.08	929.2	64.7
550	J-240	788.9	<None>	7.48	929.2	60.7
552	J-241	791.6	<None>	0.00	929.3	59.6
555	J-242	791.9	<None>	6.65	929.2	59.4
557	J-243	798.0	<None>	7.30	929.2	56.8
559	J-244	804.7	<None>	4.42	929.2	53.9
561	J-245	797.9	<None>	4.08	929.2	56.8
563	J-246	800.0	<None>	6.65	929.2	55.9

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
565	J-247	798.9	<None>	5.44	929.2	56.4
567	J-248	810.8	<None>	5.44	929.2	51.2
569	J-249	809.6	<None>	4.76	929.2	51.7
571	J-250	805.2	<None>	0.00	929.2	53.6
576	J-252	812.7	<None>	0.00	929.2	50.4
578	J-253	814.4	<None>	0.00	929.2	49.7
580	J-254	815.4	<None>	2.04	929.2	49.2
582	J-255	816.2	<None>	0.00	929.2	48.9
584	J-256	812.7	<None>	1.36	929.2	50.4
591	J-259	811.6	<None>	1.70	929.2	50.9
593	J-260	807.5	<None>	2.04	929.2	52.7
598	J-261	808.8	<None>	1.36	929.2	52.1
602	J-263	794.2	<None>	490.42	929.4	58.5
604	J-264	792.3	<None>	98.56	929.3	59.3
607	J-265	790.8	<None>	2.38	929.3	59.9
609	J-266	789.1	<None>	0.00	929.3	60.7
611	J-267	784.7	<None>	0.00	929.2	62.5
613	J-268	777.9	<None>	2.04	929.2	65.5
615	J-269	776.0	<None>	3.40	929.2	66.3
618	J-270	786.3	<None>	4.08	929.3	61.9
621	J-271	803.2	<None>	3.74	929.2	54.5
625	J-272	797.5	<None>	6.58	931.2	57.8
627	J-273	795.2	<None>	11.84	931.1	58.8
629	J-274	790.6	<None>	9.06	930.8	60.6
631	J-275	787.7	<None>	2.04	930.7	61.9
633	J-276	796.5	<None>	0.00	930.6	58.0
635	J-277	793.3	<None>	2.38	930.5	59.4
637	J-278	794.5	<None>	2.38	930.3	58.8
641	J-279	794.8	<None>	1.70	930.6	58.8
644	J-280	794.9	<None>	0.00	930.8	58.8
646	J-281	792.9	<None>	0.00	931.0	59.7
649	J-282	792.6	<None>	2.72	931.0	59.9
651	J-283	797.0	<None>	2.72	931.3	58.1
653	J-284	797.9	<None>	2.72	931.2	57.7
656	J-285	804.6	<None>	2.72	931.5	54.9
658	J-286	801.4	<None>	2.72	931.4	56.2
662	J-287	808.4	<None>	5.44	931.8	53.4
664	J-288	803.2	<None>	3.06	931.9	55.7
666	J-289	802.1	<None>	2.04	931.9	56.2
668	J-290	797.7	<None>	4.20	931.9	58.1
670	J-291	797.1	<None>	0.00	931.8	58.3
673	J-292	800.0	<None>	3.18	932.0	57.1
675	J-293	800.0	<None>	1.70	932.0	57.1
678	J-294	807.1	<None>	5.56	932.2	54.1
681	J-295	817.4	<None>	15.46	932.3	49.7
684	J-296	794.0	<None>	2.04	931.0	59.3
686	J-297	793.4	<None>	6.46	930.9	59.5
688	J-298	790.0	<None>	104.88	929.7	60.5

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
690	J-299	785.4	<None>	4.42	929.7	62.4
692	J-300	788.9	<None>	9.86	929.4	60.8
694	J-301	791.2	<None>	0.00	929.3	59.8
697	J-302	790.6	<None>	0.00	929.3	60.0
699	J-303	786.3	<None>	9.86	929.3	61.9
705	J-304	782.7	<None>	10.75	929.6	63.6
707	J-305	799.0	<None>	0.00	929.2	56.3
709	J-306	789.6	<None>	0.00	929.2	60.4
711	J-307	800.0	<None>	9.00	929.2	55.9
713	J-308	783.8	<None>	8.32	929.2	62.9
715	J-309	796.3	<None>	9.01	929.2	57.5
717	J-310	774.2	<None>	3.06	929.2	67.0
719	J-311	774.6	<None>	3.40	929.2	66.9
721	J-312	775.6	<None>	7.64	929.2	66.5
723	J-313	792.0	<None>	3.74	929.2	59.4
725	J-314	800.7	<None>	2.04	929.2	55.6
727	J-315	804.2	<None>	1.70	929.3	54.1
729	J-316	770.0	<None>	2.72	929.4	69.0
731	J-317	767.2	<None>	3.74	929.3	70.1
734	J-318	767.9	<None>	4.42	929.3	69.8
737	J-319	770.1	<None>	2.38	929.4	68.9
739	J-320	775.4	<None>	3.40	929.7	66.8
741	J-321	759.5	<None>	1.70	929.9	73.7
743	J-322	761.8	<None>	2.72	930.0	72.8
745	J-323	762.0	<None>	5.10	930.0	72.7
747	J-324	770.9	<None>	2.04	930.0	68.8
749	J-325	784.8	<None>	0.00	930.0	62.8
751	J-326	791.6	<None>	1.36	930.0	59.9
753	J-327	821.4	<None>	1.70	929.9	47.0
755	J-328	827.2	<None>	1.02	929.9	44.4
757	J-329	823.0	<None>	3.74	929.9	46.2
759	J-330	828.9	<None>	0.00	929.9	43.7
761	J-331	815.1	<None>	2.38	929.8	49.6
763	J-332	800.5	<None>	4.30	929.8	55.9
770	J-336	748.8	<None>	0.00	930.2	78.5
772	J-337	740.6	<None>	0.00	930.3	82.1
777	J-339	746.0	<None>	0.00	930.3	79.7
779	J-340	748.2	<None>	0.00	930.3	78.8
782	J-341	747.6	<None>	0.00	930.3	79.1
785	J-342	754.8	<None>	4.08	930.4	76.0
787	J-343	771.5	<None>	0.00	930.4	68.7
791	J-344	759.7	<None>	0.00	930.4	73.9
793	J-345	765.8	<None>	4.76	930.5	71.3
795	J-346	776.2	<None>	0.00	930.5	66.8
797	J-347	772.9	<None>	3.40	930.6	68.2
799	J-348	772.7	<None>	5.44	930.6	68.3
801	J-349	783.1	<None>	4.08	930.6	63.8
803	J-350	785.8	<None>	2.38	930.6	62.6

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
805	J-351	771.4	<None>	0.00	930.6	68.9
814	J-353	819.4	<None>	6.80	931.8	48.6
816	J-354	802.3	<None>	3.74	931.6	55.9
819	J-355	828.7	<None>	5.90	932.0	44.7
822	J-356	813.8	<None>	3.74	931.8	51.0
824	J-357	802.5	<None>	3.40	931.7	55.9
831	J-359	830.2	<None>	12.54	931.8	44.0
834	J-360	806.2	<None>	2.04	931.8	54.3
836	J-361	788.6	<None>	3.06	931.5	61.8
838	J-362	792.6	<None>	6.68	931.3	60.0
840	J-363	791.5	<None>	2.72	931.0	60.4
843	J-364	799.6	<None>	5.94	932.2	57.4
845	J-365	797.5	<None>	0.00	933.0	58.6
847	J-366	795.9	<None>	6.68	933.8	59.7
849	J-367	805.2	<None>	2.72	933.9	55.7
851	J-368	810.0	<None>	0.00	933.7	53.5
853	J-369	808.8	<None>	2.72	932.9	53.7
855	J-370	814.9	<None>	2.04	934.1	51.6
857	J-371	817.1	<None>	2.04	934.3	50.7
859	J-372	808.7	<None>	2.38	934.3	54.3
862	J-373	799.9	<None>	0.00	934.3	58.1
865	J-374	803.6	<None>	3.96	934.7	56.7
867	J-375	809.4	<None>	0.68	935.5	54.6
869	J-376	815.1	<None>	4.76	936.6	52.6
871	J-377	822.5	<None>	4.76	936.7	49.4
873	J-378	822.9	<None>	3.40	936.8	49.3
875	J-379	812.7	<None>	3.40	937.1	53.8
877	J-380	808.3	<None>	1.36	937.2	55.8
879	J-381	809.1	<None>	0.00	937.0	55.3
881	J-382	818.3	<None>	2.04	936.4	51.1
886	J-384	828.9	<None>	2.72	936.0	46.4
888	J-385	831.0	<None>	1.70	935.9	45.4
890	J-386	833.8	<None>	1.36	935.4	43.9
892	J-387	833.5	<None>	3.40	935.3	44.1
894	J-388	825.8	<None>	2.38	934.6	47.1
902	J-391	831.0	<None>	0.00	936.0	45.4
904	J-392	825.9	<None>	0.00	936.0	47.7
906	J-393	828.3	<None>	0.00	936.0	46.6
908	J-394	825.8	<None>	3.96	936.0	47.7
910	J-395	824.2	<None>	3.96	936.0	48.4
912	J-396	826.9	<None>	3.96	936.0	47.2
915	J-397	834.0	<None>	3.96	936.0	44.1
917	J-398	830.7	<None>	0.00	936.0	45.6
922	J-400	820.9	<None>	2.38	934.1	49.0
925	J-401	817.4	<None>	4.08	933.7	50.3
928	J-402	826.8	<None>	3.74	934.4	46.6
930	J-403	825.2	<None>	6.97	932.8	46.6
933	J-404	831.0	<None>	3.74	935.3	45.1

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
936	J-405	804.0	<None>	1.02	931.8	55.3
938	J-406	809.1	<None>	5.44	932.0	53.2
940	J-407	820.3	<None>	3.40	932.3	48.5
942	J-408	831.0	<None>	3.74	932.4	43.9
944	J-409	831.4	<None>	1.70	932.5	43.7
948	J-410	816.0	<None>	3.06	929.2	49.0
950	J-411	817.2	<None>	1.36	929.2	48.5
952	J-412	811.1	<None>	3.40	929.2	51.1
955	J-413	793.3	<None>	8.04	931.7	59.9
958	J-414	791.3	<None>	14.96	932.2	61.0
964	J-416	821.5	<None>	1.70	932.9	48.2
968	J-417	827.2	<None>	-102.00	937.0	47.5
969	J-418	826.7	<None>	0.00	936.5	47.5
974	J-419	826.8	<None>	0.00	936.5	47.4
976	J-420	834.0	<None>	2.72	935.7	44.0
979	J-421	818.2	<None>	2.04	933.9	50.0
981	J-422	823.0	<None>	3.06	934.1	48.1
983	J-423	821.5	<None>	3.40	934.6	48.9
985	J-424	820.8	<None>	6.46	934.9	49.4
987	J-425	827.2	<None>	3.40	935.1	46.7
990	J-426	821.0	<None>	3.06	933.7	48.8
992	J-427	821.8	<None>	2.04	933.7	48.4
994	J-428	821.6	<None>	1.36	933.7	48.5
996	J-429	819.0	<None>	10.74	932.7	49.2
998	J-430	821.8	<None>	0.00	933.8	48.5
1000	J-431	814.7	<None>	7.60	934.3	51.7
1002	J-432	823.2	<None>	0.00	935.2	48.5
1004	J-433	827.5	<None>	1.70	935.3	46.6
1007	J-434	833.0	<None>	3.06	935.2	44.2
1009	J-435	829.1	<None>	3.40	935.1	45.9
1011	J-436	817.8	<None>	3.40	935.0	50.7
1015	J-437	805.4	<None>	2.72	937.0	56.9
1017	J-438	804.9	<None>	0.00	937.0	57.2
1019	J-439	803.5	<None>	3.74	937.0	57.8
1023	J-441	800.7	<None>	1.36	937.0	59.0
1025	J-442	800.3	<None>	3.74	937.0	59.1
1027	J-443	797.0	<None>	1.70	937.0	60.6
1029	J-444	796.4	<None>	2.04	937.0	60.8
1031	J-445	797.3	<None>	0.00	937.0	60.4
1034	J-446	794.1	<None>	5.10	937.0	61.8
1036	J-447	793.4	<None>	0.00	937.0	62.1
1038	J-448	793.0	<None>	5.10	937.1	62.3
1040	J-449	783.5	<None>	2.72	937.1	66.4
1043	J-450	797.1	<None>	2.72	937.2	60.6
1045	J-451	802.6	<None>	5.10	937.3	58.3
1047	J-452	796.8	<None>	4.08	937.2	60.8
1050	J-453	807.5	<None>	0.68	937.4	56.2
1053	J-454	802.1	<None>	1.02	939.9	59.6

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1055	J-455	800.4	<None>	0.00	940.3	60.5
1057	J-456	801.0	<None>	5.10	940.3	60.3
1059	J-457	804.0	<None>	0.00	940.3	59.0
1061	J-458	809.3	<None>	2.38	936.6	55.1
1063	J-459	807.9	<None>	2.38	936.6	55.7
1067	J-461	811.4	<None>	4.08	936.7	54.2
1069	J-462	811.8	<None>	1.70	936.7	54.0
1071	J-463	814.0	<None>	1.70	936.7	53.1
1077	J-465	813.1	<None>	2.38	936.7	53.5
1079	J-466	812.1	<None>	1.70	936.8	53.9
1081	J-467	813.3	<None>	5.10	936.8	53.4
1083	J-468	813.3	<None>	2.04	936.9	53.5
1087	J-469	815.2	<None>	1.36	936.7	52.6
1089	J-470	809.5	<None>	0.00	936.7	55.0
1092	J-471	817.4	<None>	2.38	936.7	51.6
1095	J-472	766.5	<None>	195.76	928.3	70.0
1099	J-474	801.4	<None>	6.69	930.1	55.7
1103	J-476	775.7	<None>	-70.00	946.2	73.8
1104	J-477	776.0	<None>	2.04	944.3	72.8
1106	J-478	778.5	<None>	2.72	943.8	71.5
1108	J-479	784.7	<None>	1.02	943.8	68.8
1110	J-480	784.9	<None>	4.42	943.8	68.8
1114	J-481	784.0	<None>	-1,275.00	944.3	69.3
1116	J-482	791.1	<None>	2.72	941.8	65.2
1118	J-483	792.0	<None>	7.00	941.8	64.8
1120	J-484	791.3	<None>	3.06	941.7	65.1
1124	J-485	796.7	<None>	1.36	941.8	62.8
1126	J-486	802.1	<None>	1.02	941.9	60.5
1128	J-487	803.0	<None>	0.68	941.9	60.1
1130	J-488	808.0	<None>	0.68	941.9	57.9
1132	J-489	820.8	<None>	0.00	941.9	52.4
1134	J-490	804.0	<None>	-92.00	944.1	60.6
1136	J-491	822.0	<None>	2.04	942.0	51.9
1139	J-492	809.2	<None>	0.00	942.0	57.5
1141	J-493	798.9	<None>	2.04	942.2	62.0
1143	J-494	790.2	<None>	2.72	942.6	65.9
1145	J-495	791.6	<None>	2.72	943.1	65.5
1147	J-496	800.4	<None>	3.74	941.9	61.2
1149	J-497	811.3	<None>	0.00	942.0	56.5
1150	J-498	809.2	<None>	0.00	942.0	57.5
1153	J-499	746.3	<None>	0.00	929.4	79.2
1156	J-500	750.9	<None>	0.00	929.4	77.2
1159	J-501	831.0	<None>	0.00	933.8	44.5
1168	J-504	815.3	<None>	0.00	931.0	50.1
1171	J-505	813.5	<None>	10.68	931.0	50.8
1175	J-506	814.7	<None>	2.72	933.7	51.5
1177	J-507	809.5	<None>	3.40	933.7	53.8
1179	J-508	815.4	<None>	0.00	933.7	51.2

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1181	J-509	812.6	<None>	3.40	933.7	52.4
1188	J-510	818.6	<None>	2.38	929.2	47.9
1189	J-511	818.0	<None>	3.40	929.2	48.1
1191	J-512	817.8	<None>	3.40	929.2	48.2
1193	J-513	819.1	<None>	4.42	929.2	47.6
1195	J-514	815.3	<None>	0.00	929.2	49.3
1202	J-517	809.1	<None>	3.74	929.9	52.3
1206	J-518	822.2	<None>	4.76	932.5	47.7
1210	J-519	799.7	<None>	3.06	930.3	56.5
1213	J-520	794.7	<None>	99.70	930.3	58.6
1216	J-521	767.6	<None>	1.02	928.9	69.8
1220	J-523	795.3	<None>	0.00	930.1	58.3
1224	J-524	808.3	<None>	15.77	942.0	57.8
1229	J-527	780.0	<None>	0.68	943.8	70.9
1239	J-529	804.7	<None>	0.00	931.5	54.8
1242	J-530	821.5	<None>	7.66	929.2	46.6
1244	J-531	818.0	<None>	0.00	929.2	48.1
1247	J-532	774.0	<None>	0.00	929.7	67.3
1250	J-533	782.0	<None>	4.76	930.3	64.1
1253	J-534	795.0	<None>	20.40	930.7	58.7
1255	J-535	788.0	<None>	97.88	930.0	61.4
1258	J-536	778.0	<None>	3.96	929.7	65.7
1261	J-537	795.0	<None>	0.00	931.1	58.9
1264	J-538	823.0	<None>	0.00	932.1	47.2
1267	J-539	809.0	<None>	4.20	930.4	52.5
1270	J-540	823.5	<None>	4.08	932.8	47.3
1273	J-541	819.5	<None>	3.74	932.8	49.0
1276	J-542	794.0	<None>	0.00	931.2	59.3
1281	J-544	819.7	<None>	1.02	942.0	52.9
1284	J-545	821.0	<None>	1.70	942.0	52.3
1287	J-546	810.0	<None>	1.36	934.8	54.0
1290	J-547	808.5	<None>	0.00	934.6	54.5
1293	J-548	821.0	<None>	8.04	934.0	48.9
1304	J-551	739.0	<None>	0.00	929.1	82.3
1306	J-552	747.0	<None>	0.00	929.1	78.8
1308	J-553	746.0	<None>	0.00	929.1	79.2
1310	J-554	744.0	<None>	97.88	929.1	80.1
1312	J-555	761.0	<None>	0.00	929.1	72.7
1316	J-556	760.0	<None>	0.00	928.9	73.1
1319	J-557	758.5	<None>	1.98	928.5	73.6
1321	J-558	765.5	<None>	3.96	928.9	70.7
1323	J-559	791.0	<None>	0.00	930.0	60.2
1326	J-560	784.5	<None>	195.76	925.7	61.1
1328	J-561	791.0	<None>	99.70	929.7	60.0
1330	J-562	824.0	<None>	1.82	931.8	46.7
1332	J-563	819.0	<None>	1.36	929.2	47.7
1335	J-564	817.0	<None>	0.00	929.2	48.6
1337	J-565	789.0	<None>	3.74	929.2	60.7

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1340	J-566	785.0	<None>	2.38	929.2	62.4
1342	J-567	798.0	<None>	1.36	929.2	56.7
1345	J-568	791.0	<None>	7.98	929.2	59.8
1347	J-569	799.0	<None>	0.00	929.2	56.3
1350	J-570	796.0	<None>	6.98	929.2	57.6
1352	J-571	796.5	<None>	0.00	930.7	58.0
1355	J-572	793.0	<None>	0.00	930.7	59.6
1357	J-573	792.0	<None>	0.00	931.3	60.3
1360	J-574	791.0	<None>	1.98	931.3	60.7
1362	J-575	801.0	<None>	3.06	930.4	56.0
1371	J-577	760.6	<None>	4.08	930.0	73.3
1413	J-582	815.0	<None>	2.38	930.4	49.9
1416	J-583	812.8	<None>	5.84	931.4	51.3
1418	J-584	814.5	<None>	0.00	931.3	50.5
1421	J-585	813.0	<None>	3.96	931.2	51.1
1425	J-586	809.7	<None>	5.10	930.4	52.2
1428	J-587	812.0	<None>	2.38	930.4	51.2
1430	J-588	811.0	<None>	2.38	930.4	51.6
1435	J-589	801.0	<None>	0.68	942.1	61.1
1438	J-590	776.0	<None>	(N/A)	(N/A)	(N/A)
1442	J-592	799.0	<None>	3.22	942.1	61.9
1446	J-594	781.5	<None>	104.12	930.0	64.2
1451	J-595	821.5	<None>	1.70	932.6	48.0
1454	J-596	826.0	<None>	0.00	932.6	46.1
1456	J-597	829.0	<None>	8.03	932.1	44.6
1464	J-598	776.5	<None>	0.00	944.6	72.7
1469	J-599	749.5	<None>	0.00	930.4	78.2
1472	J-600	797.0	<None>	2.38	930.6	57.8
1476	J-601	797.0	<None>	2.04	930.6	57.8
1479	J-602	822.3	<None>	4.08	929.8	46.5
1485	J-603	820.0	<None>	1.02	929.8	47.5
1489	J-604	821.5	<None>	1.79	929.2	46.6
1494	J-605	797.4	<None>	3.06	930.5	57.6
1503	J-607	821.3	<None>	7.48	934.0	48.7
1512	J-609	799.5	<None>	13.86	930.1	56.5
1518	J-610	765.5	<None>	4.88	929.4	70.9
1558	J-616	803.9	<None>	10.92	930.1	54.6
1567	J-618	801.0	<None>	5.80	930.2	55.9
1570	J-619	801.0	<None>	0.00	930.5	56.0
1585	J-620	794.7	<None>	2.04	930.8	58.9
1610	J-622	815.0	<None>	0.00	929.7	49.6
1625	J-624	851.1	<None>	0.00	936.4	36.9
1645	J-630	855.0	<None>	(N/A)	(N/A)	(N/A)
1647	J-631	833.0	<None>	(N/A)	(N/A)	(N/A)
1649	J-632	832.4	<None>	(N/A)	(N/A)	(N/A)
1650	J-633	832.4	<None>	(N/A)	(N/A)	(N/A)
1660	J-634	810.6	<None>	0.00	932.2	52.6
1664	J-635	734.0	<None>	0.00	929.3	84.5

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1667	J-636	751.0	<None>	(N/A)	(N/A)	(N/A)
1669	J-637	740.1	<None>	(N/A)	(N/A)	(N/A)
1671	J-638	870.0	<None>	(N/A)	(N/A)	(N/A)
1676	J-639	758.0	<None>	(N/A)	(N/A)	(N/A)
1678	J-640	830.9	<None>	0.00	933.7	44.5
1681	J-641	831.0	<None>	(N/A)	(N/A)	(N/A)
1689	J-642	807.0	<None>	(N/A)	(N/A)	(N/A)
1691	J-643	807.0	<None>	(N/A)	(N/A)	(N/A)
1693	J-644	807.0	<None>	(N/A)	(N/A)	(N/A)
1695	J-645	783.0	<None>	(N/A)	(N/A)	(N/A)
1697	J-646	780.0	<None>	(N/A)	(N/A)	(N/A)
1699	J-647	782.0	<None>	(N/A)	(N/A)	(N/A)
1702	J-648	823.4	<None>	0.00	931.8	46.9
1705	J-649	821.0	<None>	0.00	931.9	48.0
1707	J-650	826.0	<None>	0.00	931.9	45.8
1711	J-651	832.6	<None>	0.00	933.8	43.8
1714	J-652	0.0	<None>	0.00	933.8	404.0
1716	J-653	832.9	<None>	0.00	933.8	43.7

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
36	P-6	836	J-9	J-10	12.0	Ductile Iron	-5.22	0.01	0.000
46	P-11	2,718	J-14	J-15	12.0	Ductile Iron	-168.15	0.48	0.000
48	P-12	1,455	J-15	J-16	12.0	Ductile Iron	-267.46	0.76	0.000
50	P-13	5,229	J-16	J-17	12.0	Ductile Iron	-271.04	0.77	0.000
52	P-14	776	J-17	J-18	12.0	Ductile Iron	0.00	0.00	0.000
56	P-17	134	J-19	J-17	12.0	Ductile Iron	281.63	0.80	0.000
58	P-18	3,031	J-19	J-20	10.0	Ductile Iron	-281.63	1.15	0.001
60	P-19	161	J-20	J-21	10.0	Ductile Iron	-281.63	1.15	0.001
62	P-20	83	J-21	J-22	10.0	Ductile Iron	-531.98	2.17	0.002
64	P-21	1,479	J-22	J-23	16.0	Ductile Iron	-1,485.41	2.37	0.002
103	P-36	779	J-12	J-46	12.0	Ductile Iron	63.23	0.18	0.000
105	P-37	262	J-46	J-47	12.0	Ductile Iron	63.23	0.18	0.000
107	P-38	241	J-23	J-48	16.0	Ductile Iron	-1,493.33	2.38	0.002
111	P-41	166	J-48	T-1	16.0	Ductile Iron	-1,025.82	1.64	0.001
113	P-42	363	J-47	J-49	12.0	Ductile Iron	-222.69	0.63	0.000
115	P-43	394	J-49	J-50	12.0	Ductile Iron	-222.69	0.63	0.000
117	P-44	391	J-50	J-51	12.0	Ductile Iron	-225.42	0.64	0.000
121	P-46	556	J-52	J-53	12.0	Ductile Iron	-230.30	0.65	0.000
123	P-47	467	J-53	J-54	12.0	Ductile Iron	-233.36	0.66	0.000
125	P-48	104	J-54	J-55	12.0	Ductile Iron	-235.40	0.67	0.000
129	P-50	538	J-55	J-57	10.0	Ductile Iron	-243.34	0.99	0.001
131	P-51	559	J-57	J-58	10.0	Ductile Iron	-208.88	0.85	0.000
135	P-53	1,328	J-59	J-60	10.0	Ductile Iron	-220.10	0.90	0.000
137	P-54	152	J-60	J-61	8.0	Ductile Iron	10.54	0.07	0.000
141	P-56	426	J-62	J-63	8.0	Ductile Iron	5.44	0.03	0.000
143	P-57	299	J-63	J-64	8.0	Ductile Iron	5.44	0.03	0.000
147	P-59	2,599	J-60	J-66	16.0	Ductile Iron	-1,015.73	1.62	0.001
153	P-63	1,260	J-21	J-66	10.0	Ductile Iron	250.35	1.02	0.001
155	P-64	586	J-66	J-69	10.0	Ductile Iron	187.71	0.77	0.000
157	P-65	363	J-69	J-70	10.0	Ductile Iron	187.71	0.77	0.000
159	P-66	303	J-70	J-71	10.0	Ductile Iron	187.71	0.77	0.000
163	P-68	253	J-72	J-73	8.0	Ductile Iron	180.33	1.15	0.001
168	P-71	958	J-43	J-75	16.0	Ductile Iron	846.41	1.35	0.001
170	P-72	1,854	J-75	J-76	16.0	Ductile Iron	846.41	1.35	0.001
172	P-73	1,288	J-76	J-77	16.0	Ductile Iron	842.32	1.34	0.001
176	P-75	316	J-78	J-79	16.0	Ductile Iron	10.11	0.02	0.000
178	P-76	344	J-79	J-80	16.0	Ductile Iron	6.15	0.01	0.000
180	P-77	331	J-80	J-81	16.0	Ductile Iron	6.15	0.01	0.000
182	P-78	163	J-81	J-82	10.0	Ductile Iron	6.15	0.03	0.000
184	P-79	320	J-82	J-83	10.0	Ductile Iron	3.42	0.01	0.000
185	P-80	947	J-83	J-78	10.0	Ductile Iron	0.69	0.00	0.000
189	P-82	310	J-84	J-85	16.0	Ductile Iron	827.44	1.32	0.001
197	P-86	444	J-88	J-89	8.0	Ductile Iron	34.85	0.22	0.000
199	P-87	332	J-89	J-90	8.0	Ductile Iron	31.79	0.20	0.000
201	P-88	178	J-90	J-91	8.0	Ductile Iron	27.71	0.18	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
203	P-89	447	J-91	J-92	8.0	Ductile Iron	36.54	0.23	0.000
205	P-91	261	J-87	J-91	8.0	Ductile Iron	86.21	0.55	0.000
207	P-92	274	J-92	J-93	8.0	Ductile Iron	110.51	0.71	0.000
209	P-93	449	J-93	J-94	8.0	Ductile Iron	-71.93	0.46	0.000
211	P-94	252	J-94	J-95	8.0	Ductile Iron	0.00	0.00	0.000
213	P-95	278	J-95	J-96	8.0	Ductile Iron	0.00	0.00	0.000
215	P-96	443	J-73	J-97	8.0	Ductile Iron	167.24	1.07	0.001
219	P-98	334	J-98	J-99	8.0	Ductile Iron	-28.96	0.18	0.000
223	P-100	116	J-100	J-101	6.0	Ductile Iron	-63.22	0.72	0.001
225	P-101	203	J-101	J-102	6.0	Ductile Iron	-100.27	1.14	0.001
227	P-102	327	J-102	J-103	6.0	Ductile Iron	3.96	0.04	0.000
229	P-103	240	J-101	J-104	6.0	Ductile Iron	32.63	0.37	0.000
231	P-104	511	J-104	J-105	6.0	Ductile Iron	32.63	0.37	0.000
233	P-105	642	J-105	J-106	6.0	Ductile Iron	29.57	0.34	0.000
234	P-106	377	J-106	J-97	8.0	Ductile Iron	9.47	0.06	0.000
236	P-107	224	J-85	J-107	12.0	Ductile Iron	616.09	1.75	0.001
238	P-108	446	J-107	J-108	12.0	Ductile Iron	612.13	1.74	0.001
242	P-110	473	J-109	J-110	12.0	Ductile Iron	-367.64	1.04	0.000
244	P-111	425	J-110	J-111	12.0	Ductile Iron	-367.64	1.04	0.000
246	P-113	514	J-109	J-106	8.0	Ductile Iron	81.59	0.52	0.000
248	P-114	138	J-93	J-112	8.0	Ductile Iron	180.41	1.15	0.001
257	P-119	651	J-112	J-116	6.0	Ductile Iron	83.44	0.95	0.001
258	P-120	692	J-116	J-113	6.0	Ductile Iron	144.49	1.64	0.003
259	P-121	33	J-114	J-116	4.0	Ductile Iron	42.00	1.07	0.002
261	P-122	371	J-108	J-117	8.0	Ductile Iron	126.32	0.81	0.000
262	P-123	443	J-117	J-112	8.0	Ductile Iron	-93.91	0.60	0.000
264	P-124	78	J-117	J-118	8.0	Ductile Iron	214.44	1.37	0.001
272	P-128	940	J-118	J-122	4.0	Ductile Iron	19.05	0.49	0.000
274	P-129	577	J-113	J-123	8.0	Ductile Iron	143.19	0.91	0.001
276	P-130	479	J-123	J-124	8.0	Ductile Iron	136.91	0.87	0.001
278	P-131	603	J-118	J-125	8.0	Ductile Iron	192.33	1.23	0.001
280	P-132	636	J-125	J-126	8.0	Ductile Iron	192.33	1.23	0.001
281	P-133	396	J-126	J-109	8.0	Ductile Iron	-277.83	1.77	0.002
283	P-134	71	J-126	J-127	8.0	Ductile Iron	466.76	2.98	0.005
289	P-137	405	J-128	J-129	6.0	Ductile Iron	-1.32	0.02	0.000
294	P-140	375	J-130	J-131	8.0	Ductile Iron	-165.75	1.06	0.001
295	P-141	444	J-131	J-127	8.0	Ductile Iron	-171.53	1.09	0.001
297	P-142	443	J-132	J-131	6.0	Ductile Iron	-3.06	0.03	0.000
299	P-143	364	J-128	J-133	8.0	Ductile Iron	209.36	1.34	0.001
301	P-144	406	J-133	J-134	8.0	Ductile Iron	-37.49	0.24	0.000
303	P-145	157	J-134	J-135	8.0	Ductile Iron	-30.31	0.19	0.000
305	P-146	466	J-134	J-136	8.0	Ductile Iron	-9.90	0.06	0.000
307	P-147	355	J-130	J-137	10.0	Ductile Iron	227.72	0.93	0.000
309	P-148	365	J-137	J-138	12.0	Ductile Iron	425.35	1.21	0.001
311	P-149	382	J-138	J-139	12.0	Ductile Iron	-87.52	0.25	0.000
313	P-150	347	J-139	J-140	12.0	Ductile Iron	-283.28	0.80	0.000
316	P-152	359	J-137	J-141	8.0	Ductile Iron	-93.83	0.60	0.000
317	P-153	999	J-141	J-133	8.0	Ductile Iron	-105.22	0.67	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
319	P-154	749	J-60	J-142	16.0	Ductile Iron	784.41	1.25	0.000
321	P-155	549	J-142	J-143	16.0	Ductile Iron	764.01	1.22	0.000
330	P-159	541	J-144	J-148	6.0	Ductile Iron	-2.04	0.02	0.000
332	P-160	266	J-148	J-149	6.0	Ductile Iron	-34.10	0.39	0.000
334	P-161	662	J-149	J-150	6.0	Ductile Iron	-12.05	0.14	0.000
338	P-164	275	J-150	J-151	10.0	Ductile Iron	61.29	0.25	0.000
340	P-165	934	J-151	J-152	6.0	Ductile Iron	9.73	0.11	0.000
346	P-169	218	J-47	J-154	12.0	Ductile Iron	285.92	0.81	0.000
351	P-171	335	J-154	J-157	12.0	Ductile Iron	285.92	0.81	0.000
353	P-173	256	J-156	J-157	12.0	Ductile Iron	-187.02	0.53	0.000
357	P-175	245	J-158	J-159	10.0	Ductile Iron	-15.70	0.06	0.000
359	P-176	1,125	J-159	J-160	10.0	Ductile Iron	-212.82	0.87	0.000
363	P-178	298	J-161	J-162	16.0	Ductile Iron	-342.88	0.55	0.000
365	P-179	446	J-162	J-163	16.0	Ductile Iron	-345.61	0.55	0.000
367	P-180	242	J-163	J-164	16.0	Ductile Iron	-345.61	0.55	0.000
369	P-181	429	J-164	J-165	16.0	Ductile Iron	-483.53	0.77	0.000
371	P-182	212	J-165	J-166	16.0	Ductile Iron	-483.53	0.77	0.000
373	P-183	307	J-166	J-167	16.0	Ductile Iron	-516.60	0.82	0.000
375	P-184	417	J-167	J-168	16.0	Ductile Iron	-516.60	0.82	0.000
376	P-185	361	J-168	J-143	16.0	Ductile Iron	-518.19	0.83	0.000
378	P-186	1,314	J-148	J-169	6.0	Ductile Iron	29.68	0.34	0.000
387	P-191	439	J-172	J-173	6.0	Ductile Iron	-12.08	0.14	0.000
389	P-192	282	J-173	J-174	6.0	Ductile Iron	-17.54	0.20	0.000
391	P-193	291	J-174	J-175	6.0	Ductile Iron	-22.07	0.25	0.000
392	P-194	449	J-175	J-169	6.0	Ductile Iron	-24.11	0.27	0.000
395	P-196	322	J-172	J-176	12.0	Ductile Iron	-57.15	0.16	0.000
397	P-197	254	J-176	J-177	12.0	Ductile Iron	-59.88	0.17	0.000
405	P-204	102	J-177	J-178	12.0	Ductile Iron	-59.88	0.17	0.000
406	P-205	620	J-178	J-164	12.0	Ductile Iron	-146.33	0.42	0.000
408	P-206	89	J-178	J-179	8.0	Ductile Iron	-16.89	0.11	0.000
409	P-207	467	J-173	J-179	6.0	Ductile Iron	3.08	0.03	0.000
411	P-208	274	J-179	J-180	6.0	Ductile Iron	-18.47	0.21	0.000
412	P-209	467	J-180	J-174	6.0	Ductile Iron	0.57	0.01	0.000
414	P-210	466	J-169	J-181	6.0	Ductile Iron	-5.19	0.06	0.000
415	P-211	469	J-181	J-166	6.0	Ductile Iron	-32.04	0.36	0.000
416	P-212	740	J-180	J-181	6.0	Ductile Iron	-23.80	0.27	0.000
425	P-217	65	J-184	J-185	4.0	Ductile Iron	0.00	0.00	0.000
427	P-218	398	J-184	J-186	6.0	Ductile Iron	0.00	0.00	0.000
431	P-220	521	J-187	J-188	10.0	Ductile Iron	130.19	0.53	0.000
433	P-221	366	J-188	J-189	10.0	Ductile Iron	218.19	0.89	0.000
435	P-222	418	J-189	J-190	10.0	Ductile Iron	267.48	1.09	0.001
437	P-223	326	J-190	J-191	6.0	Ductile Iron	110.85	1.26	0.002
440	P-225	303	J-192	J-164	12.0	Ductile Iron	8.42	0.02	0.000
442	P-226	543	J-191	J-193	6.0	Ductile Iron	48.24	0.55	0.000
445	P-228	448	J-190	J-194	10.0	Ductile Iron	156.64	0.64	0.000
466	P-240	44	J-202	J-203	4.0	Ductile Iron	-135.00	3.45	0.018
468	P-241	82	J-202	J-204	16.0	Ductile Iron	277.27	0.44	0.000
470	P-242	373	J-204	J-205	8.0	Ductile Iron	100.94	0.64	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
474	P-244	91	J-204	J-207	8.0	Ductile Iron	172.37	1.10	0.001
476	P-245	186	J-207	J-208	8.0	Ductile Iron	-43.08	0.27	0.000
478	P-246	284	J-208	J-209	8.0	Ductile Iron	-152.68	0.97	0.001
486	P-251	352	J-133	J-212	8.0	Ductile Iron	129.58	0.83	0.000
488	P-252	352	J-212	J-213	12.0	Ductile Iron	71.69	0.20	0.000
490	P-253	44	J-213	J-214	12.0	Ductile Iron	-23.43	0.07	0.000
496	P-257	334	J-215	J-214	12.0	Ductile Iron	23.43	0.07	0.000
497	P-258	172	J-207	J-216	8.0	Ductile Iron	215.44	1.38	0.001
498	P-259	369	J-216	J-215	12.0	Ductile Iron	83.46	0.24	0.000
500	P-260	545	J-217	J-48	10.0	Ductile Iron	1,000.00	4.08	0.007
507	P-264	251	J-219	J-220	8.0	Ductile Iron	-111.85	0.71	0.000
509	P-265	413	J-220	J-221	12.0	Ductile Iron	119.53	0.34	0.000
511	P-266	350	J-221	J-222	12.0	Ductile Iron	21.65	0.06	0.000
513	P-267	339	J-222	J-223	10.0	Ductile Iron	191.02	0.78	0.000
514	P-268	360	J-223	J-137	10.0	Ductile Iron	108.21	0.44	0.000
516	P-269	462	J-215	J-224	8.0	Ductile Iron	52.75	0.34	0.000
518	P-270	471	J-213	J-225	12.0	Ductile Iron	133.30	0.38	0.000
520	P-271	419	J-225	J-226	12.0	Ductile Iron	49.51	0.14	0.000
522	P-272	100	J-226	J-227	12.0	Ductile Iron	26.80	0.08	0.000
524	P-273	179	J-227	J-228	12.0	Ductile Iron	17.77	0.05	0.000
526	P-274	44	J-228	J-229	8.0	Ductile Iron	-268.00	1.71	0.002
528	P-275	60	J-228	J-230	12.0	Ductile Iron	285.77	0.81	0.000
529	P-276	127	J-230	J-222	12.0	Ductile Iron	274.85	0.78	0.000
532	P-278	486	J-212	J-231	6.0	Ductile Iron	40.46	0.46	0.000
534	P-279	472	J-231	J-232	6.0	Ductile Iron	24.38	0.28	0.000
535	P-280	399	J-232	J-223	6.0	Ductile Iron	21.32	0.24	0.000
537	P-281	212	J-138	J-233	12.0	Ductile Iron	511.16	1.45	0.001
539	P-282	418	J-233	J-234	12.0	Ductile Iron	413.28	1.17	0.001
541	P-283	1,057	J-234	J-235	12.0	Ductile Iron	-38.01	0.11	0.000
543	P-284	122	J-234	J-236	12.0	Ductile Iron	250.06	0.71	0.000
545	P-285	510	J-236	J-237	12.0	Ductile Iron	246.65	0.70	0.000
547	P-286	274	J-237	J-238	12.0	Ductile Iron	50.89	0.14	0.000
549	P-287	379	J-238	J-239	12.0	Ductile Iron	-144.87	0.41	0.000
551	P-288	575	J-239	J-240	6.0	Ductile Iron	-20.70	0.23	0.000
553	P-289	496	J-240	J-241	6.0	Ductile Iron	-28.18	0.32	0.000
554	P-290	842	J-241	J-234	12.0	Ductile Iron	-5.48	0.02	0.000
556	P-291	442	J-242	J-239	8.0	Ductile Iron	6.93	0.04	0.000
558	P-292	327	J-242	J-243	6.0	Ductile Iron	-13.58	0.15	0.000
560	P-293	299	J-243	J-244	6.0	Ductile Iron	-20.88	0.24	0.000
562	P-294	708	J-244	J-245	6.0	Ductile Iron	-4.33	0.05	0.000
564	P-295	249	J-245	J-246	8.0	Ductile Iron	-3.23	0.02	0.000
566	P-296	208	J-246	J-247	8.0	Ductile Iron	-0.80	0.01	0.000
568	P-297	638	J-247	J-248	8.0	Ductile Iron	-6.24	0.04	0.000
570	P-298	206	J-248	J-249	8.0	Ductile Iron	-11.68	0.07	0.000
572	P-299	278	J-249	J-250	8.0	Ductile Iron	9.08	0.06	0.000
573	P-300	359	J-250	J-246	8.0	Ductile Iron	9.08	0.06	0.000
577	P-302	222	J-249	J-252	8.0	Ductile Iron	-25.52	0.16	0.000
579	P-303	115	J-252	J-253	8.0	Ductile Iron	-25.52	0.16	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
581	P-304	264	J-253	J-254	10.0	Ductile Iron	-25.52	0.10	0.000
585	P-306	328	J-255	J-256	8.0	Ductile Iron	1.36	0.01	0.000
592	P-310	517	J-244	J-259	8.0	Ductile Iron	-11.75	0.08	0.000
594	P-311	449	J-259	J-260	8.0	Ductile Iron	-13.45	0.09	0.000
597	P-314	541	J-245	J-260	6.0	Ductile Iron	-5.18	0.06	0.000
599	P-315	121	J-260	J-261	8.0	Ductile Iron	-20.67	0.13	0.000
600	P-316	405	J-261	J-254	8.0	Ductile Iron	-22.03	0.14	0.000
603	P-317	403	J-220	J-263	12.0	Ductile Iron	729.32	2.07	0.002
605	P-318	308	J-263	J-264	8.0	Ductile Iron	133.99	0.86	0.001
606	P-319	327	J-264	J-241	12.0	Ductile Iron	22.70	0.06	0.000
608	P-320	273	J-263	J-265	8.0	Ductile Iron	104.91	0.67	0.000
610	P-321	153	J-265	J-266	8.0	Ductile Iron	105.90	0.68	0.000
612	P-322	169	J-266	J-267	8.0	Ductile Iron	116.58	0.74	0.000
614	P-323	473	J-267	J-268	12.0	Ductile Iron	116.58	0.33	0.000
616	P-324	224	J-268	J-269	12.0	Ductile Iron	116.08	0.33	0.000
617	P-325	434	J-269	J-239	12.0	Ductile Iron	121.33	0.34	0.000
619	P-326	687	J-269	J-270	4.0	Ductile Iron	-8.65	0.22	0.000
620	P-327	372	J-270	J-264	6.0	Ductile Iron	-12.73	0.14	0.000
623	P-329	171	J-271	J-244	6.0	Ductile Iron	9.22	0.10	0.000
628	P-332	354	J-272	J-273	6.0	Ductile Iron	48.79	0.55	0.000
630	P-333	380	J-273	J-274	6.0	Ductile Iron	71.51	0.81	0.001
632	P-334	167	J-274	J-275	6.0	Ductile Iron	47.96	0.54	0.000
636	P-336	384	J-276	J-277	8.0	Ductile Iron	55.46	0.35	0.000
642	P-340	198	J-277	J-279	16.0	Ductile Iron	-797.47	1.27	0.000
643	P-341	904	J-279	J-275	2.0	Ductile Iron	-1.23	0.13	0.000
645	P-342	405	J-274	J-280	8.0	Ductile Iron	14.49	0.09	0.000
648	P-344	167	J-281	J-279	12.0	Ductile Iron	797.93	2.26	0.002
650	P-345	32	J-281	J-282	12.0	Ductile Iron	-916.94	2.60	0.003
652	P-346	329	J-282	J-283	16.0	Ductile Iron	-953.62	1.52	0.001
654	P-347	353	J-283	J-284	6.0	Ductile Iron	37.28	0.42	0.000
655	P-348	557	J-284	J-273	6.0	Ductile Iron	34.56	0.39	0.000
657	P-349	369	J-283	J-285	16.0	Ductile Iron	-993.63	1.59	0.001
659	P-350	365	J-285	J-286	8.0	Ductile Iron	111.34	0.71	0.000
661	P-352	546	J-286	J-272	8.0	Ductile Iron	108.62	0.69	0.000
663	P-353	365	J-285	J-287	16.0	Ductile Iron	-1,107.68	1.77	0.001
665	P-354	371	J-287	J-288	6.0	Ductile Iron	-30.24	0.34	0.000
667	P-355	77	J-288	J-289	6.0	Ductile Iron	-33.30	0.38	0.000
669	P-356	460	J-289	J-290	6.0	Ductile Iron	19.07	0.22	0.000
671	P-357	67	J-290	J-291	6.0	Ductile Iron	91.97	1.04	0.001
672	P-358	401	J-291	J-188	6.0	Ductile Iron	91.97	1.04	0.001
674	P-359	470	J-187	J-292	10.0	Ductile Iron	-387.49	1.58	0.001
676	P-360	84	J-292	J-293	8.0	Ductile Iron	78.80	0.50	0.000
677	P-361	434	J-293	J-290	8.0	Ductile Iron	77.10	0.49	0.000
679	P-362	456	J-292	J-294	10.0	Ductile Iron	-206.00	0.84	0.000
680	P-363	522	J-294	J-289	6.0	Ductile Iron	54.41	0.62	0.000
683	P-365	525	J-295	J-287	16.0	Ductile Iron	1,105.25	1.76	0.001
685	P-366	380	J-282	J-296	8.0	Ductile Iron	33.96	0.22	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
687	P-367	60	J-296	J-297	6.0	Ductile Iron	117.84	1.34	0.002
689	P-368	371	J-297	J-298	6.0	Ductile Iron	153.82	1.75	0.003
691	P-369	217	J-298	J-299	6.0	Ductile Iron	48.94	0.56	0.000
693	P-370	212	J-299	J-300	4.0	Ductile Iron	33.77	0.86	0.001
695	P-371	232	J-300	J-301	4.0	Ductile Iron	6.95	0.18	0.000
696	P-372	244	J-301	J-265	4.0	Ductile Iron	3.37	0.09	0.000
698	P-373	245	J-266	J-302	4.0	Ductile Iron	-10.68	0.27	0.000
700	P-374	233	J-302	J-303	4.0	Ductile Iron	-1.45	0.04	0.000
701	P-375	561	J-303	J-302	4.0	Ductile Iron	0.92	0.02	0.000
702	P-376	151	J-300	J-303	4.0	Ductile Iron	12.24	0.31	0.000
703	P-377	152	J-301	J-302	4.0	Ductile Iron	8.30	0.21	0.000
704	P-378	473	J-300	J-301	4.0	Ductile Iron	4.73	0.12	0.000
706	P-379	631	J-299	J-304	6.0	Ductile Iron	10.75	0.12	0.000
708	P-380	419	J-271	J-305	6.0	Ductile Iron	17.81	0.20	0.000
712	P-382	320	J-306	J-307	6.0	Ductile Iron	9.00	0.10	0.000
714	P-383	259	J-306	J-308	6.0	Ductile Iron	-7.51	0.09	0.000
716	P-384	318	J-308	J-309	6.0	Ductile Iron	9.01	0.10	0.000
718	P-385	320	J-308	J-310	6.0	Ductile Iron	6.46	0.07	0.000
720	P-386	514	J-310	J-311	6.0	Ductile Iron	3.40	0.04	0.000
722	P-387	290	J-308	J-312	6.0	Ductile Iron	-31.30	0.36	0.000
724	P-388	331	J-312	J-313	6.0	Ductile Iron	-12.89	0.15	0.000
726	P-389	323	J-313	J-314	6.0	Ductile Iron	-15.23	0.17	0.000
728	P-390	300	J-314	J-315	6.0	Ductile Iron	-25.48	0.29	0.000
730	P-391	795	J-315	J-316	6.0	Ductile Iron	-27.18	0.31	0.000
732	P-392	289	J-316	J-317	6.0	Ductile Iron	35.61	0.40	0.000
733	P-393	793	J-317	J-313	2.0	Ductile Iron	1.41	0.14	0.000
735	P-394	254	J-317	J-318	6.0	Ductile Iron	30.46	0.35	0.000
736	P-395	503	J-318	J-312	6.0	Ductile Iron	26.04	0.30	0.000
738	P-396	99	J-316	J-319	6.0	Ductile Iron	-65.51	0.74	0.001
740	P-397	363	J-319	J-320	6.0	Ductile Iron	-67.89	0.77	0.001
742	P-398	313	J-320	J-321	6.0	Ductile Iron	-71.29	0.81	0.001
744	P-399	72	J-321	J-322	6.0	Ductile Iron	-72.99	0.83	0.001
746	P-400	11	J-322	J-323	6.0	Ductile Iron	12.30	0.14	0.000
748	P-401	328	J-323	J-324	12.0	Ductile Iron	3.12	0.01	0.000
750	P-402	145	J-324	J-325	12.0	Ductile Iron	67.43	0.19	0.000
752	P-403	80	J-325	J-326	12.0	Ductile Iron	67.43	0.19	0.000
754	P-404	591	J-326	J-327	12.0	Ductile Iron	131.63	0.37	0.000
756	P-405	622	J-327	J-328	12.0	Ductile Iron	129.93	0.37	0.000
758	P-406	169	J-328	J-329	6.0	Ductile Iron	3.74	0.04	0.000
760	P-407	392	J-328	J-330	12.0	Ductile Iron	125.17	0.36	0.000
764	P-409	588	J-331	J-332	6.0	Ductile Iron	4.30	0.05	0.000
771	P-412	402	J-326	J-336	6.0	Ductile Iron	-65.56	0.74	0.001
773	P-413	203	J-336	J-337	6.0	Ductile Iron	-38.72	0.44	0.000
778	P-416	95	J-337	J-339	8.0	Ductile Iron	0.00	0.00	0.000
780	P-417	409	J-324	J-340	6.0	Ductile Iron	-66.35	0.75	0.001
781	P-418	127	J-340	J-336	6.0	Ductile Iron	26.83	0.30	0.000
783	P-419	282	J-340	J-341	8.0	Ductile Iron	-93.18	0.59	0.000
784	P-420	162	J-341	J-337	6.0	Ductile Iron	38.72	0.44	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
786	P-421	94	J-341	J-342	8.0	Ductile Iron	-131.90	0.84	0.000
788	P-422	211	J-342	J-343	8.0	Ductile Iron	0.00	0.00	0.000
792	P-425	67	J-342	J-344	8.0	Ductile Iron	-135.98	0.87	0.001
794	P-426	128	J-344	J-345	8.0	Ductile Iron	-135.98	0.87	0.001
796	P-427	200	J-345	J-346	8.0	Ductile Iron	0.00	0.00	0.000
798	P-428	196	J-345	J-347	8.0	Ductile Iron	-140.74	0.90	0.001
800	P-429	314	J-347	J-348	6.0	Ductile Iron	4.57	0.05	0.000
802	P-430	633	J-348	J-349	6.0	Ductile Iron	-0.87	0.01	0.000
804	P-431	48	J-349	J-350	6.0	Ductile Iron	2.38	0.03	0.000
806	P-432	131	J-349	J-351	6.0	Ductile Iron	-7.33	0.08	0.000
811	P-437	539	J-351	J-322	6.0	Ductile Iron	88.02	1.00	0.001
815	P-439	385	J-287	J-353	6.0	Ductile Iron	22.36	0.25	0.000
817	P-440	563	J-353	J-354	6.0	Ductile Iron	52.18	0.59	0.000
818	P-441	506	J-354	J-296	6.0	Ductile Iron	85.92	0.97	0.001
820	P-442	385	J-295	J-355	1.3	Ductile Iron	1.10	0.29	0.001
821	P-443	521	J-355	J-353	6.0	Ductile Iron	52.20	0.59	0.000
823	P-444	416	J-353	J-356	6.0	Ductile Iron	15.59	0.18	0.000
825	P-445	488	J-356	J-357	6.0	Ductile Iron	40.88	0.46	0.000
826	P-446	384	J-357	J-354	6.0	Ductile Iron	37.48	0.43	0.000
832	P-450	397	J-355	J-359	6.0	Ductile Iron	60.72	0.69	0.001
833	P-451	568	J-359	J-356	8.0	Ductile Iron	29.03	0.19	0.000
835	P-452	618	J-359	J-360	6.0	Ductile Iron	19.15	0.22	0.000
837	P-453	484	J-360	J-361	6.0	Ductile Iron	54.90	0.62	0.000
839	P-454	590	J-361	J-362	6.0	Ductile Iron	51.84	0.59	0.000
841	P-455	780	J-362	J-363	6.0	Ductile Iron	45.16	0.51	0.000
842	P-456	434	J-363	J-297	6.0	Ductile Iron	42.44	0.48	0.000
844	P-457	149	J-292	J-364	8.0	Ductile Iron	-263.47	1.68	0.002
846	P-458	380	J-364	J-365	8.0	Ductile Iron	-269.41	1.72	0.002
848	P-459	455	J-365	J-366	8.0	Ductile Iron	-269.41	1.72	0.002
850	P-460	304	J-366	J-367	6.0	Ductile Iron	-42.15	0.48	0.000
852	P-461	605	J-367	J-368	6.0	Ductile Iron	45.15	0.51	0.000
854	P-462	323	J-368	J-369	6.0	Ductile Iron	135.67	1.54	0.003
856	P-463	306	J-368	J-370	6.0	Ductile Iron	-90.53	1.03	0.001
858	P-464	326	J-370	J-371	6.0	Ductile Iron	-77.26	0.88	0.001
860	P-465	300	J-371	J-372	8.0	Ductile Iron	87.19	0.56	0.000
861	P-466	327	J-372	J-367	6.0	Ductile Iron	90.02	1.02	0.001
863	P-467	327	J-366	J-373	8.0	Ductile Iron	-233.94	1.49	0.001
864	P-468	303	J-373	J-372	8.0	Ductile Iron	5.21	0.03	0.000
866	P-469	311	J-373	J-374	8.0	Ductile Iron	-239.15	1.53	0.001
868	P-470	500	J-374	J-375	8.0	Ductile Iron	-243.11	1.55	0.002
870	P-471	687	J-375	J-376	8.0	Ductile Iron	-243.79	1.56	0.002
872	P-472	341	J-376	J-377	10.0	Ductile Iron	-191.24	0.78	0.000
874	P-473	239	J-377	J-378	10.0	Ductile Iron	-215.98	0.88	0.000
876	P-474	597	J-378	J-379	10.0	Ductile Iron	-232.95	0.95	0.000
878	P-475	165	J-379	J-380	10.0	Ductile Iron	-287.31	1.17	0.001
880	P-476	144	J-380	J-381	14.0	Ductile Iron	1,011.92	2.11	0.001
882	P-477	412	J-381	J-382	14.0	Ductile Iron	1,038.35	2.16	0.001
887	P-480	244	J-382	J-384	14.0	Ductile Iron	997.59	2.08	0.001

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
889	P-481	74	J-384	J-385	14.0	Ductile Iron	979.03	2.04	0.001
891	P-482	593	J-385	J-386	14.0	Ductile Iron	832.93	1.74	0.001
893	P-483	9	J-386	J-387	14.0	Ductile Iron	708.95	1.48	0.001
895	P-484	403	J-387	J-388	8.0	Ductile Iron	273.83	1.75	0.002
896	P-485	302	J-388	J-371	8.0	Ductile Iron	166.48	1.06	0.001
905	P-490	300	J-391	J-392	8.0	Ductile Iron	6.34	0.04	0.000
907	P-491	269	J-392	J-393	8.0	Ductile Iron	6.34	0.04	0.000
909	P-492	273	J-393	J-394	8.0	Ductile Iron	6.34	0.04	0.000
911	P-493	300	J-394	J-395	8.0	Ductile Iron	2.38	0.02	0.000
913	P-494	274	J-395	J-396	8.0	Ductile Iron	-1.58	0.01	0.000
916	P-496	451	J-396	J-397	8.0	Ductile Iron	-5.54	0.04	0.000
918	P-497	277	J-397	J-398	8.0	Ductile Iron	-9.50	0.06	0.000
919	P-498	106	J-398	J-384	8.0	Ductile Iron	-15.84	0.10	0.000
920	P-499	68	J-391	J-398	8.0	Ductile Iron	-6.34	0.04	0.000
923	P-500	302	J-370	J-400	6.0	Ductile Iron	-15.31	0.17	0.000
924	P-501	325	J-400	J-388	6.0	Ductile Iron	-104.96	1.19	0.002
926	P-502	324	J-400	J-401	6.0	Ductile Iron	87.27	0.99	0.001
927	P-503	669	J-401	J-295	14.0	Ductile Iron	1,254.83	2.62	0.002
929	P-504	394	J-401	J-402	14.0	Ductile Iron	-1,171.63	2.44	0.002
931	P-505	267	J-402	J-403	6.0	Ductile Iron	220.22	2.50	0.006
932	P-506	405	J-403	J-355	6.0	Ductile Iron	117.72	1.34	0.002
934	P-507	334	J-387	J-404	14.0	Ductile Iron	431.72	0.90	0.000
935	P-508	314	J-404	J-402	14.0	Ductile Iron	1,395.60	2.91	0.003
937	P-509	48	J-360	J-405	6.0	Ductile Iron	-37.80	0.43	0.000
939	P-510	248	J-405	J-406	6.0	Ductile Iron	-81.25	0.92	0.001
941	P-511	297	J-406	J-407	4.0	Ductile Iron	-28.56	0.73	0.001
943	P-512	337	J-407	J-408	6.0	Ductile Iron	-31.96	0.36	0.000
945	P-513	549	J-408	J-409	6.0	Ductile Iron	-35.70	0.41	0.000
946	P-514	245	J-409	J-403	6.0	Ductile Iron	-95.53	1.08	0.001
947	P-515	908	J-409	J-406	6.0	Ductile Iron	58.13	0.66	0.001
949	P-516	655	J-271	J-410	8.0	Ductile Iron	-38.43	0.25	0.000
951	P-517	545	J-410	J-411	6.0	Ductile Iron	-3.46	0.04	0.000
953	P-518	516	J-411	J-412	6.0	Ductile Iron	-4.82	0.05	0.000
954	P-519	412	J-412	J-314	6.0	Ductile Iron	-8.22	0.09	0.000
956	P-520	275	J-405	J-413	6.0	Ductile Iron	42.44	0.48	0.000
957	P-521	846	J-413	J-351	6.0	Ductile Iron	95.34	1.08	0.001
959	P-522	539	J-347	J-414	6.0	Ductile Iron	-148.72	1.69	0.003
960	P-523	2,343	J-71	J-76	2.0	Ductile Iron	-4.09	0.42	0.001
965	P-526	79	J-87	J-416	8.0	Ductile Iron	-129.89	0.83	0.000
967	P-528	262	J-91	J-94	8.0	Ductile Iron	75.34	0.48	0.000
970	P-529	43	J-417	J-418	4.0	Ductile Iron	102.00	2.60	0.011
973	P-532	51	J-418	T-2	14.0	Ductile Iron	-868.34	1.81	0.001
975	P-533	72	J-418	J-419	14.0	Ductile Iron	970.34	2.02	0.001
977	P-534	550	J-419	J-420	14.0	Ductile Iron	970.34	2.02	0.001
978	P-535	367	J-420	J-404	14.0	Ductile Iron	967.62	2.02	0.001
982	P-537	253	J-421	J-422	6.0	Ductile Iron	-84.05	0.95	0.001
984	P-538	394	J-422	J-423	6.0	Ductile Iron	-87.11	0.99	0.001

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
986	P-539	343	J-423	J-424	8.0	Ductile Iron	-203.19	1.30	0.001
988	P-540	293	J-424	J-425	8.0	Ductile Iron	-119.22	0.76	0.000
989	P-541	675	J-425	J-386	8.0	Ductile Iron	-122.62	0.78	0.000
991	P-542	437	J-421	J-426	4.0	Ductile Iron	14.14	0.36	0.000
993	P-543	225	J-426	J-427	6.0	Ductile Iron	8.49	0.10	0.000
995	P-544	419	J-427	J-428	6.0	Ductile Iron	6.45	0.07	0.000
997	P-545	258	J-428	J-429	6.0	Ductile Iron	174.42	1.98	0.004
999	P-546	24	J-428	J-430	6.0	Ductile Iron	-169.33	1.92	0.004
1005	P-549	209	J-432	J-433	6.0	Ductile Iron	-42.40	0.48	0.000
1006	P-550	230	J-433	J-385	6.0	Ductile Iron	-144.39	1.64	0.003
1008	P-551	429	J-433	J-434	8.0	Ductile Iron	100.29	0.64	0.000
1010	P-552	245	J-434	J-435	8.0	Ductile Iron	97.23	0.62	0.000
1012	P-553	255	J-435	J-436	8.0	Ductile Iron	93.83	0.60	0.000
1013	P-554	364	J-436	J-424	8.0	Ductile Iron	90.43	0.58	0.000
1014	P-555	646	J-382	J-432	4.0	Ductile Iron	38.73	0.99	0.002
1016	P-556	108	J-381	J-437	8.0	Ductile Iron	-26.43	0.17	0.000
1018	P-557	376	J-437	J-438	8.0	Ductile Iron	-29.15	0.19	0.000
1020	P-558	56	J-438	J-439	8.0	Ductile Iron	-29.15	0.19	0.000
1024	P-560	177	J-439	J-441	8.0	Ductile Iron	-12.17	0.08	0.000
1026	P-561	475	J-441	J-442	8.0	Ductile Iron	-13.53	0.09	0.000
1028	P-562	250	J-442	J-443	8.0	Ductile Iron	-17.27	0.11	0.000
1030	P-563	50	J-443	J-444	8.0	Ductile Iron	-18.97	0.12	0.000
1032	P-564	248	J-444	J-445	8.0	Ductile Iron	20.73	0.13	0.000
1033	P-565	254	J-445	J-439	8.0	Ductile Iron	20.73	0.13	0.000
1035	P-566	397	J-444	J-446	8.0	Ductile Iron	-41.73	0.27	0.000
1037	P-567	55	J-446	J-447	6.0	Ductile Iron	-33.92	0.38	0.000
1039	P-568	256	J-447	J-448	6.0	Ductile Iron	-33.92	0.38	0.000
1041	P-569	636	J-448	J-449	6.0	Ductile Iron	15.63	0.18	0.000
1042	P-570	955	J-449	J-446	6.0	Ductile Iron	12.91	0.15	0.000
1044	P-571	295	J-448	J-450	6.0	Ductile Iron	-54.65	0.62	0.000
1046	P-572	873	J-450	J-451	6.0	Ductile Iron	-22.94	0.26	0.000
1048	P-573	283	J-451	J-452	6.0	Ductile Iron	38.52	0.44	0.000
1049	P-574	63	J-452	J-450	6.0	Ductile Iron	34.44	0.39	0.000
1051	P-575	141	J-451	J-453	6.0	Ductile Iron	-66.55	0.76	0.001
1052	P-576	45	J-453	J-380	12.0	Ductile Iron	1,300.59	3.69	0.005
1054	P-577	474	J-453	J-454	12.0	Ductile Iron	-1,367.82	3.88	0.005
1056	P-578	70	J-454	J-455	12.0	Ductile Iron	-1,368.84	3.88	0.005
1058	P-579	54	J-455	J-456	8.0	Ductile Iron	5.10	0.03	0.000
1060	P-580	306	J-456	J-457	8.0	Ductile Iron	0.00	0.00	0.000
1062	P-581	376	J-376	J-458	8.0	Ductile Iron	-57.31	0.37	0.000
1064	P-582	290	J-458	J-459	8.0	Ductile Iron	-59.69	0.38	0.000
1068	P-584	394	J-459	J-461	8.0	Ductile Iron	-25.93	0.17	0.000
1070	P-585	266	J-461	J-462	8.0	Ductile Iron	-30.01	0.19	0.000
1072	P-586	372	J-462	J-463	8.0	Ductile Iron	-51.62	0.33	0.000
1078	P-590	266	J-463	J-465	8.0	Ductile Iron	-53.32	0.34	0.000
1080	P-591	352	J-465	J-466	8.0	Ductile Iron	-55.70	0.36	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1082	P-592	145	J-466	J-467	8.0	Ductile Iron	-57.40	0.37	0.000
1084	P-593	382	J-467	J-468	6.0	Ductile Iron	-48.92	0.56	0.000
1085	P-594	385	J-468	J-379	6.0	Ductile Iron	-50.96	0.58	0.000
1086	P-595	405	J-467	J-378	6.0	Ductile Iron	-13.57	0.15	0.000
1088	P-596	436	J-462	J-469	8.0	Ductile Iron	19.91	0.13	0.000
1090	P-597	188	J-469	J-470	8.0	Ductile Iron	36.14	0.23	0.000
1091	P-598	69	J-470	J-459	8.0	Ductile Iron	36.14	0.23	0.000
1093	P-599	312	J-469	J-471	8.0	Ductile Iron	-17.59	0.11	0.000
1094	P-600	352	J-471	J-377	6.0	Ductile Iron	-19.97	0.23	0.000
1096	P-601	283	J-158	J-472	6.0	Ductile Iron	116.71	1.32	0.002
1100	P-603	412	J-224	J-474	8.0	Ductile Iron	-6.01	0.04	0.000
1101	P-604	384	J-474	J-226	8.0	Ductile Iron	-12.70	0.08	0.000
1107	P-606	683	J-477	J-478	6.0	Ductile Iron	67.96	0.77	0.001
1113	P-610	90	J-479	J-480	6.0	Ductile Iron	-24.99	0.28	0.000
1115	P-611	104	J-480	J-481	6.0	Ductile Iron	-189.03	2.14	0.004
1117	P-612	710	J-481	J-482	12.0	Ductile Iron	1,085.97	3.08	0.003
1119	P-613	62	J-482	J-483	12.0	Ductile Iron	-134.13	0.38	0.000
1121	P-614	640	J-480	J-484	6.0	Ductile Iron	159.62	1.81	0.003
1122	P-615	33	J-484	J-482	12.0	Ductile Iron	-1,217.38	3.45	0.004
1123	P-616	267	J-484	J-455	12.0	Ductile Iron	1,373.94	3.90	0.005
1125	P-617	280	J-483	J-485	12.0	Ductile Iron	-141.13	0.40	0.000
1127	P-618	450	J-485	J-486	12.0	Ductile Iron	-142.49	0.40	0.000
1129	P-619	66	J-486	J-487	12.0	Ductile Iron	-147.25	0.42	0.000
1131	P-620	203	J-487	J-488	12.0	Ductile Iron	-147.93	0.42	0.000
1133	P-621	504	J-488	J-489	12.0	Ductile Iron	-148.61	0.42	0.000
1137	P-623	78	J-489	J-491	12.0	Ductile Iron	-148.61	0.42	0.000
1144	P-627	362	J-493	J-494	6.0	Ductile Iron	-83.09	0.94	0.001
1146	P-628	459	J-494	J-495	6.0	Ductile Iron	-85.81	0.97	0.001
1148	P-629	171	J-486	J-496	6.0	Ductile Iron	3.74	0.04	0.000
1151	P-630	55	J-497	J-498	4.0	Ductile Iron	0.00	0.00	0.000
1152	P-631	72	J-498	J-492	6.0	Ductile Iron	0.00	0.00	0.000
1154	P-632	400	J-13	J-499	12.0	Ductile Iron	-166.33	0.47	0.000
1157	P-634	400	J-499	J-500	12.0	Ductile Iron	-166.33	0.47	0.000
1158	P-635	140	J-500	J-14	12.0	Ductile Iron	-166.33	0.47	0.000
1160	P-636	1,235	J-66	J-501	16.0	Ductile Iron	-953.43	1.52	0.001
1161	P-637	88	J-501	J-22	16.0	Ductile Iron	-953.43	1.52	0.001
1169	P-642	564	J-97	J-504	8.0	Ductile Iron	219.19	1.40	0.001
1170	P-643	236	J-504	J-128	8.0	Ductile Iron	212.59	1.36	0.001
1172	P-644	236	J-129	J-505	6.0	Ductile Iron	-86.61	0.98	0.001
1174	P-646	405	J-504	J-505	4.0	Ductile Iron	6.60	0.17	0.000
1176	P-647	171	J-426	J-506	6.0	Ductile Iron	2.59	0.03	0.000
1178	P-648	127	J-506	J-507	6.0	Ductile Iron	3.40	0.04	0.000
1180	P-649	198	J-506	J-508	6.0	Ductile Iron	-3.53	0.04	0.000
1182	P-650	502	J-413	J-509	4.0	Ductile Iron	-60.94	1.56	0.004
1183	P-651	171	J-509	J-421	6.0	Ductile Iron	-67.87	0.77	0.001
1186	P-654	429	J-85	J-416	8.0	Ductile Iron	211.35	1.35	0.001
1187	P-655	239	J-509	J-508	6.0	Ductile Iron	3.53	0.04	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1190	P-656	250	J-510	J-511	8.0	Ductile Iron	20.35	0.13	0.000
1192	P-657	213	J-511	J-512	8.0	Ductile Iron	16.95	0.11	0.000
1194	P-658	329	J-512	J-513	8.0	Ductile Iron	13.55	0.09	0.000
1196	P-659	13	J-254	J-514	10.0	Ductile Iron	-49.59	0.20	0.000
1197	P-660	329	J-514	J-255	10.0	Ductile Iron	1.36	0.01	0.000
1198	P-661	224	J-513	J-514	8.0	Ductile Iron	9.13	0.06	0.000
1203	P-663	18	J-113	J-517	8.0	Ductile Iron	-0.74	0.00	0.000
1204	P-664	448	J-517	J-140	12.0	Ductile Iron	286.68	0.81	0.000
1205	P-665	365	J-517	J-127	8.0	Ductile Iron	-291.16	1.86	0.002
1207	P-666	21	J-108	J-518	8.0	Ductile Iron	480.72	3.07	0.005
1208	P-667	138	J-518	J-102	6.0	Ductile Iron	108.31	1.23	0.002
1209	P-668	421	J-518	J-111	12.0	Ductile Iron	367.64	1.04	0.000
1211	P-669	199	J-205	J-519	8.0	Ductile Iron	100.94	0.64	0.000
1212	P-670	315	J-519	J-206	6.0	Ductile Iron	97.88	1.11	0.001
1214	P-671	418	J-208	J-520	8.0	Ductile Iron	105.64	0.67	0.000
1215	P-672	53	J-520	J-211	6.0	Ductile Iron	5.94	0.07	0.000
1218	P-674	306	J-521	J-158	10.0	Ductile Iron	101.01	0.41	0.000
1221	P-675	250	J-193	J-523	12.0	Ductile Iron	45.51	0.13	0.000
1222	P-676	132	J-523	J-192	12.0	Ductile Iron	108.12	0.31	0.000
1223	P-677	412	J-423	J-430	6.0	Ductile Iron	112.68	1.28	0.002
1225	P-678	1,612	J-491	J-524	12.0	Ductile Iron	-76.23	0.22	0.000
1226	P-679	239	J-524	J-490	4.0	Ductile Iron	-92.00	2.35	0.009
1230	P-680	59	J-478	J-527	6.0	Ductile Iron	65.24	0.74	0.001
1231	P-681	346	J-527	J-479	6.0	Ductile Iron	-23.97	0.27	0.000
1232	P-682	640	J-495	J-527	6.0	Ductile Iron	-88.53	1.00	0.001
1233	P-683	83	J-48	J-37	10.0	Ductile Iron	-315.00	1.29	0.001
1240	P-685	81	J-529	J-18	3.0	Ductile Iron	0.00	0.00	0.000
1246	P-688	528	J-531	J-514	10.0	Ductile Iron	41.82	0.17	0.000
1248	P-689	147	J-55	J-532	10.0	Ductile Iron	3.74	0.02	0.000
1249	P-690	193	J-532	J-56	10.0	Ductile Iron	3.74	0.02	0.000
1251	P-691	220	J-58	J-533	10.0	Ductile Iron	-211.94	0.87	0.000
1252	P-692	558	J-533	J-59	10.0	Ductile Iron	-216.70	0.89	0.000
1254	P-693	812	J-534	J-142	6.0	Ductile Iron	-20.40	0.23	0.000
1256	P-694	319	J-161	J-535	6.0	Ductile Iron	38.31	0.43	0.000
1259	P-696	969	J-160	J-536	10.0	Ductile Iron	-214.52	0.88	0.000
1260	P-697	674	J-536	J-161	10.0	Ductile Iron	-218.48	0.89	0.000
1262	P-698	316	J-61	J-537	8.0	Ductile Iron	5.44	0.03	0.000
1263	P-699	192	J-537	J-62	8.0	Ductile Iron	5.44	0.03	0.000
1265	P-700	282	J-73	J-538	6.0	Ductile Iron	13.09	0.15	0.000
1266	P-701	493	J-538	J-74	6.0	Ductile Iron	13.09	0.15	0.000
1268	P-702	464	J-129	J-539	6.0	Ductile Iron	71.28	0.81	0.001
1269	P-703	490	J-539	J-130	6.0	Ductile Iron	67.08	0.76	0.001
1271	P-704	95	J-87	J-540	8.0	Ductile Iron	41.65	0.27	0.000
1272	P-705	369	J-540	J-88	8.0	Ductile Iron	37.57	0.24	0.000
1274	P-706	319	J-416	J-541	8.0	Ductile Iron	79.76	0.51	0.000
1275	P-707	309	J-541	J-92	8.0	Ductile Iron	76.02	0.49	0.000
1277	P-708	208	J-189	J-542	8.0	Ductile Iron	-53.25	0.34	0.000
1278	P-709	250	J-542	J-272	8.0	Ductile Iron	-53.25	0.34	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1283	P-711	322	J-544	J-492	12.0	Ductile Iron	-77.15	0.22	0.000
1285	P-712	294	J-491	J-545	12.0	Ductile Iron	-74.43	0.21	0.000
1286	P-713	651	J-545	J-544	12.0	Ductile Iron	-76.13	0.22	0.000
1289	P-715	404	J-546	J-432	6.0	Ductile Iron	-81.13	0.92	0.001
1291	P-716	318	J-431	J-547	6.0	Ductile Iron	-79.77	0.91	0.001
1292	P-717	282	J-547	J-546	6.0	Ductile Iron	-79.77	0.91	0.001
1295	P-719	357	J-548	J-431	6.0	Ductile Iron	-72.17	0.82	0.001
1305	P-726	549	J-10	J-551	12.0	Ductile Iron	31.10	0.09	0.000
1307	P-727	459	J-551	J-552	10.0	Ductile Iron	31.10	0.13	0.000
1309	P-728	501	J-552	J-553	10.0	Ductile Iron	31.10	0.13	0.000
1311	P-729	388	J-553	J-554	10.0	Ductile Iron	31.10	0.13	0.000
1313	P-730	510	J-10	J-555	12.0	Ductile Iron	-36.32	0.10	0.000
1314	P-731	844	J-555	J-12	12.0	Ductile Iron	-103.10	0.29	0.000
1315	P-732	450	J-554	J-555	10.0	Ductile Iron	-66.78	0.27	0.000
1317	P-733	189	J-156	J-556	12.0	Ductile Iron	187.02	0.53	0.000
1318	P-734	333	J-556	J-521	12.0	Ductile Iron	105.99	0.30	0.000
1320	P-735	392	J-556	J-557	6.0	Ductile Iron	81.03	0.92	0.001
1322	P-736	284	J-521	J-558	8.0	Ductile Iron	3.96	0.03	0.000
1324	P-737	182	J-535	J-559	6.0	Ductile Iron	-59.57	0.68	0.001
1325	P-738	147	J-559	J-184	6.0	Ductile Iron	-255.33	2.90	0.008
1327	P-739	891	J-559	J-560	6.0	Ductile Iron	195.76	2.22	0.005
1329	P-740	321	J-192	J-561	6.0	Ductile Iron	99.70	1.13	0.001
1331	P-741	326	J-98	J-562	6.0	Ductile Iron	1.82	0.02	0.000
1333	P-742	151	J-530	J-563	10.0	Ductile Iron	65.91	0.27	0.000
1334	P-743	66	J-563	J-531	10.0	Ductile Iron	64.55	0.26	0.000
1336	P-744	202	J-563	J-564	8.0	Ductile Iron	0.00	0.00	0.000
1338	P-745	293	J-268	J-565	8.0	Ductile Iron	-1.53	0.01	0.000
1339	P-746	327	J-565	J-271	8.0	Ductile Iron	-7.65	0.05	0.000
1341	P-747	375	J-565	J-566	8.0	Ductile Iron	2.38	0.02	0.000
1344	P-749	264	J-567	J-306	6.0	Ductile Iron	1.49	0.02	0.000
1346	P-750	221	J-567	J-568	8.0	Ductile Iron	7.98	0.05	0.000
1348	P-751	72	J-305	J-569	6.0	Ductile Iron	17.81	0.20	0.000
1349	P-752	163	J-569	J-567	6.0	Ductile Iron	10.83	0.12	0.000
1351	P-753	117	J-569	J-570	8.0	Ductile Iron	6.98	0.04	0.000
1353	P-754	191	J-194	J-571	8.0	Ductile Iron	152.68	0.97	0.001
1354	P-755	138	J-571	J-209	8.0	Ductile Iron	152.68	0.97	0.001
1356	P-756	238	J-571	J-572	8.0	Ductile Iron	0.00	0.00	0.000
1358	P-757	136	J-184	J-573	10.0	Ductile Iron	-255.33	1.04	0.001
1359	P-758	146	J-573	J-187	10.0	Ductile Iron	-257.31	1.05	0.001
1361	P-759	208	J-573	J-574	8.0	Ductile Iron	1.98	0.01	0.000
1363	P-760	222	J-150	J-575	10.0	Ductile Iron	-78.10	0.32	0.000
1364	P-761	21	J-575	J-143	6.0	Ductile Iron	-103.21	1.17	0.002
1365	P-762	408	J-575	J-149	6.0	Ductile Iron	22.05	0.25	0.000
1372	P-763	481	J-323	J-577	6.0	Ductile Iron	4.08	0.05	0.000
1380	P-768	45	J-122	J-116	6.0	Ductile Iron	19.05	0.22	0.000
1415	P-771	222	J-582	J-136	8.0	Ductile Iron	12.28	0.08	0.000
1417	P-772	301	J-109	J-583	2.0	Ductile Iron	5.84	0.60	0.002
1419	P-773	197	J-505	J-584	6.0	Ductile Iron	-90.69	1.03	0.001

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1422	P-775	476	J-584	J-585	3.0	Ductile Iron	3.96	0.18	0.000
1423	P-776	69	J-583	J-585	6.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1424	P-777	76	J-585	J-132	6.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1426	P-778	307	J-152	J-586	6.0	Ductile Iron	6.33	0.07	0.000
1427	P-779	659	J-586	J-151	10.0	Ductile Iron	-48.50	0.20	0.000
1429	P-780	301	J-586	J-587	10.0	Ductile Iron	49.73	0.20	0.000
1431	P-781	66	J-135	J-588	8.0	Ductile Iron	-30.31	0.19	0.000
1432	P-782	471	J-588	J-582	8.0	Ductile Iron	14.66	0.09	0.000
1433	P-783	310	J-587	J-588	8.0	Ductile Iron	47.35	0.30	0.000
1434	P-784	858	J-235	J-124	12.0	Ductile Iron	-136.91	0.39	0.000
1436	P-785	150	J-492	J-589	6.0	Ductile Iron	-77.15	0.88	0.001
1437	P-786	101	J-589	J-493	6.0	Ductile Iron	-81.05	0.92	0.001
1443	P-789	229	J-589	J-592	6.0	Ductile Iron	3.22	0.04	0.000
1444	P-790	715	J-592	J-590	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1447	P-791	355	J-57	J-594	10.0	Ductile Iron	-47.68	0.19	0.000
1448	P-792	154	J-594	J-172	6.0	Ductile Iron	-67.53	0.77	0.001
1450	P-794	939	J-594	J-161	10.0	Ductile Iron	-84.27	0.34	0.000
1452	P-795	44	J-71	J-595	8.0	Ductile Iron	186.70	1.19	0.001
1453	P-796	245	J-595	J-72	8.0	Ductile Iron	185.00	1.18	0.001
1455	P-797	368	J-595	J-596	6.0	Ductile Iron	0.00	0.00	0.000
1457	P-798	323	J-74	J-597	6.0	Ductile Iron	5.40	0.06	0.000
1458	P-799	711	J-597	J-72	2.0	Ductile Iron	-2.63	0.27	0.000
1459	P-800	563	J-596	J-597	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1460	P-801	355	J-220	J-278	16.0	Ductile Iron	-961.37	1.53	0.001
1461	P-802	339	J-523	J-191	6.0	Ductile Iron	-62.61	0.71	0.001
1462	P-803	400	J-106	J-584	6.0	Ductile Iron	94.65	1.07	0.001
1463	P-804	56	J-531	J-510	8.0	Ductile Iron	22.73	0.15	0.000
1465	P-805	318	J-476	J-598	4.0	Ductile Iron	70.00	1.79	0.005
1466	P-806	47	J-598	J-477	4.0	Ductile Iron	70.00	1.79	0.005
1467	P-807	189	J-590	J-598	2.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1470	P-808	354	J-277	J-599	16.0	Ductile Iron	850.54	1.36	0.001
1471	P-809	30	J-599	J-278	16.0	Ductile Iron	963.75	1.54	0.001
1474	P-811	65	J-600	J-276	6.0	Ductile Iron	55.46	0.63	0.000
1477	P-813	219	J-275	J-601	6.0	Ductile Iron	44.69	0.51	0.000
1478	P-814	376	J-601	J-600	8.0	Ductile Iron	42.65	0.27	0.000
1480	P-815	1,820	J-331	J-602	6.0	Ductile Iron	4.08	0.05	0.000
1486	P-820	444	J-330	J-603	12.0	Ductile Iron	125.17	0.36	0.000
1487	P-821	246	J-603	J-331	6.0	Ductile Iron	10.76	0.12	0.000
1490	P-823	347	J-410	J-604	10.0	Ductile Iron	-38.03	0.16	0.000
1491	P-824	99	J-604	J-530	10.0	Ductile Iron	73.57	0.30	0.000
1492	P-825	5,362	J-604	J-603	10.0	Ductile Iron	-113.39	0.46	0.000
1495	P-827	449	J-599	J-605	8.0	Ductile Iron	-113.21	0.72	0.000
1496	P-828	356	J-605	J-600	8.0	Ductile Iron	-116.27	0.74	0.000
1502	P-833	563	J-218	J-219	8.0	Ductile Iron	-13.97	0.09	0.000
1504	P-834	281	J-430	J-607	6.0	Ductile Iron	-56.65	0.64	0.000
1505	P-835	94	J-607	J-548	6.0	Ductile Iron	-50.34	0.57	0.000
1506	P-836	1,409	J-548	J-607	6.0	Ductile Iron	13.79	0.16	0.000
1513	P-841	418	J-216	J-609	8.0	Ductile Iron	74.35	0.47	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1514	P-842	113	J-609	J-218	8.0	Ductile Iron	181.79	1.16	0.001
1519	P-844	354	J-51	J-610	12.0	Ductile Iron	-225.42	0.64	0.000
1520	P-845	121	J-610	J-52	12.0	Ductile Iron	-230.30	0.65	0.000
1559	P-877	519	J-230	J-616	6.0	Ductile Iron	10.92	0.12	0.000
1568	P-884	193	J-216	J-618	12.0	Ductile Iron	53.08	0.15	0.000
1569	P-885	921	J-618	J-213	12.0	Ductile Iron	47.28	0.13	0.000
1571	P-886	746	J-143	J-619	16.0	Ductile Iron	142.27	0.23	0.000
1572	P-887	173	J-619	J-202	16.0	Ductile Iron	142.27	0.23	0.000
1586	P-889	45	J-280	J-620	8.0	Ductile Iron	14.49	0.09	0.000
1587	P-890	455	J-620	J-281	8.0	Ductile Iron	-119.01	0.76	0.000
1588	P-891	362	J-600	J-620	8.0	Ductile Iron	-131.46	0.84	0.000
1592	P-894	371	J-609	J-224	12.0	Ductile Iron	-121.30	0.34	0.000
1593	P-895	380	J-224	J-225	12.0	Ductile Iron	-74.69	0.21	0.000
1611	P-896	445	J-320	J-622	12.0	Ductile Iron	0.00	0.00	0.000
1619	P-897	103	T-3	J-159	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1626	P-898	221	J-48	J-624	16.0	Ductile Iron	847.49	1.35	0.001
1627	P-899	709	J-624	J-43	16.0	Ductile Iron	847.49	1.35	0.001
1628	P-900	78	J-624	T-4	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1638	P-905	220	J-79	T-5	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1646	P-910	118	J-630	J-624	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1648	P-911	171	J-79	J-631	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1651	P-912	836	J-603	J-633	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1652	P-913	108	J-633	T-6	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1653	P-914	78	J-632	J-633	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1655	P-915	817	J-429	J-414	8.0	Ductile Iron	163.68	1.04	0.001
1659	P-917	1,144	J-587	J-71	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1661	P-918	153	J-294	J-634	10.0	Ductile Iron	-265.97	1.09	0.001
1662	P-919	301	J-634	J-295	10.0	Ductile Iron	-133.02	0.54	0.000
1663	P-920	362	J-369	J-634	6.0	Ductile Iron	132.95	1.51	0.002
1665	P-921	1,467	J-12	J-635	12.0	Ductile Iron	-166.33	0.47	0.000
1666	P-922	192	J-635	J-13	12.0	Ductile Iron	-166.33	0.47	0.000
1668	P-923	3,122	J-635	J-636	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1670	P-924	1,759	J-14	J-637	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1672	P-925	7,439	J-14	J-638	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1674	P-926	139	J-638	T-7	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1675	P-927	1,232	J-472	J-557	8.0	Ductile Iron	-79.05	0.50	0.000
1677	P-928	153	J-557	J-639	10.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1679	P-929	131	J-77	J-640	16.0	Ductile Iron	827.44	1.32	0.001
1680	P-930	377	J-640	J-84	16.0	Ductile Iron	827.44	1.32	0.001
1682	P-931	188	J-640	J-641	6.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1690	P-932	466	J-461	J-642	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1692	P-933	257	J-642	J-643	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1694	P-934	176	J-643	J-644	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1696	P-935	862	J-642	J-645	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1698	P-936	246	J-645	J-646	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1700	P-937	143	J-646	J-647	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1701	P-938	848	J-646	J-643	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1703	P-97 (1)	770	J-97	J-648	8.0	Ductile Iron	-57.08	0.36	0.000
1704	P-97 (2)	171	J-648	J-98	8.0	Ductile Iron	-27.14	0.17	0.000
1706	P-939	267	J-648	J-649	8.0	Ductile Iron	-29.94	0.19	0.000
1708	P-99 (1)	278	J-99	J-650	8.0	Ductile Iron	-30.78	0.20	0.000
1709	P-99 (2)	180	J-650	J-100	8.0	Ductile Iron	-60.72	0.39	0.000
1710	P-940	602	J-649	J-650	8.0	Ductile Iron	-29.94	0.19	0.000
1712	P-74 (1)	151	J-77	J-651	16.0	Ductile Iron	11.24	0.02	0.000
1715	P-941	827	J-651	J-652	12.0	Ductile Iron	2.92	0.01	0.000
1717	P-74 (2)(1)	352	J-651	J-653	16.0	Ductile Iron	8.32	0.01	0.000
1718	P-74 (2)(2)	388	J-653	J-78	16.0	Ductile Iron	11.24	0.02	0.000
1719	P-942	466	J-652	J-653	12.0	Ductile Iron	2.92	0.01	0.000

FlexTable: Tank Table

ID	Label	Zone	Elevation (Base) (ft)	Elevation (Minimum) (ft)	Elevation (Initial) (ft)	Elevation (Maximum) (ft)	Diameter (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
110	T-1	<None>	855.0	855.0	936.6	941.6	77.00	1,025.82	936.6
285	T-2	<None>	834.0	906.0	936.6	941.6	51.00	868.34	936.6
1618	T-3	<None>	770.5	770.5	937.1	941.6	75.00	(N/A)	(N/A)
1623	T-4	<None>	855.0	855.0	937.1	941.6	77.00	(N/A)	(N/A)
1629	T-5	<None>	833.0	833.0	937.1	941.6	110.86	(N/A)	(N/A)
1639	T-6	<None>	834.0	834.0	937.1	941.6	110.86	(N/A)	(N/A)
1673	T-7	<None>	897.5	897.5	937.1	941.6	75.00	(N/A)	(N/A)

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-9	<None>	4	True	1,000.00	3,434.81	1,003.78	3,438.60	20.0	20.0	20.0
J-10	<None>	8	True	1,000.00	3,461.98	1,000.00	3,461.98	20.0	25.2	20.0
J-12	<None>	9	True	1,000.00	3,462.04	1,000.00	3,462.04	20.0	28.0	20.0
J-13	<None>	25	True	1,000.00	2,990.97	1,000.00	2,990.97	20.0	44.4	20.0
J-14	<None>	25	True	1,000.00	2,802.15	1,002.02	2,804.18	20.0	39.4	20.0
J-15	<None>	25	True	1,000.00	2,410.30	1,056.18	2,466.48	20.0	43.1	20.0
J-16	<None>	7	True	1,000.00	2,255.96	1,001.99	2,257.95	20.0	33.5	20.0
J-17	<None>	4	True	1,000.00	1,826.22	1,005.89	1,832.11	20.0	20.0	20.0
J-18	<None>	6	True	1,000.00	1,826.01	1,000.00	1,826.01	20.0	27.7	20.0
J-19	<None>	4	True	1,000.00	1,816.79	1,000.00	1,816.79	20.0	20.0	20.0
J-20	<None>	5	True	1,000.00	4,513.67	1,000.00	4,513.67	20.0	20.0	20.0
J-21	<None>	5	True	1,000.00	6,300.95	1,000.00	6,300.95	20.0	20.0	20.0
J-22	<None>	5	True	1,000.00	7,699.65	1,000.00	7,699.65	20.0	20.0	20.0
J-23	<None>	3	True	1,000.00	10,000.00	1,004.40	10,004.40	20.0	21.7	20.0
J-37	<None>	4	True	1,000.00	5,491.46	685.00	5,176.46	20.0	20.0	20.0
J-43	<None>	6	True	1,000.00	5,370.77	1,001.99	5,372.75	20.0	20.4	20.0
J-46	<None>	10	True	1,000.00	3,803.44	1,000.00	3,803.44	20.0	33.1	20.0
J-47	<None>	10	True	1,000.00	3,948.33	1,000.00	3,948.33	20.0	33.1	20.0
J-48	<None>	2	True	1,000.00	10,000.00	1,000.00	10,000.00	20.0	23.0	20.0
J-49	<None>	10	True	1,000.00	4,052.63	1,000.00	4,052.63	20.0	30.4	20.0
J-50	<None>	10	True	1,000.00	4,171.67	1,002.02	4,173.69	20.0	29.8	20.0
J-51	<None>	8	True	1,000.00	4,297.35	1,000.00	4,297.35	20.0	28.7	20.0
J-52	<None>	7	True	1,000.00	4,462.52	1,000.00	4,462.52	20.0	25.8	20.0
J-53	<None>	7	True	1,000.00	4,680.46	1,039.87	4,720.33	20.0	22.4	20.0
J-54	<None>	7	True	1,000.00	4,891.99	1,001.89	4,893.88	20.0	22.8	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-55	<None>	9	True	1,000.00	4,943.65	1,004.10	4,947.75	20.0	21.7	20.0
J-56	<None>	4	True	1,000.00	3,938.21	1,002.46	3,940.67	20.0	20.0	20.0
J-57	<None>	7	True	1,000.00	5,834.85	1,008.62	5,843.47	20.0	20.2	20.0
J-58	<None>	4	True	1,000.00	4,974.32	1,001.51	4,975.83	20.0	20.0	20.0
J-59	<None>	4	True	1,000.00	4,754.91	1,001.89	4,756.80	20.0	20.0	20.0
J-60	<None>	8	True	1,000.00	7,742.57	1,043.27	7,785.84	20.0	26.6	20.0
J-61	<None>	6	True	1,000.00	4,033.07	1,003.02	4,036.09	20.0	25.0	20.0
J-62	<None>	6	True	1,000.00	2,086.42	1,000.00	2,086.42	20.0	21.8	20.0
J-63	<None>	5	True	1,000.00	1,627.04	1,000.00	1,627.04	20.0	21.4	20.0
J-64	<None>	3	True	1,000.00	1,437.29	1,003.21	1,440.51	20.0	20.0	20.0
J-66	<None>	5	True	1,000.00	6,999.71	1,000.76	7,000.47	20.0	20.0	20.0
J-69	<None>	4	True	1,000.00	3,968.72	1,000.00	3,968.72	20.0	20.0	20.0
J-70	<None>	6	True	1,000.00	3,467.15	1,000.00	3,467.15	20.0	20.3	20.0
J-71	<None>	6	True	1,000.00	3,121.60	1,003.59	3,125.19	20.0	21.5	20.0
J-72	<None>	4	True	1,000.00	3,024.30	1,001.32	3,025.63	20.0	20.0	20.0
J-73	<None>	6	True	1,000.00	2,721.68	1,000.00	2,721.68	20.0	23.6	20.0
J-74	<None>	19	False	1,000.00	639.02	1,004.85	643.87	20.0	20.8	20.0
J-75	<None>	4	True	1,000.00	4,018.76	1,000.00	4,018.76	20.0	20.0	20.0
J-76	<None>	6	True	1,000.00	4,725.26	1,000.00	4,725.26	20.0	20.8	20.0
J-77	<None>	7	True	1,000.00	4,896.78	1,002.02	4,898.80	20.0	21.6	20.0
J-78	<None>	6	True	1,000.00	4,070.61	1,001.01	4,071.62	20.0	21.3	20.0
J-79	<None>	6	True	1,000.00	3,884.45	1,002.20	3,886.65	20.0	21.4	20.0
J-80	<None>	6	True	1,000.00	3,731.80	1,000.00	3,731.80	20.0	21.3	20.0
J-81	<None>	4	True	1,000.00	3,610.65	1,000.00	3,610.65	20.0	20.0	20.0
J-82	<None>	4	True	1,000.00	3,337.13	1,001.52	3,338.65	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-83	<None>	4	True	1,000.00	3,131.51	1,001.52	3,133.02	20.0	20.0	20.0
J-84	<None>	7	True	1,000.00	5,090.70	1,000.00	5,090.70	20.0	23.0	20.0
J-85	<None>	7	True	1,000.00	5,213.63	1,000.00	5,213.63	20.0	23.0	20.0
J-87	<None>	6	True	1,000.00	3,033.16	1,001.32	3,034.48	20.0	20.5	20.0
J-88	<None>	4	True	1,000.00	2,228.44	1,001.70	2,230.14	20.0	20.0	20.0
J-89	<None>	4	True	1,000.00	2,257.90	1,001.89	2,259.79	20.0	20.0	20.0
J-90	<None>	4	True	1,000.00	2,558.12	1,002.65	2,560.76	20.0	20.0	20.0
J-91	<None>	6	True	1,000.00	3,055.74	1,001.32	3,057.06	20.0	20.2	20.0
J-92	<None>	4	True	1,000.00	3,071.90	1,001.32	3,073.22	20.0	20.0	20.0
J-93	<None>	4	True	1,000.00	3,265.54	1,001.32	3,266.86	20.0	20.0	20.0
J-94	<None>	6	True	1,000.00	2,708.48	1,002.08	2,710.55	20.0	20.6	20.0
J-95	<None>	6	True	1,000.00	1,950.60	1,000.00	1,950.60	20.0	20.4	20.0
J-96	<None>	3	True	1,000.00	1,567.10	1,000.00	1,567.10	20.0	20.0	20.0
J-97	<None>	4	True	1,000.00	4,280.64	1,009.65	4,290.28	20.0	20.0	20.0
J-98	<None>	4	True	1,000.00	2,075.68	1,000.00	2,075.68	20.0	20.0	20.0
J-99	<None>	4	True	1,000.00	1,935.87	1,001.01	1,936.88	20.0	20.0	20.0
J-100	<None>	4	True	1,000.00	2,136.21	1,002.08	2,138.29	20.0	20.0	20.0
J-101	<None>	4	True	1,000.00	2,284.73	1,002.65	2,287.38	20.0	20.0	20.0
J-102	<None>	6	True	1,000.00	2,409.42	1,002.83	2,412.25	20.0	20.4	20.0
J-103	<None>	3	False	1,000.00	961.93	1,002.20	964.13	20.0	20.0	20.0
J-104	<None>	3	True	1,000.00	1,634.01	1,000.00	1,634.01	20.0	20.0	20.0
J-105	<None>	3	True	1,000.00	1,529.13	1,001.89	1,531.02	20.0	20.0	20.0
J-106	<None>	4	True	1,000.00	4,319.56	1,004.42	4,323.98	20.0	20.0	20.0
J-107	<None>	7	True	1,000.00	5,492.11	1,002.20	5,494.31	20.0	21.4	20.0
J-108	<None>	5	True	1,000.00	5,760.55	1,003.02	5,763.57	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-109	<None>	5	True	1,000.00	6,474.24	1,006.17	6,480.41	20.0	20.0	20.0
J-110	<None>	5	True	1,000.00	5,701.08	1,000.00	5,701.08	20.0	20.0	20.0
J-111	<None>	5	True	1,000.00	5,482.07	1,000.00	5,482.07	20.0	20.0	20.0
J-112	<None>	4	True	1,000.00	3,455.15	1,001.89	3,457.04	20.0	20.0	20.0
J-113	<None>	5	True	1,000.00	6,239.99	1,001.32	6,241.32	20.0	20.0	20.0
J-114	<None>	3	True	1,000.00	1,129.91	958.00	1,087.91	20.0	20.0	20.0
J-116	<None>	20	True	1,000.00	1,800.78	1,000.00	1,800.78	20.0	20.1	20.0
J-117	<None>	4	True	1,000.00	4,212.53	1,003.40	4,215.93	20.0	20.0	20.0
J-118	<None>	4	True	1,000.00	3,860.23	1,000.19	3,860.42	20.0	20.0	20.0
J-122	<None>	3	True	1,000.00	1,675.92	1,000.00	1,675.92	20.0	20.0	20.0
J-123	<None>	4	True	1,000.00	3,984.52	1,003.87	3,988.39	20.0	20.0	20.0
J-124	<None>	6	True	1,000.00	4,263.36	1,000.00	4,263.36	20.0	20.1	20.0
J-125	<None>	4	True	1,000.00	3,159.00	1,000.00	3,159.00	20.0	20.0	20.0
J-126	<None>	5	True	1,000.00	6,808.96	1,002.08	6,811.04	20.0	20.0	20.0
J-127	<None>	5	True	1,000.00	6,835.16	1,002.65	6,837.80	20.0	20.0	20.0
J-128	<None>	4	True	1,000.00	4,091.09	1,003.03	4,094.13	20.0	20.0	20.0
J-129	<None>	4	True	1,000.00	2,545.82	1,009.14	2,554.96	20.0	20.0	20.0
J-130	<None>	5	True	1,000.00	5,473.31	1,003.02	5,476.33	20.0	20.0	20.0
J-131	<None>	4	True	1,000.00	4,629.86	1,001.89	4,631.75	20.0	20.0	20.0
J-132	<None>	4	True	1,000.00	2,421.58	1,001.51	2,423.09	20.0	20.0	20.0
J-133	<None>	5	True	1,000.00	5,394.21	1,006.38	5,400.59	20.0	20.0	20.0
J-134	<None>	6	True	1,000.00	3,292.38	1,002.08	3,294.46	20.0	20.7	20.0
J-135	<None>	4	True	1,000.00	3,195.11	1,000.00	3,195.11	20.0	20.0	20.0
J-136	<None>	4	True	1,000.00	2,419.39	1,001.89	2,421.28	20.0	20.0	20.0
J-137	<None>	7	True	1,000.00	7,179.98	1,002.65	7,182.62	20.0	22.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-138	<None>	8	True	1,000.00	6,815.27	1,001.13	6,816.40	20.0	24.5	20.0
J-139	<None>	5	True	1,000.00	6,618.63	1,108.78	6,727.41	20.0	20.0	20.0
J-140	<None>	5	True	1,000.00	6,372.75	1,002.65	6,375.39	20.0	20.0	20.0
J-141	<None>	4	True	1,000.00	3,895.72	1,007.80	3,903.52	20.0	20.0	20.0
J-142	<None>	8	True	1,000.00	7,709.34	1,000.00	7,709.34	20.0	23.1	20.0
J-143	<None>	7	True	1,000.00	7,702.34	1,000.57	7,702.91	20.0	23.3	20.0
J-144	<None>	3	False	1,000.00	843.00	1,001.32	844.32	20.0	20.0	20.0
J-148	<None>	5	True	1,000.00	1,659.44	1,001.51	1,660.95	20.0	22.6	20.0
J-149	<None>	4	True	1,000.00	2,473.45	1,000.00	2,473.45	20.0	20.0	20.0
J-150	<None>	4	True	1,000.00	4,904.65	1,002.83	4,907.48	20.0	20.0	20.0
J-151	<None>	4	True	1,000.00	4,193.43	1,001.51	4,194.94	20.0	20.0	20.0
J-152	<None>	3	True	1,000.00	1,760.07	1,016.06	1,776.13	20.0	20.0	20.0
J-154	<None>	10	True	1,000.00	3,997.86	1,000.00	3,997.86	20.0	32.1	20.0
J-156	<None>	10	True	1,000.00	4,125.69	1,000.00	4,125.69	20.0	28.5	20.0
J-157	<None>	9	True	1,000.00	4,071.87	1,110.11	4,181.98	20.0	30.4	20.0
J-158	<None>	5	True	1,000.00	4,131.89	1,000.00	4,131.89	20.0	20.0	20.0
J-159	<None>	4	True	1,000.00	4,074.07	1,109.92	4,183.99	20.0	20.0	20.0
J-160	<None>	4	True	1,000.00	4,220.68	1,001.32	4,222.01	20.0	20.0	20.0
J-161	<None>	8	True	1,000.00	6,781.72	1,002.02	6,783.74	20.0	25.2	20.0
J-162	<None>	8	True	1,000.00	6,846.57	1,002.53	6,849.10	20.0	25.2	20.0
J-163	<None>	8	True	1,000.00	6,927.74	1,000.00	6,927.74	20.0	25.0	20.0
J-164	<None>	8	True	1,000.00	7,003.17	1,000.00	7,003.17	20.0	25.1	20.0
J-165	<None>	8	True	1,000.00	7,142.74	1,000.00	7,142.74	20.0	24.0	20.0
J-166	<None>	8	True	1,000.00	7,216.30	1,000.76	7,217.06	20.0	23.8	20.0
J-167	<None>	8	True	1,000.00	7,337.77	1,000.00	7,337.77	20.0	23.3	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-168	<None>	8	True	1,000.00	7,521.29	1,002.27	7,523.56	20.0	23.1	20.0
J-169	<None>	4	True	1,000.00	2,298.44	1,006.89	2,305.34	20.0	20.0	20.0
J-172	<None>	5	True	1,000.00	5,683.15	1,001.13	5,684.29	20.0	20.0	20.0
J-173	<None>	4	True	1,000.00	3,134.46	1,001.89	3,136.35	20.0	20.0	20.0
J-174	<None>	4	True	1,000.00	2,744.53	1,003.02	2,747.55	20.0	20.0	20.0
J-175	<None>	4	True	1,000.00	2,066.29	1,001.32	2,067.61	20.0	20.0	20.0
J-176	<None>	5	True	1,000.00	5,883.09	1,002.53	5,885.62	20.0	20.0	20.0
J-177	<None>	5	True	1,000.00	6,070.59	1,000.00	6,070.59	20.0	20.0	20.0
J-178	<None>	5	True	1,000.00	6,231.71	1,057.43	6,289.14	20.0	20.0	20.0
J-179	<None>	5	True	1,000.00	5,090.39	1,003.28	5,093.68	20.0	20.0	20.0
J-180	<None>	4	True	1,000.00	2,925.00	1,002.83	2,927.84	20.0	20.0	20.0
J-181	<None>	4	True	1,000.00	2,609.54	1,001.89	2,611.43	20.0	20.0	20.0
J-184	<None>	4	True	1,000.00	4,928.65	1,000.00	4,928.65	20.0	20.0	20.0
J-185	<None>	3	True	1,000.00	1,186.48	1,000.00	1,186.48	20.0	20.0	20.0
J-186	<None>	3	True	1,000.00	1,293.86	1,000.00	1,293.86	20.0	20.0	20.0
J-187	<None>	5	True	1,000.00	6,160.48	1,000.00	6,160.48	20.0	20.0	20.0
J-188	<None>	5	True	1,000.00	6,397.40	1,003.30	6,400.70	20.0	20.0	20.0
J-189	<None>	5	True	1,000.00	6,364.36	1,002.20	6,366.56	20.0	20.0	20.0
J-190	<None>	4	True	1,000.00	5,552.24	1,000.00	5,552.24	20.0	20.0	20.0
J-191	<None>	4	True	1,000.00	3,264.67	1,000.00	3,264.67	20.0	20.0	20.0
J-192	<None>	7	True	1,000.00	6,100.84	1,000.00	6,100.84	20.0	21.1	20.0
J-193	<None>	5	True	1,000.00	5,107.40	1,002.02	5,109.42	20.0	20.0	20.0
J-194	<None>	4	True	1,000.00	4,753.49	1,002.20	4,755.70	20.0	20.0	20.0
J-202	<None>	5	True	1,000.00	7,696.14	1,000.00	7,696.14	20.0	20.0	20.0
J-203	<None>	3	True	1,000.00	1,506.28	865.00	1,371.28	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-204	<None>	5	True	1,000.00	7,696.19	1,002.20	7,698.39	20.0	20.0	20.0
J-205	<None>	4	True	1,000.00	2,643.82	1,000.00	2,643.82	20.0	20.0	20.0
J-206	<None>	3	True	1,000.00	1,091.02	1,108.78	1,199.80	20.0	20.0	20.0
J-207	<None>	5	True	1,000.00	7,357.82	1,000.00	7,357.82	20.0	20.0	20.0
J-208	<None>	4	True	1,000.00	4,914.64	1,002.20	4,916.84	20.0	20.0	20.0
J-209	<None>	4	True	1,000.00	4,326.89	1,000.00	4,326.89	20.0	20.0	20.0
J-211	<None>	4	True	1,000.00	2,028.61	1,003.30	2,031.91	20.0	20.0	20.0
J-212	<None>	5	True	1,000.00	6,632.38	1,008.75	6,641.13	20.0	20.0	20.0
J-213	<None>	5	True	1,000.00	7,458.98	1,005.06	7,464.04	20.0	20.0	20.0
J-214	<None>	5	True	1,000.00	7,330.58	1,000.00	7,330.58	20.0	20.0	20.0
J-215	<None>	5	True	1,000.00	7,209.83	1,004.05	7,213.87	20.0	20.0	20.0
J-216	<None>	5	True	1,000.00	7,701.33	1,003.03	7,704.37	20.0	20.0	20.0
J-217	<None>	21	True	1,000.00	3,761.41	0.00	2,761.41	20.0	20.0	20.0
J-218	<None>	5	True	1,000.00	6,652.51	1,108.78	6,761.30	20.0	20.0	20.0
J-219	<None>	5	True	1,000.00	6,685.35	1,108.78	6,794.14	20.0	20.0	20.0
J-220	<None>	8	True	1,000.00	7,361.66	1,000.76	7,362.42	20.0	28.8	20.0
J-221	<None>	7	True	1,000.00	7,459.13	1,108.78	7,567.91	20.0	22.2	20.0
J-222	<None>	8	True	1,000.00	7,518.46	1,059.12	7,577.58	20.0	23.7	20.0
J-223	<None>	5	True	1,000.00	7,368.95	1,112.45	7,481.39	20.0	20.0	20.0
J-224	<None>	5	True	1,000.00	7,413.87	1,007.26	7,421.12	20.0	20.0	20.0
J-225	<None>	5	True	1,000.00	7,395.53	1,005.06	7,400.59	20.0	20.0	20.0
J-226	<None>	5	True	1,000.00	7,231.77	1,005.06	7,236.83	20.0	20.0	20.0
J-227	<None>	5	True	1,000.00	7,257.28	1,005.91	7,263.19	20.0	20.0	20.0
J-228	<None>	7	True	1,000.00	7,498.71	1,000.00	7,498.71	20.0	21.2	20.0
J-229	<None>	5	True	1,000.00	5,895.83	732.00	5,627.83	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-230	<None>	7	True	1,000.00	7,381.84	1,000.00	7,381.84	20.0	22.5	20.0
J-231	<None>	5	True	1,000.00	4,928.53	1,009.90	4,938.43	20.0	20.0	20.0
J-232	<None>	5	True	1,000.00	5,311.84	1,001.89	5,313.73	20.0	20.0	20.0
J-233	<None>	8	True	1,000.00	6,488.66	1,108.78	6,597.44	20.0	24.2	20.0
J-234	<None>	8	True	1,000.00	5,938.45	1,108.78	6,047.23	20.0	29.0	20.0
J-235	<None>	7	True	1,000.00	4,956.65	1,055.15	5,011.79	20.0	22.4	20.0
J-236	<None>	8	True	1,000.00	5,658.99	1,002.59	5,661.58	20.0	29.3	20.0
J-237	<None>	8	True	1,000.00	4,907.66	1,108.78	5,016.44	20.0	32.3	20.0
J-238	<None>	8	True	1,000.00	4,638.60	1,108.78	4,747.38	20.0	34.1	20.0
J-239	<None>	8	True	1,000.00	4,333.45	1,002.46	4,335.91	20.0	36.6	20.0
J-240	<None>	4	True	1,000.00	2,175.85	1,004.72	2,180.57	20.0	20.0	20.0
J-241	<None>	8	True	1,000.00	6,079.36	1,000.00	6,079.36	20.0	26.5	20.0
J-242	<None>	4	True	1,000.00	3,093.80	1,004.86	3,098.67	20.0	20.0	20.0
J-243	<None>	4	True	1,000.00	2,141.39	1,005.02	2,146.41	20.0	20.0	20.0
J-244	<None>	6	True	1,000.00	2,169.93	1,002.65	2,172.57	20.0	24.1	20.0
J-245	<None>	6	True	1,000.00	1,946.06	1,002.46	1,948.52	20.0	22.4	20.0
J-246	<None>	6	True	1,000.00	1,875.12	1,003.89	1,879.01	20.0	23.0	20.0
J-247	<None>	6	True	1,000.00	1,831.03	1,003.59	1,834.62	20.0	22.5	20.0
J-248	<None>	4	True	1,000.00	1,725.18	1,003.59	1,728.77	20.0	20.0	20.0
J-249	<None>	6	True	1,000.00	1,841.92	1,003.59	1,845.51	20.0	20.3	20.0
J-250	<None>	4	True	1,000.00	1,851.14	1,000.00	1,851.14	20.0	20.0	20.0
J-252	<None>	4	True	1,000.00	1,865.90	1,000.00	1,865.90	20.0	20.0	20.0
J-253	<None>	6	True	1,000.00	1,872.07	1,000.00	1,872.07	20.0	20.3	20.0
J-254	<None>	6	True	1,000.00	1,854.31	1,001.32	1,855.63	20.0	21.4	20.0
J-255	<None>	4	True	1,000.00	1,746.37	1,000.00	1,746.37	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-256	<None>	4	True	1,000.00	1,485.68	1,000.94	1,486.62	20.0	20.0	20.0
J-259	<None>	4	True	1,000.00	1,945.00	1,001.13	1,946.14	20.0	20.0	20.0
J-260	<None>	6	True	1,000.00	1,959.89	1,001.51	1,961.40	20.0	21.7	20.0
J-261	<None>	6	True	1,000.00	1,937.89	1,000.94	1,938.83	20.0	21.2	20.0
J-263	<None>	8	True	1,000.00	6,303.43	1,272.72	6,576.15	20.0	28.6	20.0
J-264	<None>	8	True	1,000.00	6,126.75	1,055.15	6,181.90	20.0	27.2	20.0
J-265	<None>	5	True	1,000.00	5,155.22	1,001.51	5,156.73	20.0	20.0	20.0
J-266	<None>	7	True	1,000.00	4,750.64	1,000.00	4,750.64	20.0	23.4	20.0
J-267	<None>	8	True	1,000.00	4,267.04	1,000.00	4,267.04	20.0	31.3	20.0
J-268	<None>	8	True	1,000.00	4,073.80	1,001.51	4,075.31	20.0	37.6	20.0
J-269	<None>	8	True	1,000.00	4,171.29	1,002.27	4,173.55	20.0	38.1	20.0
J-270	<None>	3	True	1,000.00	1,727.53	1,003.40	1,730.93	20.0	20.0	20.0
J-271	<None>	7	True	1,000.00	2,287.82	1,002.46	2,290.27	20.0	27.3	20.0
J-272	<None>	4	True	1,000.00	4,753.56	1,004.67	4,758.23	20.0	20.0	20.0
J-273	<None>	4	True	1,000.00	3,151.01	1,008.37	3,159.38	20.0	20.0	20.0
J-274	<None>	4	True	1,000.00	4,161.56	1,005.41	4,166.98	20.0	20.0	20.0
J-275	<None>	4	True	1,000.00	3,096.14	1,001.51	3,097.65	20.0	20.0	20.0
J-276	<None>	4	True	1,000.00	4,666.56	1,000.00	4,666.56	20.0	20.0	20.0
J-277	<None>	8	True	1,000.00	7,753.49	1,001.70	7,755.19	20.0	28.3	20.0
J-278	<None>	8	True	1,000.00	7,566.51	1,001.70	7,568.21	20.0	28.7	20.0
J-279	<None>	8	True	1,000.00	7,832.88	1,001.32	7,834.20	20.0	27.2	20.0
J-280	<None>	4	True	1,000.00	5,006.34	1,000.00	5,006.34	20.0	20.0	20.0
J-281	<None>	8	True	1,000.00	7,710.83	1,000.00	7,710.83	20.0	29.9	20.0
J-282	<None>	8	True	1,000.00	7,650.00	1,001.89	7,651.89	20.0	30.6	20.0
J-283	<None>	8	True	1,000.00	7,614.24	1,001.89	7,616.13	20.0	29.3	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-284	<None>	4	True	1,000.00	2,237.02	1,001.89	2,238.91	20.0	20.0	20.0
J-285	<None>	8	True	1,000.00	7,585.46	1,001.89	7,587.35	20.0	26.9	20.0
J-286	<None>	4	True	1,000.00	4,335.93	1,001.89	4,337.82	20.0	20.0	20.0
J-287	<None>	8	True	1,000.00	7,566.58	1,003.02	7,569.61	20.0	26.0	20.0
J-288	<None>	4	True	1,000.00	2,773.30	1,002.08	2,775.38	20.0	20.0	20.0
J-289	<None>	4	True	1,000.00	3,052.68	1,001.51	3,054.19	20.0	20.0	20.0
J-290	<None>	4	True	1,000.00	4,023.17	1,003.35	4,026.52	20.0	20.0	20.0
J-291	<None>	4	True	1,000.00	3,284.00	1,000.00	3,284.00	20.0	20.0	20.0
J-292	<None>	5	True	1,000.00	6,757.24	1,002.78	6,760.02	20.0	20.0	20.0
J-293	<None>	4	True	1,000.00	5,323.99	1,001.32	5,325.31	20.0	20.0	20.0
J-294	<None>	5	True	1,000.00	6,514.07	1,004.10	6,518.17	20.0	20.0	20.0
J-295	<None>	7	True	1,000.00	7,842.10	1,009.56	7,851.66	20.0	21.9	20.0
J-296	<None>	4	True	1,000.00	4,300.79	1,001.51	4,302.30	20.0	20.0	20.0
J-297	<None>	4	True	1,000.00	3,278.18	1,004.53	3,282.71	20.0	20.0	20.0
J-298	<None>	3	True	1,000.00	1,672.24	1,058.67	1,730.91	20.0	20.0	20.0
J-299	<None>	3	True	1,000.00	1,534.06	1,003.21	1,537.27	20.0	20.0	20.0
J-300	<None>	3	True	1,000.00	1,445.39	1,005.48	1,450.87	20.0	20.0	20.0
J-301	<None>	3	True	1,000.00	1,476.82	1,000.00	1,476.82	20.0	20.0	20.0
J-302	<None>	3	True	1,000.00	1,404.42	1,000.00	1,404.42	20.0	20.0	20.0
J-303	<None>	3	True	1,000.00	1,202.38	1,005.48	1,207.86	20.0	20.0	20.0
J-304	<None>	3	False	1,000.00	879.73	1,006.72	886.45	20.0	20.0	20.0
J-305	<None>	4	True	1,000.00	1,520.85	1,000.00	1,520.85	20.0	20.0	20.0
J-306	<None>	5	True	1,000.00	1,326.99	1,000.00	1,326.99	20.0	24.5	20.0
J-307	<None>	3	False	1,000.00	932.08	1,005.97	938.06	20.0	20.0	20.0
J-308	<None>	5	True	1,000.00	1,382.91	1,005.60	1,388.51	20.0	25.4	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-309	<None>	3	False	1,000.00	968.45	1,006.17	974.62	20.0	20.0	20.0
J-310	<None>	20	True	1,000.00	1,133.94	1,001.70	1,135.64	20.0	20.2	20.0
J-311	<None>	3	False	1,000.00	833.14	1,002.08	835.22	20.0	20.0	20.0
J-312	<None>	6	True	1,000.00	1,623.12	1,005.02	1,628.14	20.0	24.1	20.0
J-313	<None>	3	True	1,000.00	1,453.17	1,002.46	1,455.63	20.0	20.0	20.0
J-314	<None>	3	True	1,000.00	1,429.53	1,001.89	1,431.42	20.0	20.0	20.0
J-315	<None>	3	True	1,000.00	1,229.33	1,001.32	1,230.65	20.0	20.0	20.0
J-316	<None>	6	True	1,000.00	1,589.81	1,001.89	1,591.70	20.0	28.6	20.0
J-317	<None>	5	True	1,000.00	1,625.25	1,002.46	1,627.71	20.0	21.3	20.0
J-318	<None>	3	True	1,000.00	1,597.19	1,002.83	1,600.03	20.0	20.0	20.0
J-319	<None>	6	True	1,000.00	1,504.65	1,001.70	1,506.35	20.0	30.8	20.0
J-320	<None>	6	True	1,000.00	1,260.08	1,002.27	1,262.35	20.0	37.1	20.0
J-321	<None>	7	True	1,000.00	1,268.94	1,001.32	1,270.26	20.0	47.5	20.0
J-322	<None>	7	True	1,000.00	1,225.59	1,002.27	1,227.86	20.0	48.8	20.0
J-323	<None>	7	True	1,000.00	1,214.69	1,003.59	1,218.28	20.0	48.8	20.0
J-324	<None>	7	True	1,000.00	1,203.88	1,001.51	1,205.39	20.0	45.1	20.0
J-325	<None>	7	True	1,000.00	1,196.11	1,000.00	1,196.11	20.0	39.1	20.0
J-326	<None>	6	True	1,000.00	1,191.59	1,001.13	1,192.72	20.0	36.1	20.0
J-327	<None>	5	True	1,000.00	1,138.93	1,001.32	1,140.25	20.0	23.2	20.0
J-328	<None>	5	True	1,000.00	1,090.03	1,000.94	1,090.98	20.0	20.7	20.0
J-329	<None>	3	False	1,000.00	921.25	1,002.46	923.70	20.0	20.0	20.0
J-330	<None>	3	True	1,000.00	1,062.28	1,000.00	1,062.28	20.0	20.0	20.0
J-331	<None>	5	False	1,000.00	827.54	1,001.70	829.24	20.0	23.1	20.0
J-332	<None>	3	False	1,000.00	709.66	1,002.39	712.04	20.0	20.0	20.0
J-336	<None>	7	True	1,000.00	1,263.78	1,000.00	1,263.78	20.0	51.6	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-337	<None>	7	True	1,000.00	1,280.45	1,000.00	1,280.45	20.0	52.8	20.0
J-339	<None>	7	True	1,000.00	1,280.45	1,000.00	1,280.45	20.0	49.1	20.0
J-340	<None>	7	True	1,000.00	1,275.47	1,000.00	1,275.47	20.0	52.5	20.0
J-341	<None>	7	True	1,000.00	1,294.56	1,000.00	1,294.56	20.0	52.7	20.0
J-342	<None>	7	True	1,000.00	1,307.61	1,003.02	1,310.63	20.0	49.4	20.0
J-343	<None>	6	True	1,000.00	1,307.20	1,000.00	1,307.20	20.0	39.0	20.0
J-344	<None>	7	True	1,000.00	1,317.09	1,000.00	1,317.09	20.0	47.1	20.0
J-345	<None>	7	True	1,000.00	1,335.52	1,003.21	1,338.74	20.0	44.2	20.0
J-346	<None>	6	True	1,000.00	1,335.26	1,000.00	1,335.26	20.0	36.6	20.0
J-347	<None>	8	True	1,000.00	1,364.97	1,002.65	1,367.61	20.0	40.9	20.0
J-348	<None>	5	True	1,000.00	1,358.56	1,003.78	1,362.33	20.0	33.6	20.0
J-349	<None>	5	True	1,000.00	1,409.96	1,003.02	1,412.98	20.0	30.4	20.0
J-350	<None>	5	True	1,000.00	1,410.07	1,002.27	1,412.34	20.0	25.3	20.0
J-351	<None>	7	True	1,000.00	1,440.50	1,000.00	1,440.50	20.0	38.7	20.0
J-353	<None>	4	True	1,000.00	2,542.42	1,003.78	2,546.20	20.0	20.0	20.0
J-354	<None>	4	True	1,000.00	2,384.26	1,002.08	2,386.34	20.0	20.0	20.0
J-355	<None>	4	True	1,000.00	1,901.88	1,004.29	1,906.17	20.0	20.0	20.0
J-356	<None>	6	True	1,000.00	2,167.70	1,002.08	2,169.78	20.0	22.0	20.0
J-357	<None>	3	True	1,000.00	1,829.24	1,001.89	1,831.13	20.0	20.0	20.0
J-359	<None>	4	True	1,000.00	1,881.56	1,008.56	1,890.12	20.0	20.0	20.0
J-360	<None>	6	True	1,000.00	2,593.35	1,001.51	2,594.86	20.0	21.4	20.0
J-361	<None>	3	True	1,000.00	1,668.74	1,002.08	1,670.82	20.0	20.0	20.0
J-362	<None>	3	True	1,000.00	1,420.26	1,005.19	1,425.45	20.0	20.0	20.0
J-363	<None>	3	True	1,000.00	1,690.29	1,001.89	1,692.18	20.0	20.0	20.0
J-364	<None>	4	True	1,000.00	4,937.56	1,003.30	4,940.87	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-365	<None>	4	True	1,000.00	4,063.39	1,000.00	4,063.39	20.0	20.0	20.0
J-366	<None>	4	True	1,000.00	4,458.56	1,004.09	4,462.65	20.0	20.0	20.0
J-367	<None>	4	True	1,000.00	2,994.26	1,001.89	2,996.15	20.0	20.0	20.0
J-368	<None>	4	True	1,000.00	2,706.74	1,000.00	2,706.74	20.0	20.0	20.0
J-369	<None>	4	True	1,000.00	2,386.38	1,001.89	2,388.27	20.0	20.0	20.0
J-370	<None>	4	True	1,000.00	2,915.13	1,001.51	2,916.64	20.0	20.0	20.0
J-371	<None>	4	True	1,000.00	4,054.53	1,001.51	4,056.04	20.0	20.0	20.0
J-372	<None>	4	True	1,000.00	4,210.82	1,001.70	4,212.52	20.0	20.0	20.0
J-373	<None>	4	True	1,000.00	4,542.17	1,000.00	4,542.17	20.0	20.0	20.0
J-374	<None>	4	True	1,000.00	3,513.53	1,003.30	3,516.83	20.0	20.0	20.0
J-375	<None>	4	True	1,000.00	3,043.59	1,029.10	3,072.68	20.0	20.0	20.0
J-376	<None>	4	True	1,000.00	3,568.64	1,003.02	3,571.66	20.0	20.0	20.0
J-377	<None>	4	True	1,000.00	3,439.38	1,003.02	3,442.40	20.0	20.0	20.0
J-378	<None>	4	True	1,000.00	3,643.25	1,002.27	3,645.52	20.0	20.0	20.0
J-379	<None>	7	True	1,000.00	4,879.43	1,002.27	4,881.69	20.0	23.6	20.0
J-380	<None>	8	True	1,000.00	5,850.78	1,001.13	5,851.91	20.0	25.5	20.0
J-381	<None>	9	True	1,000.00	5,829.43	1,000.00	5,829.43	20.0	26.1	20.0
J-382	<None>	7	True	1,000.00	5,755.38	1,001.51	5,756.89	20.0	25.0	20.0
J-384	<None>	7	True	1,000.00	5,695.04	1,001.89	5,696.93	20.0	22.2	20.0
J-385	<None>	6	True	1,000.00	5,828.25	1,001.32	5,829.57	20.0	21.2	20.0
J-386	<None>	5	True	1,000.00	6,949.31	1,001.13	6,950.44	20.0	20.0	20.0
J-387	<None>	7	True	1,000.00	6,982.51	1,002.27	6,984.78	20.0	20.1	20.0
J-388	<None>	4	True	1,000.00	3,953.77	1,001.70	3,955.47	20.0	20.0	20.0
J-391	<None>	11	True	1,000.00	2,966.97	1,000.00	2,966.97	20.0	20.0	20.0
J-392	<None>	4	True	1,000.00	2,431.52	1,000.00	2,431.52	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-393	<None>	4	True	1,000.00	2,131.60	1,000.00	2,131.60	20.0	20.0	20.0
J-394	<None>	4	True	1,000.00	2,112.25	1,003.30	2,115.55	20.0	20.0	20.0
J-395	<None>	4	True	1,000.00	2,144.31	1,003.30	2,147.61	20.0	20.0	20.0
J-396	<None>	4	True	1,000.00	2,131.58	1,003.30	2,134.88	20.0	20.0	20.0
J-397	<None>	4	True	1,000.00	2,262.41	1,003.30	2,265.71	20.0	20.0	20.0
J-398	<None>	6	True	1,000.00	3,281.38	1,000.00	3,281.38	20.0	21.4	20.0
J-400	<None>	4	True	1,000.00	2,921.54	1,001.70	2,923.24	20.0	20.0	20.0
J-401	<None>	7	True	1,000.00	8,129.53	1,002.27	8,131.80	20.0	21.8	20.0
J-402	<None>	5	True	1,000.00	8,139.57	1,002.08	8,141.65	20.0	20.0	20.0
J-403	<None>	6	True	1,000.00	2,405.21	1,004.65	2,409.86	20.0	21.2	20.0
J-404	<None>	7	True	1,000.00	8,337.31	1,002.08	8,339.39	20.0	20.8	20.0
J-405	<None>	6	True	1,000.00	2,465.77	1,001.32	2,467.09	20.0	26.3	20.0
J-406	<None>	6	True	1,000.00	2,203.90	1,003.02	2,206.93	20.0	26.3	20.0
J-407	<None>	6	True	1,000.00	1,951.84	1,001.89	1,953.73	20.0	22.2	20.0
J-408	<None>	4	True	1,000.00	1,748.45	1,002.08	1,750.53	20.0	20.0	20.0
J-409	<None>	4	True	1,000.00	2,046.67	1,001.32	2,047.99	20.0	20.0	20.0
J-410	<None>	6	True	1,000.00	1,874.69	1,001.70	1,876.39	20.0	21.9	20.0
J-411	<None>	3	True	1,000.00	1,168.60	1,001.13	1,169.74	20.0	20.0	20.0
J-412	<None>	3	True	1,000.00	1,185.88	1,002.27	1,188.14	20.0	20.0	20.0
J-413	<None>	4	True	1,000.00	2,272.07	1,004.47	2,276.53	20.0	20.0	20.0
J-414	<None>	5	True	1,000.00	1,606.91	1,008.31	1,615.22	20.0	26.1	20.0
J-416	<None>	6	True	1,000.00	3,248.54	1,001.13	3,249.68	20.0	20.4	20.0
J-417	<None>	3	True	1,000.00	1,219.17	898.00	1,117.17	20.0	20.0	20.0
J-418	<None>	2	True	1,000.00	10,000.00	1,000.00	10,000.00	20.0	34.9	20.0
J-419	<None>	2	True	1,000.00	10,000.00	1,000.00	10,000.00	20.0	32.5	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-420	<None>	4	True	1,000.00	9,378.45	1,001.89	9,380.34	20.0	20.0	20.0
J-421	<None>	3	True	1,000.00	1,449.00	1,001.51	1,450.51	20.0	20.0	20.0
J-422	<None>	3	True	1,000.00	1,404.43	1,002.08	1,406.51	20.0	20.0	20.0
J-423	<None>	4	True	1,000.00	2,399.30	1,001.89	2,401.19	20.0	20.0	20.0
J-424	<None>	4	True	1,000.00	2,927.47	1,003.59	2,931.06	20.0	20.0	20.0
J-425	<None>	4	True	1,000.00	2,727.70	1,001.89	2,729.59	20.0	20.0	20.0
J-426	<None>	3	True	1,000.00	1,316.22	1,002.08	1,318.30	20.0	20.0	20.0
J-427	<None>	3	True	1,000.00	1,334.36	1,001.51	1,335.88	20.0	20.0	20.0
J-428	<None>	4	True	1,000.00	1,901.66	1,001.13	1,902.80	20.0	20.0	20.0
J-429	<None>	3	True	1,000.00	1,480.36	1,007.89	1,488.24	20.0	20.0	20.0
J-430	<None>	4	True	1,000.00	1,916.79	1,000.00	1,916.79	20.0	20.0	20.0
J-431	<None>	3	True	1,000.00	1,273.28	1,006.56	1,279.84	20.0	20.0	20.0
J-432	<None>	3	True	1,000.00	1,773.36	1,000.00	1,773.36	20.0	20.0	20.0
J-433	<None>	4	True	1,000.00	2,499.69	1,001.32	2,501.01	20.0	20.0	20.0
J-434	<None>	4	True	1,000.00	2,053.19	1,002.08	2,055.26	20.0	20.0	20.0
J-435	<None>	4	True	1,000.00	2,172.21	1,001.89	2,174.10	20.0	20.0	20.0
J-436	<None>	6	True	1,000.00	2,417.32	1,001.89	2,419.21	20.0	22.6	20.0
J-437	<None>	4	True	1,000.00	4,733.82	1,001.89	4,735.71	20.0	20.0	20.0
J-438	<None>	4	True	1,000.00	3,054.64	1,000.00	3,054.64	20.0	20.0	20.0
J-439	<None>	4	True	1,000.00	2,986.02	1,002.46	2,988.47	20.0	20.0	20.0
J-441	<None>	4	True	1,000.00	2,747.51	1,001.13	2,748.65	20.0	20.0	20.0
J-442	<None>	4	True	1,000.00	2,619.50	1,002.46	2,621.96	20.0	20.0	20.0
J-443	<None>	4	True	1,000.00	2,821.79	1,001.32	2,823.11	20.0	20.0	20.0
J-444	<None>	4	True	1,000.00	2,885.77	1,001.51	2,887.28	20.0	20.0	20.0
J-445	<None>	4	True	1,000.00	2,854.23	1,000.00	2,854.23	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-446	<None>	4	True	1,000.00	2,597.16	1,003.59	2,600.75	20.0	20.0	20.0
J-447	<None>	15	True	1,000.00	2,409.16	1,000.00	2,409.16	20.0	20.0	20.0
J-448	<None>	15	True	1,000.00	2,357.96	1,003.21	2,361.17	20.0	20.0	20.0
J-449	<None>	13	True	1,000.00	1,632.72	1,001.89	1,634.61	20.0	20.0	20.0
J-450	<None>	15	True	1,000.00	2,426.56	1,001.89	2,428.45	20.0	20.0	20.0
J-451	<None>	4	True	1,000.00	2,811.72	1,003.21	2,814.93	20.0	20.0	20.0
J-452	<None>	15	True	1,000.00	2,351.75	1,002.65	2,354.40	20.0	20.0	20.0
J-453	<None>	8	True	1,000.00	5,850.29	1,000.76	5,851.05	20.0	25.1	20.0
J-454	<None>	8	True	1,000.00	4,870.71	1,000.94	4,871.65	20.0	27.7	20.0
J-455	<None>	8	True	1,000.00	4,758.93	1,000.00	4,758.93	20.0	28.6	20.0
J-456	<None>	7	True	1,000.00	4,609.97	1,003.21	4,613.18	20.0	21.3	20.0
J-457	<None>	4	True	1,000.00	2,742.33	1,000.00	2,742.33	20.0	20.0	20.0
J-458	<None>	4	True	1,000.00	3,010.16	1,001.70	3,011.86	20.0	20.0	20.0
J-459	<None>	6	True	1,000.00	2,908.14	1,001.70	2,909.84	20.0	21.1	20.0
J-461	<None>	4	True	1,000.00	2,589.42	1,021.16	2,610.58	20.0	20.0	20.0
J-462	<None>	4	True	1,000.00	2,741.85	1,001.32	2,743.17	20.0	20.0	20.0
J-463	<None>	15	True	1,000.00	2,465.20	1,001.32	2,466.52	20.0	20.0	20.0
J-465	<None>	4	True	1,000.00	2,451.35	1,001.70	2,453.05	20.0	20.0	20.0
J-466	<None>	4	True	1,000.00	2,543.50	1,001.32	2,544.82	20.0	20.0	20.0
J-467	<None>	4	True	1,000.00	2,585.61	1,003.21	2,588.82	20.0	20.0	20.0
J-468	<None>	15	True	1,000.00	2,007.30	1,001.51	2,008.82	20.0	20.0	20.0
J-469	<None>	4	True	1,000.00	2,693.47	1,001.13	2,694.60	20.0	20.0	20.0
J-470	<None>	6	True	1,000.00	2,847.11	1,000.00	2,847.11	20.0	20.3	20.0
J-471	<None>	3	True	1,000.00	2,353.32	1,001.70	2,355.02	20.0	20.0	20.0
J-472	<None>	4	True	1,000.00	2,386.92	1,108.78	2,495.71	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-474	<None>	4	True	1,000.00	4,464.37	1,005.32	4,469.69	20.0	20.0	20.0
J-476	<None>	3	False	1,000.00	546.25	930.00	476.25	20.0	20.0	20.0
J-477	<None>	19	True	1,000.00	1,014.49	1,001.51	1,016.01	20.0	20.1	20.0
J-478	<None>	4	True	1,000.00	1,814.56	1,001.89	1,816.45	20.0	20.0	20.0
J-479	<None>	5	True	1,000.00	2,854.65	1,000.94	2,855.60	20.0	20.0	20.0
J-480	<None>	5	True	1,000.00	3,800.40	1,002.83	3,803.23	20.0	20.0	20.0
J-481	<None>	8	True	1,000.00	4,359.04	-275.00	3,084.04	20.0	31.5	20.0
J-482	<None>	8	True	1,000.00	4,359.32	1,001.89	4,361.21	20.0	33.3	20.0
J-483	<None>	8	True	1,000.00	4,258.16	1,004.08	4,262.24	20.0	32.9	20.0
J-484	<None>	8	True	1,000.00	4,398.61	1,002.08	4,400.69	20.0	33.2	20.0
J-485	<None>	8	True	1,000.00	3,885.72	1,001.13	3,886.86	20.0	30.8	20.0
J-486	<None>	8	True	1,000.00	3,460.53	1,000.94	3,461.47	20.0	28.4	20.0
J-487	<None>	8	True	1,000.00	3,409.91	1,000.76	3,410.67	20.0	28.1	20.0
J-488	<None>	7	True	1,000.00	3,267.60	1,000.76	3,268.36	20.0	25.9	20.0
J-489	<None>	6	True	1,000.00	2,982.29	1,000.00	2,982.29	20.0	20.5	20.0
J-490	<None>	3	False	1,000.00	654.16	908.00	562.16	20.0	20.0	20.0
J-491	<None>	5	True	1,000.00	2,945.05	1,001.51	2,946.56	20.0	20.0	20.0
J-492	<None>	7	True	1,000.00	2,660.79	1,000.00	2,660.79	20.0	22.7	20.0
J-493	<None>	4	True	1,000.00	1,934.44	1,001.51	1,935.95	20.0	20.0	20.0
J-494	<None>	4	True	1,000.00	1,680.37	1,001.89	1,682.26	20.0	20.0	20.0
J-495	<None>	14	True	1,000.00	1,567.72	1,001.89	1,569.61	20.0	20.0	20.0
J-496	<None>	4	True	1,000.00	1,858.97	1,002.46	1,861.42	20.0	20.0	20.0
J-497	<None>	2	True	1,000.00	1,004.81	1,000.00	1,004.81	20.0	20.0	20.0
J-498	<None>	6	True	1,000.00	2,006.17	1,000.00	2,006.17	20.0	20.9	20.0
J-499	<None>	25	True	1,000.00	2,905.77	1,000.00	2,905.77	20.0	42.3	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-500	<None>	25	True	1,000.00	2,827.89	1,000.00	2,827.89	20.0	40.7	20.0
J-501	<None>	5	True	1,000.00	7,603.42	1,000.00	7,603.42	20.0	20.0	20.0
J-504	<None>	4	True	1,000.00	3,689.21	1,000.00	3,689.21	20.0	20.0	20.0
J-505	<None>	4	True	1,000.00	2,428.10	1,005.81	2,433.91	20.0	20.0	20.0
J-506	<None>	3	True	1,000.00	1,341.87	1,001.89	1,343.76	20.0	20.0	20.0
J-507	<None>	3	True	1,000.00	1,158.22	1,001.89	1,160.11	20.0	20.0	20.0
J-508	<None>	3	True	1,000.00	1,324.87	1,000.00	1,324.87	20.0	20.0	20.0
J-509	<None>	3	True	1,000.00	1,499.53	1,001.89	1,501.42	20.0	20.0	20.0
J-510	<None>	4	True	1,000.00	1,808.00	1,001.51	1,809.51	20.0	20.0	20.0
J-511	<None>	4	True	1,000.00	1,703.70	1,002.27	1,705.97	20.0	20.0	20.0
J-512	<None>	4	True	1,000.00	1,681.01	1,002.27	1,683.28	20.0	20.0	20.0
J-513	<None>	4	True	1,000.00	1,702.03	1,002.65	1,704.68	20.0	20.0	20.0
J-514	<None>	6	True	1,000.00	1,852.37	1,000.00	1,852.37	20.0	21.5	20.0
J-517	<None>	5	True	1,000.00	6,670.15	1,002.08	6,672.23	20.0	20.0	20.0
J-518	<None>	5	True	1,000.00	5,640.92	1,002.83	5,643.76	20.0	20.0	20.0
J-519	<None>	4	True	1,000.00	2,150.97	1,001.51	2,152.49	20.0	20.0	20.0
J-520	<None>	4	True	1,000.00	2,447.51	1,055.40	2,502.91	20.0	20.0	20.0
J-521	<None>	7	True	1,000.00	4,215.67	1,000.94	4,216.61	20.0	21.0	20.0
J-523	<None>	7	True	1,000.00	5,741.13	1,000.00	5,741.13	20.0	20.9	20.0
J-524	<None>	4	True	1,000.00	2,554.59	1,008.77	2,563.36	20.0	20.0	20.0
J-527	<None>	4	True	1,000.00	2,004.18	1,000.76	2,004.93	20.0	20.0	20.0
J-529	<None>	3	False	1,000.00	450.17	1,000.00	450.17	20.0	20.0	20.0
J-530	<None>	4	True	1,000.00	1,797.42	1,004.83	1,802.25	20.0	20.0	20.0
J-531	<None>	6	True	1,000.00	1,826.39	1,000.00	1,826.39	20.0	20.9	20.0
J-532	<None>	4	True	1,000.00	4,438.66	1,000.00	4,438.66	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-533	<None>	4	True	1,000.00	4,877.27	1,002.83	4,880.10	20.0	20.0	20.0
J-534	<None>	3	False	1,000.00	876.63	1,011.34	887.96	20.0	20.0	20.0
J-535	<None>	4	True	1,000.00	2,735.46	1,054.39	2,789.85	20.0	20.0	20.0
J-536	<None>	5	True	1,000.00	4,821.81	1,002.20	4,824.01	20.0	20.0	20.0
J-537	<None>	6	True	1,000.00	2,463.46	1,000.00	2,463.46	20.0	22.7	20.0
J-538	<None>	5	True	1,000.00	1,020.14	1,000.00	1,020.14	20.0	22.6	20.0
J-539	<None>	4	True	1,000.00	1,861.38	1,004.10	1,865.48	20.0	20.0	20.0
J-540	<None>	4	True	1,000.00	2,687.87	1,002.46	2,690.33	20.0	20.0	20.0
J-541	<None>	4	True	1,000.00	2,832.43	1,002.27	2,834.70	20.0	20.0	20.0
J-542	<None>	4	True	1,000.00	5,035.44	1,000.00	5,035.44	20.0	20.0	20.0
J-544	<None>	5	True	1,000.00	2,644.37	1,000.94	2,645.32	20.0	20.0	20.0
J-545	<None>	5	True	1,000.00	2,843.53	1,001.32	2,844.85	20.0	20.0	20.0
J-546	<None>	3	True	1,000.00	1,444.01	1,001.13	1,445.15	20.0	20.0	20.0
J-547	<None>	3	True	1,000.00	1,363.99	1,000.00	1,363.99	20.0	20.0	20.0
J-548	<None>	3	True	1,000.00	1,301.86	1,004.47	1,306.33	20.0	20.0	20.0
J-551	<None>	8	True	1,000.00	3,461.98	1,000.00	3,461.98	20.0	25.9	20.0
J-552	<None>	4	True	1,000.00	3,451.08	1,000.00	3,451.08	20.0	20.0	20.0
J-553	<None>	6	True	1,000.00	3,462.03	1,000.00	3,462.03	20.0	20.3	20.0
J-554	<None>	6	True	1,000.00	3,461.99	1,054.39	3,516.38	20.0	23.4	20.0
J-555	<None>	6	True	1,000.00	3,461.98	1,000.00	3,461.98	20.0	23.0	20.0
J-556	<None>	9	True	1,000.00	4,164.79	1,000.00	4,164.79	20.0	26.5	20.0
J-557	<None>	4	True	1,000.00	2,441.12	1,003.30	2,444.42	20.0	20.0	20.0
J-558	<None>	4	True	1,000.00	2,965.43	1,002.20	2,967.63	20.0	20.0	20.0
J-559	<None>	4	True	1,000.00	2,925.81	1,000.00	2,925.81	20.0	20.0	20.0
J-560	<None>	3	False	1,000.00	768.17	1,108.78	876.96	20.0	20.0	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-561	<None>	3	True	1,000.00	1,352.02	1,110.81	1,462.82	20.0	20.0	20.0
J-562	<None>	3	False	1,000.00	942.16	1,001.01	943.17	20.0	20.0	20.0
J-563	<None>	6	True	1,000.00	1,817.61	1,000.94	1,818.55	20.0	20.6	20.0
J-564	<None>	4	True	1,000.00	1,625.49	1,000.00	1,625.49	20.0	20.0	20.0
J-565	<None>	7	True	1,000.00	2,805.33	1,002.27	2,807.60	20.0	31.9	20.0
J-566	<None>	4	True	1,000.00	2,432.17	1,001.51	2,433.68	20.0	20.0	20.0
J-567	<None>	3	True	1,000.00	1,403.44	1,001.13	1,404.58	20.0	20.0	20.0
J-568	<None>	3	True	1,000.00	1,383.52	1,005.40	1,388.92	20.0	20.0	20.0
J-569	<None>	3	True	1,000.00	1,468.50	1,000.00	1,468.50	20.0	20.0	20.0
J-570	<None>	3	True	1,000.00	1,443.09	1,004.65	1,447.73	20.0	20.0	20.0
J-571	<None>	4	True	1,000.00	4,372.25	1,000.00	4,372.25	20.0	20.0	20.0
J-572	<None>	4	True	1,000.00	2,931.85	1,000.00	2,931.85	20.0	20.0	20.0
J-573	<None>	4	True	1,000.00	5,452.13	1,000.00	5,452.13	20.0	20.0	20.0
J-574	<None>	4	True	1,000.00	3,352.76	1,002.20	3,354.96	20.0	20.0	20.0
J-575	<None>	5	True	1,000.00	5,746.47	1,002.08	5,748.55	20.0	20.0	20.0
J-577	<None>	3	True	1,000.00	1,201.44	1,003.02	1,204.46	20.0	20.0	20.0
J-582	<None>	4	True	1,000.00	2,419.35	1,001.51	2,420.86	20.0	20.0	20.0
J-583	<None>	4	True	1,000.00	2,541.50	1,003.97	2,545.47	20.0	20.0	20.0
J-584	<None>	4	True	1,000.00	2,670.24	1,000.00	2,670.24	20.0	20.0	20.0
J-585	<None>	4	True	1,000.00	2,683.66	1,002.20	2,685.86	20.0	20.0	20.0
J-586	<None>	4	True	1,000.00	3,522.90	1,003.02	3,525.92	20.0	20.0	20.0
J-587	<None>	4	True	1,000.00	3,319.21	1,001.51	3,320.73	20.0	20.0	20.0
J-588	<None>	6	True	1,000.00	3,253.31	1,001.51	3,254.82	20.0	20.3	20.0
J-589	<None>	4	True	1,000.00	2,142.65	1,000.76	2,143.40	20.0	20.0	20.0
J-590	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-592	<None>	4	True	1,000.00	1,418.01	1,001.79	1,419.81	20.0	20.0	20.0
J-594	<None>	5	True	1,000.00	6,161.22	1,058.55	6,219.78	20.0	20.0	20.0
J-595	<None>	6	True	1,000.00	3,000.73	1,001.13	3,001.86	20.0	21.9	20.0
J-596	<None>	3	False	1,000.00	931.77	1,000.00	931.77	20.0	20.0	20.0
J-597	<None>	3	False	1,000.00	541.28	1,005.23	546.51	20.0	20.0	20.0
J-598	<None>	3	False	1,000.00	877.21	1,000.00	877.21	20.0	20.0	20.0
J-599	<None>	6	True	1,000.00	7,583.90	1,000.00	7,583.90	20.0	48.1	20.0
J-600	<None>	5	True	1,000.00	5,587.89	1,001.70	5,589.59	20.0	20.0	20.0
J-601	<None>	4	True	1,000.00	3,296.88	1,001.51	3,298.39	20.0	20.0	20.0
J-602	<None>	3	False	1,000.00	428.07	1,002.65	430.72	20.0	20.0	20.0
J-603	<None>	5	True	1,000.00	1,062.26	1,000.94	1,063.21	20.0	23.1	20.0
J-604	<None>	4	True	1,000.00	1,803.83	1,087.01	1,890.84	20.0	20.0	20.0
J-605	<None>	4	True	1,000.00	4,768.21	1,002.08	4,770.29	20.0	20.0	20.0
J-607	<None>	3	True	1,000.00	1,367.55	1,004.16	1,371.71	20.0	20.0	20.0
J-609	<None>	5	True	1,000.00	7,196.33	1,007.70	7,204.03	20.0	20.0	20.0
J-610	<None>	8	True	1,000.00	4,419.18	1,003.60	4,422.78	20.0	26.7	20.0
J-616	<None>	3	True	1,000.00	1,031.70	1,005.06	1,036.76	20.0	20.0	20.0
J-618	<None>	5	True	1,000.00	7,076.70	1,003.79	7,080.49	20.0	20.0	20.0
J-619	<None>	5	True	1,000.00	7,782.56	1,000.00	7,782.56	20.0	20.0	20.0
J-620	<None>	4	True	1,000.00	5,396.67	1,001.51	5,398.18	20.0	20.0	20.0
J-622	<None>	3	True	1,000.00	1,235.29	1,000.00	1,235.29	20.0	20.0	20.0
J-624	<None>	6	True	1,000.00	8,841.09	1,000.00	8,841.09	20.0	20.4	20.0
J-630	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-631	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-632	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0

Fire Flow Node FlexTable: Fire Flow Report

Label	Zone	Fire Flow Iterations	Satisfies Fire Flow Constraints ?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)
J-633	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-634	<None>	5	True	1,000.00	6,682.85	1,000.00	6,682.85	20.0	20.0	20.0
J-635	<None>	25	True	1,000.00	3,034.87	1,000.00	3,034.87	20.0	47.0	20.0
J-636	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-637	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-638	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-639	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-640	<None>	7	True	1,000.00	4,946.03	1,000.00	4,946.03	20.0	22.0	20.0
J-641	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-642	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-643	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-644	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-645	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-646	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-647	<None>	(N/A)	False	1,000.00	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0
J-648	<None>	6	True	1,000.00	2,236.49	1,000.00	2,236.49	20.0	20.6	20.0
J-649	<None>	4	True	1,000.00	2,146.31	1,000.00	2,146.31	20.0	20.0	20.0
J-650	<None>	4	True	1,000.00	2,130.36	1,000.00	2,130.36	20.0	20.0	20.0
J-651	<None>	7	True	1,000.00	4,696.98	1,000.00	4,696.98	20.0	21.6	20.0
J-652	<None>	5	True	1,000.00	4,557.69	1,000.00	4,557.69	20.0	379.0	20.0
J-653	<None>	6	True	1,000.00	4,431.25	1,000.00	4,431.25	20.0	21.4	20.0

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
34	J-9	735.8	<None>	3.78	908.8	74.8
35	J-10	746.7	<None>	0.00	908.8	70.1
39	J-12	774.9	<None>	0.00	908.8	57.9
41	J-13	740.5	<None>	0.00	908.9	72.8
43	J-14	754.3	<None>	2.02	908.9	66.9
45	J-15	753.4	<None>	56.18	909.1	67.3
47	J-16	780.6	<None>	1.99	909.2	55.6
49	J-17	830.7	<None>	5.89	909.8	34.2
51	J-18	805.9	<None>	0.00	909.8	44.9
54	J-19	831.2	<None>	0.00	909.8	34.0
57	J-20	830.3	<None>	0.00	910.7	34.8
59	J-21	830.5	<None>	0.00	910.8	34.7
61	J-22	831.6	<None>	0.00	910.9	34.3
63	J-23	844.2	<None>	4.40	911.8	29.3
86	J-37	850.6	<None>	-315.00	912.1	26.6
98	J-43	851.3	<None>	1.99	911.8	26.2
102	J-46	762.6	<None>	0.00	908.8	63.2
104	J-47	762.6	<None>	0.00	908.8	63.2
106	J-48	851.1	<None>	0.00	912.0	26.3
112	J-49	765.5	<None>	0.00	908.8	62.0
114	J-50	763.7	<None>	2.02	908.8	62.8
116	J-51	763.2	<None>	0.00	908.8	63.0
118	J-52	766.8	<None>	0.00	908.9	61.5
120	J-53	772.0	<None>	39.87	908.9	59.2
122	J-54	769.9	<None>	1.89	909.0	60.2
124	J-55	772.4	<None>	4.10	909.0	59.1
126	J-56	772.9	<None>	2.46	909.0	58.9
128	J-57	782.0	<None>	8.62	909.2	55.0
130	J-58	782.7	<None>	1.51	909.3	54.8
132	J-59	785.0	<None>	1.89	909.4	53.8
134	J-60	793.0	<None>	43.27	909.7	50.5
136	J-61	789.7	<None>	3.02	909.7	51.9
138	J-62	797.0	<None>	0.00	909.7	48.7
140	J-63	798.0	<None>	0.00	909.7	48.3
142	J-64	801.2	<None>	3.21	909.7	46.9
146	J-66	829.8	<None>	0.76	910.5	34.9
154	J-69	821.9	<None>	0.00	910.4	38.3
156	J-70	821.4	<None>	0.00	910.3	38.5
158	J-71	821.3	<None>	3.59	910.2	38.5
160	J-72	821.0	<None>	1.32	910.1	38.5
162	J-73	820.7	<None>	0.00	910.0	38.6
164	J-74	827.1	<None>	4.85	910.0	35.8
167	J-75	852.6	<None>	0.00	911.5	25.5
169	J-76	839.3	<None>	0.00	911.1	31.1
171	J-77	832.4	<None>	2.02	910.8	33.9
173	J-78	833.3	<None>	1.01	910.8	33.5
175	J-79	832.8	<None>	2.20	910.8	33.7
177	J-80	833.2	<None>	0.00	910.8	33.6

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
179	J-81	836.2	<None>	0.00	910.8	32.3
181	J-82	835.2	<None>	1.52	910.8	32.7
183	J-83	834.3	<None>	1.52	910.8	33.1
186	J-84	826.4	<None>	0.00	910.6	36.4
188	J-85	824.6	<None>	0.00	910.6	37.2
192	J-87	822.0	<None>	1.32	910.3	38.2
194	J-88	824.4	<None>	1.70	910.3	37.2
196	J-89	822.8	<None>	1.89	910.3	37.9
198	J-90	822.0	<None>	2.65	910.3	38.2
200	J-91	820.8	<None>	1.32	910.3	38.7
202	J-92	820.4	<None>	1.32	910.3	38.9
206	J-93	821.0	<None>	1.32	910.3	38.6
208	J-94	820.4	<None>	2.08	910.3	38.9
210	J-95	820.7	<None>	0.00	910.3	38.8
212	J-96	821.7	<None>	0.00	910.3	38.3
214	J-97	819.3	<None>	9.65	909.8	39.1
216	J-98	824.3	<None>	0.00	909.8	37.0
218	J-99	827.2	<None>	1.01	909.8	35.7
220	J-100	825.2	<None>	2.08	909.8	36.6
222	J-101	825.0	<None>	2.65	909.9	36.7
224	J-102	823.6	<None>	2.83	910.0	37.4
226	J-103	824.5	<None>	2.20	910.0	37.0
228	J-104	823.2	<None>	0.00	909.8	37.5
230	J-105	818.8	<None>	1.89	909.8	39.4
232	J-106	816.0	<None>	4.42	909.7	40.6
235	J-107	822.6	<None>	2.20	910.4	38.0
237	J-108	822.2	<None>	3.02	910.2	38.1
240	J-109	812.8	<None>	6.17	909.7	41.9
241	J-110	815.9	<None>	0.00	909.9	40.7
243	J-111	819.1	<None>	0.00	910.0	39.3
247	J-112	819.6	<None>	1.89	910.2	39.2
249	J-113	809.1	<None>	1.32	909.5	43.4
251	J-114	814.7	<None>	-42.00	910.2	41.3
256	J-116	814.8	<None>	0.00	910.1	41.2
260	J-117	818.2	<None>	3.40	910.2	39.8
263	J-118	817.7	<None>	0.19	910.1	40.0
271	J-122	815.1	<None>	0.00	910.1	41.1
273	J-123	809.1	<None>	3.87	909.2	43.3
275	J-124	805.2	<None>	0.00	909.2	45.0
277	J-125	815.9	<None>	0.00	909.9	40.7
279	J-126	810.2	<None>	2.08	909.6	43.0
282	J-127	810.0	<None>	2.65	909.6	43.1
286	J-128	813.9	<None>	3.03	909.5	41.4
288	J-129	812.2	<None>	9.14	909.5	42.1
291	J-130	806.3	<None>	3.02	909.4	44.6
293	J-131	806.8	<None>	1.89	909.5	44.4
296	J-132	811.9	<None>	1.51	909.6	42.3
298	J-133	811.2	<None>	6.38	909.4	42.5

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
300	J-134	811.4	<None>	2.08	909.4	42.4
302	J-135	811.4	<None>	0.00	909.4	42.4
304	J-136	815.1	<None>	1.89	909.4	40.8
306	J-137	803.2	<None>	2.65	909.3	45.9
308	J-138	800.6	<None>	1.13	909.3	47.0
310	J-139	803.5	<None>	108.78	909.3	45.8
312	J-140	806.1	<None>	2.65	909.4	44.7
315	J-141	804.2	<None>	7.80	909.4	45.5
318	J-142	799.9	<None>	0.00	909.5	47.4
320	J-143	801.2	<None>	0.57	909.5	46.8
322	J-144	806.1	<None>	1.32	909.4	44.7
329	J-148	800.1	<None>	1.51	909.4	47.3
331	J-149	799.8	<None>	0.00	909.4	47.4
333	J-150	802.9	<None>	2.83	909.4	46.1
337	J-151	804.9	<None>	1.51	909.4	45.2
339	J-152	809.5	<None>	16.06	909.4	43.2
345	J-154	760.8	<None>	0.00	908.7	64.0
349	J-156	758.4	<None>	0.00	908.7	65.0
350	J-157	758.4	<None>	110.11	908.7	65.0
354	J-158	770.5	<None>	0.00	908.7	59.8
356	J-159	770.3	<None>	109.92	908.7	59.9
358	J-160	770.0	<None>	1.32	908.9	60.1
360	J-161	785.0	<None>	2.02	909.2	53.8
362	J-162	785.9	<None>	2.53	909.3	53.4
364	J-163	789.2	<None>	0.00	909.3	51.9
366	J-164	790.8	<None>	0.00	909.3	51.3
368	J-165	793.4	<None>	0.00	909.3	50.2
370	J-166	794.6	<None>	0.76	909.3	49.6
372	J-167	796.5	<None>	0.00	909.4	48.8
374	J-168	798.9	<None>	2.27	909.4	47.8
377	J-169	790.8	<None>	6.89	909.3	51.3
384	J-172	782.7	<None>	1.13	909.3	54.8
386	J-173	787.9	<None>	1.89	909.3	52.5
388	J-174	790.6	<None>	3.02	909.3	51.3
390	J-175	791.2	<None>	1.32	909.3	51.1
394	J-176	783.8	<None>	2.53	909.3	54.3
396	J-177	786.9	<None>	0.00	909.3	52.9
398	J-178	787.5	<None>	57.43	909.3	52.7
407	J-179	788.1	<None>	3.28	909.3	52.4
410	J-180	790.1	<None>	2.83	909.3	51.6
413	J-181	794.4	<None>	1.89	909.3	49.7
422	J-184	792.1	<None>	0.00	910.0	51.0
424	J-185	791.8	<None>	0.00	910.0	51.1
426	J-186	791.0	<None>	0.00	910.0	51.5
428	J-187	795.0	<None>	0.00	910.1	49.8
430	J-188	790.0	<None>	3.30	910.0	51.9
432	J-189	794.1	<None>	2.20	909.9	50.1
434	J-190	796.4	<None>	0.00	909.8	49.0

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
436	J-191	799.8	<None>	0.00	909.4	47.4
438	J-192	794.4	<None>	0.00	909.3	49.7
441	J-193	797.5	<None>	2.02	909.3	48.4
444	J-194	795.6	<None>	2.20	909.7	49.4
463	J-202	800.9	<None>	0.00	909.5	47.0
465	J-203	800.5	<None>	-135.00	910.2	47.5
467	J-204	800.3	<None>	2.20	909.4	47.2
469	J-205	800.0	<None>	0.00	909.3	47.3
471	J-206	798.2	<None>	108.78	908.7	47.8
473	J-207	799.3	<None>	0.00	909.4	47.7
475	J-208	798.4	<None>	2.20	909.5	48.1
477	J-209	797.3	<None>	0.00	909.6	48.6
483	J-211	794.0	<None>	3.30	909.4	49.9
485	J-212	808.7	<None>	8.75	909.4	43.6
487	J-213	806.2	<None>	5.06	909.4	44.6
489	J-214	805.8	<None>	0.00	909.4	44.8
491	J-215	803.4	<None>	4.05	909.4	45.9
493	J-216	800.6	<None>	3.03	909.4	47.1
499	J-217	838.8	<None>	-1,000.00	915.9	33.4
502	J-218	798.9	<None>	108.78	909.4	47.8
504	J-219	798.0	<None>	108.78	909.4	48.2
506	J-220	796.6	<None>	0.76	909.4	48.8
508	J-221	797.9	<None>	108.78	909.4	48.2
510	J-222	796.5	<None>	59.12	909.4	48.8
512	J-223	798.5	<None>	112.45	909.3	48.0
515	J-224	802.1	<None>	7.26	909.4	46.4
517	J-225	804.8	<None>	5.06	909.4	45.3
519	J-226	803.7	<None>	5.06	909.4	45.7
521	J-227	803.1	<None>	5.91	909.4	46.0
523	J-228	798.7	<None>	0.00	909.4	47.9
525	J-229	798.8	<None>	-268.00	909.5	47.9
527	J-230	798.1	<None>	0.00	909.4	48.2
531	J-231	807.3	<None>	9.90	909.4	44.2
533	J-232	801.9	<None>	1.89	909.4	46.5
536	J-233	800.6	<None>	108.78	909.2	47.0
538	J-234	795.7	<None>	108.78	909.1	49.1
540	J-235	794.6	<None>	55.15	909.1	49.5
542	J-236	793.5	<None>	2.59	909.1	50.0
544	J-237	785.2	<None>	108.78	909.0	53.6
546	J-238	782.4	<None>	108.78	909.0	54.8
548	J-239	779.7	<None>	2.46	909.0	55.9
550	J-240	788.9	<None>	4.72	909.0	52.0
552	J-241	791.6	<None>	0.00	909.1	50.8
555	J-242	791.9	<None>	4.86	909.0	50.6
557	J-243	798.0	<None>	5.02	908.9	48.0
559	J-244	804.7	<None>	2.65	908.8	45.1
561	J-245	797.9	<None>	2.46	908.8	48.0
563	J-246	800.0	<None>	3.89	908.8	47.1

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
565	J-247	798.9	<None>	3.59	908.8	47.5
567	J-248	810.8	<None>	3.59	908.8	42.4
569	J-249	809.6	<None>	3.59	908.8	42.9
571	J-250	805.2	<None>	0.00	908.8	44.8
576	J-252	812.7	<None>	0.00	908.8	41.6
578	J-253	814.4	<None>	0.00	908.8	40.8
580	J-254	815.4	<None>	1.32	908.8	40.4
582	J-255	816.2	<None>	0.00	908.8	40.1
584	J-256	812.7	<None>	0.94	908.8	41.6
591	J-259	811.6	<None>	1.13	908.8	42.1
593	J-260	807.5	<None>	1.51	908.8	43.8
598	J-261	808.8	<None>	0.94	908.8	43.3
602	J-263	794.2	<None>	272.72	909.1	49.7
604	J-264	792.3	<None>	55.15	909.1	50.5
607	J-265	790.8	<None>	1.51	909.1	51.2
609	J-266	789.1	<None>	0.00	909.0	51.9
611	J-267	784.7	<None>	0.00	909.0	53.8
613	J-268	777.9	<None>	1.51	909.0	56.7
615	J-269	776.0	<None>	2.27	909.0	57.5
618	J-270	786.3	<None>	3.40	909.1	53.1
621	J-271	803.2	<None>	2.46	908.9	45.7
625	J-272	797.5	<None>	4.67	909.9	48.7
627	J-273	795.2	<None>	8.37	909.9	49.6
629	J-274	790.6	<None>	5.41	909.8	51.6
631	J-275	787.7	<None>	1.51	909.7	52.8
633	J-276	796.5	<None>	0.00	909.7	49.0
635	J-277	793.3	<None>	1.70	909.6	50.3
637	J-278	794.5	<None>	1.70	909.5	49.8
641	J-279	794.8	<None>	1.32	909.7	49.7
644	J-280	794.9	<None>	0.00	909.8	49.7
646	J-281	792.9	<None>	0.00	909.9	50.6
649	J-282	792.6	<None>	1.89	909.9	50.7
651	J-283	797.0	<None>	1.89	910.0	48.9
653	J-284	797.9	<None>	1.89	910.0	48.5
656	J-285	804.6	<None>	1.89	910.1	45.7
658	J-286	801.4	<None>	1.89	910.1	47.0
662	J-287	808.4	<None>	3.02	910.3	44.1
664	J-288	803.2	<None>	2.08	910.3	46.3
666	J-289	802.1	<None>	1.51	910.3	46.8
668	J-290	797.7	<None>	3.35	910.3	48.7
670	J-291	797.1	<None>	0.00	910.3	49.0
673	J-292	800.0	<None>	2.78	910.4	47.7
675	J-293	800.0	<None>	1.32	910.4	47.7
678	J-294	807.1	<None>	4.10	910.4	44.7
681	J-295	817.4	<None>	9.56	910.5	40.3
684	J-296	794.0	<None>	1.51	909.9	50.1
686	J-297	793.4	<None>	4.53	909.9	50.4
688	J-298	790.0	<None>	58.67	909.4	51.6

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
690	J-299	785.4	<None>	3.21	909.3	53.6
692	J-300	788.9	<None>	5.48	909.1	52.0
694	J-301	791.2	<None>	0.00	909.1	51.0
697	J-302	790.6	<None>	0.00	909.1	51.3
699	J-303	786.3	<None>	5.48	909.1	53.1
705	J-304	782.7	<None>	6.72	909.3	54.8
707	J-305	799.0	<None>	0.00	908.9	47.5
709	J-306	789.6	<None>	0.00	908.9	51.6
711	J-307	800.0	<None>	5.97	908.9	47.1
713	J-308	783.8	<None>	5.60	908.9	54.1
715	J-309	796.3	<None>	6.17	908.9	48.7
717	J-310	774.2	<None>	1.70	908.9	58.3
719	J-311	774.6	<None>	2.08	908.9	58.1
721	J-312	775.6	<None>	5.02	909.0	57.7
723	J-313	792.0	<None>	2.46	909.0	50.6
725	J-314	800.7	<None>	1.89	909.0	46.8
727	J-315	804.2	<None>	1.32	909.0	45.4
729	J-316	770.0	<None>	1.89	909.2	60.2
731	J-317	767.2	<None>	2.46	909.1	61.4
734	J-318	767.9	<None>	2.83	909.1	61.1
737	J-319	770.1	<None>	1.70	909.3	60.2
739	J-320	775.4	<None>	2.27	909.7	58.1
741	J-321	759.5	<None>	1.32	910.0	65.1
743	J-322	761.8	<None>	2.27	910.1	64.2
745	J-323	762.0	<None>	3.59	910.1	64.1
747	J-324	770.9	<None>	1.51	910.1	60.2
749	J-325	784.8	<None>	0.00	910.1	54.2
751	J-326	791.6	<None>	1.13	910.1	51.3
753	J-327	821.4	<None>	1.32	910.1	38.4
755	J-328	827.2	<None>	0.94	910.1	35.9
757	J-329	823.0	<None>	2.46	910.1	37.7
759	J-330	828.9	<None>	0.00	910.1	35.1
761	J-331	815.1	<None>	1.70	910.1	41.1
763	J-332	800.5	<None>	2.39	910.1	47.4
770	J-336	748.8	<None>	0.00	910.2	69.8
772	J-337	740.6	<None>	0.00	910.2	73.4
777	J-339	746.0	<None>	0.00	910.2	71.0
779	J-340	748.2	<None>	0.00	910.2	70.1
782	J-341	747.6	<None>	0.00	910.2	70.4
785	J-342	754.8	<None>	3.02	910.2	67.2
787	J-343	771.5	<None>	0.00	910.2	60.0
791	J-344	759.7	<None>	0.00	910.2	65.1
793	J-345	765.8	<None>	3.21	910.3	62.5
795	J-346	776.2	<None>	0.00	910.3	58.0
797	J-347	772.9	<None>	2.65	910.3	59.4
799	J-348	772.7	<None>	3.78	910.3	59.5
801	J-349	783.1	<None>	3.02	910.3	55.0
803	J-350	785.8	<None>	2.27	910.3	53.9

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
805	J-351	771.4	<None>	0.00	910.3	60.1
814	J-353	819.4	<None>	3.78	910.3	39.3
816	J-354	802.3	<None>	2.08	910.2	46.7
819	J-355	828.7	<None>	4.29	910.4	35.4
822	J-356	813.8	<None>	2.08	910.3	41.8
824	J-357	802.5	<None>	1.89	910.2	46.6
831	J-359	830.2	<None>	8.56	910.4	34.7
834	J-360	806.2	<None>	1.51	910.4	45.1
836	J-361	788.6	<None>	2.08	910.3	52.6
838	J-362	792.6	<None>	5.19	910.1	50.8
840	J-363	791.5	<None>	1.89	909.9	51.2
843	J-364	799.6	<None>	3.30	910.5	48.0
845	J-365	797.5	<None>	0.00	910.9	49.1
847	J-366	795.9	<None>	4.09	911.4	50.0
849	J-367	805.2	<None>	1.89	911.4	46.0
851	J-368	810.0	<None>	0.00	911.3	43.8
853	J-369	808.8	<None>	1.89	910.8	44.2
855	J-370	814.9	<None>	1.51	911.5	41.8
857	J-371	817.1	<None>	1.51	911.7	40.9
859	J-372	808.7	<None>	1.70	911.6	44.5
862	J-373	799.9	<None>	0.00	911.7	48.4
865	J-374	803.6	<None>	3.30	912.0	46.9
867	J-375	809.4	<None>	29.10	912.6	44.6
869	J-376	815.1	<None>	3.02	913.6	42.6
871	J-377	822.5	<None>	3.02	913.7	39.4
873	J-378	822.9	<None>	2.27	913.8	39.3
875	J-379	812.7	<None>	2.27	914.1	43.9
877	J-380	808.3	<None>	1.13	914.2	45.8
879	J-381	809.1	<None>	0.00	914.0	45.4
881	J-382	818.3	<None>	1.51	913.3	41.1
886	J-384	828.9	<None>	1.89	912.9	36.4
888	J-385	831.0	<None>	1.32	912.8	35.4
890	J-386	833.8	<None>	1.13	912.1	33.9
892	J-387	833.5	<None>	2.27	912.1	34.0
894	J-388	825.8	<None>	1.70	911.8	37.2
902	J-391	831.0	<None>	0.00	912.9	35.4
904	J-392	825.9	<None>	0.00	912.9	37.7
906	J-393	828.3	<None>	0.00	912.9	36.6
908	J-394	825.8	<None>	3.30	912.9	37.7
910	J-395	824.2	<None>	3.30	912.9	38.4
912	J-396	826.9	<None>	3.30	912.9	37.2
915	J-397	834.0	<None>	3.30	912.9	34.1
917	J-398	830.7	<None>	0.00	912.9	35.6
922	J-400	820.9	<None>	1.70	911.5	39.2
925	J-401	817.4	<None>	2.27	911.2	40.6
928	J-402	826.8	<None>	2.08	911.5	36.7
930	J-403	825.2	<None>	4.65	910.7	37.0
933	J-404	831.0	<None>	2.08	911.9	35.0

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
936	J-405	804.0	<None>	1.32	910.5	46.1
938	J-406	809.1	<None>	3.02	910.5	43.9
940	J-407	820.3	<None>	1.89	910.5	39.0
942	J-408	831.0	<None>	2.08	910.6	34.4
944	J-409	831.4	<None>	1.32	910.6	34.3
948	J-410	816.0	<None>	1.70	908.8	40.2
950	J-411	817.2	<None>	1.13	908.9	39.7
952	J-412	811.1	<None>	2.27	908.9	42.3
955	J-413	793.3	<None>	4.47	910.5	50.7
958	J-414	791.3	<None>	8.31	910.9	51.8
964	J-416	821.5	<None>	1.13	910.4	38.4
968	J-417	827.2	<None>	-102.00	912.5	36.9
969	J-418	826.7	<None>	0.00	912.0	36.9
974	J-419	826.8	<None>	0.00	912.0	36.9
976	J-420	834.0	<None>	1.89	911.9	33.7
979	J-421	818.2	<None>	1.51	911.6	40.4
981	J-422	823.0	<None>	2.08	911.7	38.4
983	J-423	821.5	<None>	1.89	911.9	39.1
985	J-424	820.8	<None>	3.59	912.1	39.5
987	J-425	827.2	<None>	1.89	912.1	36.7
990	J-426	821.0	<None>	2.08	911.6	39.2
992	J-427	821.8	<None>	1.51	911.6	38.8
994	J-428	821.6	<None>	1.13	911.6	38.9
996	J-429	819.0	<None>	7.89	911.2	39.9
998	J-430	821.8	<None>	0.00	911.6	38.9
1000	J-431	814.7	<None>	6.56	911.9	42.0
1002	J-432	823.2	<None>	0.00	912.4	38.6
1004	J-433	827.5	<None>	1.32	912.4	36.7
1007	J-434	833.0	<None>	2.08	912.3	34.3
1009	J-435	829.1	<None>	1.89	912.2	36.0
1011	J-436	817.8	<None>	1.89	912.2	40.8
1015	J-437	805.4	<None>	1.89	914.0	47.0
1017	J-438	804.9	<None>	0.00	914.0	47.2
1019	J-439	803.5	<None>	2.46	914.0	47.8
1023	J-441	800.7	<None>	1.13	914.0	49.0
1025	J-442	800.3	<None>	2.46	914.0	49.2
1027	J-443	797.0	<None>	1.32	914.0	50.6
1029	J-444	796.4	<None>	1.51	914.0	50.9
1031	J-445	797.3	<None>	0.00	914.0	50.5
1034	J-446	794.1	<None>	3.59	914.0	51.9
1036	J-447	793.4	<None>	0.00	914.0	52.2
1038	J-448	793.0	<None>	3.21	914.1	52.4
1040	J-449	783.5	<None>	1.89	914.1	56.5
1043	J-450	797.1	<None>	1.89	914.2	50.7
1045	J-451	802.6	<None>	3.21	914.3	48.3
1047	J-452	796.8	<None>	2.65	914.2	50.8
1050	J-453	807.5	<None>	0.76	914.4	46.2
1053	J-454	802.1	<None>	0.94	917.0	49.7

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1055	J-455	800.4	<None>	0.00	917.3	50.6
1057	J-456	801.0	<None>	3.21	917.3	50.3
1059	J-457	804.0	<None>	0.00	917.3	49.0
1061	J-458	809.3	<None>	1.70	913.6	45.1
1063	J-459	807.9	<None>	1.70	913.6	45.7
1067	J-461	811.4	<None>	21.16	913.6	44.2
1069	J-462	811.8	<None>	1.32	913.6	44.1
1071	J-463	814.0	<None>	1.32	913.7	43.1
1077	J-465	813.1	<None>	1.70	913.7	43.5
1079	J-466	812.1	<None>	1.32	913.7	44.0
1081	J-467	813.3	<None>	3.21	913.8	43.5
1083	J-468	813.3	<None>	1.51	913.9	43.5
1087	J-469	815.2	<None>	1.13	913.6	42.6
1089	J-470	809.5	<None>	0.00	913.6	45.0
1092	J-471	817.4	<None>	1.70	913.6	41.6
1095	J-472	766.5	<None>	108.78	908.5	61.4
1099	J-474	801.4	<None>	5.32	909.4	46.7
1103	J-476	775.7	<None>	-70.00	923.4	63.9
1104	J-477	776.0	<None>	1.51	921.5	62.9
1106	J-478	778.5	<None>	1.89	921.0	61.6
1108	J-479	784.7	<None>	0.94	921.0	59.0
1110	J-480	784.9	<None>	2.83	921.0	58.9
1114	J-481	784.0	<None>	-1,275.00	921.4	59.4
1116	J-482	791.1	<None>	1.89	918.9	55.3
1118	J-483	792.0	<None>	4.08	918.9	54.9
1120	J-484	791.3	<None>	2.08	918.8	55.2
1124	J-485	796.7	<None>	1.13	919.0	52.9
1126	J-486	802.1	<None>	0.94	919.0	50.6
1128	J-487	803.0	<None>	0.76	919.0	50.2
1130	J-488	808.0	<None>	0.76	919.0	48.0
1132	J-489	820.8	<None>	0.00	919.1	42.5
1134	J-490	804.0	<None>	-92.00	921.2	50.7
1136	J-491	822.0	<None>	1.51	919.1	42.0
1139	J-492	809.2	<None>	0.00	919.1	47.6
1141	J-493	798.9	<None>	1.51	919.4	52.1
1143	J-494	790.2	<None>	1.89	919.7	56.0
1145	J-495	791.6	<None>	1.89	920.2	55.6
1147	J-496	800.4	<None>	2.46	919.0	51.3
1149	J-497	811.3	<None>	0.00	919.1	46.6
1150	J-498	809.2	<None>	0.00	919.1	47.6
1153	J-499	746.3	<None>	0.00	908.9	70.3
1156	J-500	750.9	<None>	0.00	908.9	68.4
1159	J-501	831.0	<None>	0.00	910.8	34.5
1168	J-504	815.3	<None>	0.00	909.6	40.8
1171	J-505	813.5	<None>	5.81	909.6	41.6
1175	J-506	814.7	<None>	1.89	911.6	41.9
1177	J-507	809.5	<None>	1.89	911.6	44.2
1179	J-508	815.4	<None>	0.00	911.6	41.6

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1181	J-509	812.6	<None>	1.89	911.6	42.8
1188	J-510	818.6	<None>	1.51	908.8	39.0
1189	J-511	818.0	<None>	2.27	908.8	39.3
1191	J-512	817.8	<None>	2.27	908.8	39.4
1193	J-513	819.1	<None>	2.65	908.8	38.8
1195	J-514	815.3	<None>	0.00	908.8	40.5
1202	J-517	809.1	<None>	2.08	909.5	43.4
1206	J-518	822.2	<None>	2.83	910.1	38.0
1210	J-519	799.7	<None>	1.51	909.2	47.4
1213	J-520	794.7	<None>	55.40	909.4	49.6
1216	J-521	767.6	<None>	0.94	908.7	61.0
1220	J-523	795.3	<None>	0.00	909.3	49.3
1224	J-524	808.3	<None>	8.77	919.1	48.0
1229	J-527	780.0	<None>	0.76	920.9	61.0
1239	J-529	804.7	<None>	0.00	909.8	45.5
1242	J-530	821.5	<None>	4.83	908.8	37.8
1244	J-531	818.0	<None>	0.00	908.8	39.3
1247	J-532	774.0	<None>	0.00	909.0	58.4
1250	J-533	782.0	<None>	2.83	909.3	55.1
1253	J-534	795.0	<None>	11.34	909.5	49.5
1255	J-535	788.0	<None>	54.39	909.2	52.5
1258	J-536	778.0	<None>	2.20	909.1	56.7
1261	J-537	795.0	<None>	0.00	909.7	49.6
1264	J-538	823.0	<None>	0.00	910.0	37.6
1267	J-539	809.0	<None>	4.10	909.4	43.5
1270	J-540	823.5	<None>	2.46	910.3	37.6
1273	J-541	819.5	<None>	2.27	910.3	39.3
1276	J-542	794.0	<None>	0.00	909.9	50.2
1281	J-544	819.7	<None>	0.94	919.1	43.0
1284	J-545	821.0	<None>	1.32	919.1	42.4
1287	J-546	810.0	<None>	1.13	912.2	44.2
1290	J-547	808.5	<None>	0.00	912.0	44.8
1293	J-548	821.0	<None>	4.47	911.7	39.3
1304	J-551	739.0	<None>	0.00	908.8	73.4
1306	J-552	747.0	<None>	0.00	908.8	70.0
1308	J-553	746.0	<None>	0.00	908.8	70.4
1310	J-554	744.0	<None>	54.39	908.8	71.3
1312	J-555	761.0	<None>	0.00	908.8	63.9
1316	J-556	760.0	<None>	0.00	908.7	64.3
1319	J-557	758.5	<None>	3.30	908.5	64.9
1321	J-558	765.5	<None>	2.20	908.7	61.9
1323	J-559	791.0	<None>	0.00	909.4	51.2
1326	J-560	784.5	<None>	108.78	907.9	53.4
1328	J-561	791.0	<None>	110.81	908.7	50.9
1330	J-562	824.0	<None>	1.01	909.8	37.1
1332	J-563	819.0	<None>	0.94	908.8	38.8
1335	J-564	817.0	<None>	0.00	908.8	39.7
1337	J-565	789.0	<None>	2.27	908.9	51.9

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1340	J-566	785.0	<None>	1.51	908.9	53.6
1342	J-567	798.0	<None>	1.13	908.9	48.0
1345	J-568	791.0	<None>	5.40	908.9	51.0
1347	J-569	799.0	<None>	0.00	908.9	47.5
1350	J-570	796.0	<None>	4.65	908.9	48.8
1352	J-571	796.5	<None>	0.00	909.6	48.9
1355	J-572	793.0	<None>	0.00	909.6	50.5
1357	J-573	792.0	<None>	0.00	910.0	51.1
1360	J-574	791.0	<None>	2.20	910.0	51.5
1362	J-575	801.0	<None>	2.08	909.4	46.9
1371	J-577	760.6	<None>	3.02	910.1	64.7
1413	J-582	815.0	<None>	1.51	909.4	40.9
1416	J-583	812.8	<None>	3.97	909.6	41.9
1418	J-584	814.5	<None>	0.00	909.6	41.2
1421	J-585	813.0	<None>	2.20	909.6	41.8
1425	J-586	809.7	<None>	3.02	909.4	43.1
1428	J-587	812.0	<None>	1.51	909.4	42.2
1430	J-588	811.0	<None>	1.51	909.4	42.6
1435	J-589	801.0	<None>	0.76	919.3	51.2
1438	J-590	776.0	<None>	(N/A)	(N/A)	(N/A)
1442	J-592	799.0	<None>	1.79	919.3	52.0
1446	J-594	781.5	<None>	58.55	909.2	55.2
1451	J-595	821.5	<None>	1.13	910.2	38.4
1454	J-596	826.0	<None>	0.00	910.2	36.4
1456	J-597	829.0	<None>	5.23	910.0	35.0
1464	J-598	776.5	<None>	0.00	921.7	62.8
1469	J-599	749.5	<None>	0.00	909.5	69.2
1472	J-600	797.0	<None>	1.70	909.7	48.7
1476	J-601	797.0	<None>	1.51	909.7	48.8
1479	J-602	822.3	<None>	2.65	910.1	38.0
1485	J-603	820.0	<None>	0.94	910.1	39.0
1489	J-604	821.5	<None>	87.01	908.8	37.8
1494	J-605	797.4	<None>	2.08	909.6	48.5
1503	J-607	821.3	<None>	4.16	911.7	39.1
1512	J-609	799.5	<None>	7.70	909.4	47.5
1518	J-610	765.5	<None>	3.60	908.9	62.0
1558	J-616	803.9	<None>	5.06	909.4	45.6
1567	J-618	801.0	<None>	3.79	909.4	46.9
1570	J-619	801.0	<None>	0.00	909.5	46.9
1585	J-620	794.7	<None>	1.51	909.8	49.8
1610	J-622	815.0	<None>	0.00	909.7	41.0
1625	J-624	851.1	<None>	0.00	911.9	26.3
1645	J-630	855.0	<None>	(N/A)	(N/A)	(N/A)
1647	J-631	833.0	<None>	(N/A)	(N/A)	(N/A)
1649	J-632	832.4	<None>	(N/A)	(N/A)	(N/A)
1650	J-633	832.4	<None>	(N/A)	(N/A)	(N/A)
1660	J-634	810.6	<None>	0.00	910.5	43.2
1664	J-635	734.0	<None>	0.00	908.9	75.6

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1667	J-636	751.0	<None>	(N/A)	(N/A)	(N/A)
1669	J-637	740.1	<None>	(N/A)	(N/A)	(N/A)
1671	J-638	870.0	<None>	(N/A)	(N/A)	(N/A)
1676	J-639	758.0	<None>	(N/A)	(N/A)	(N/A)
1678	J-640	830.9	<None>	0.00	910.7	34.6
1681	J-641	831.0	<None>	(N/A)	(N/A)	(N/A)
1689	J-642	807.0	<None>	(N/A)	(N/A)	(N/A)
1691	J-643	807.0	<None>	(N/A)	(N/A)	(N/A)
1693	J-644	807.0	<None>	(N/A)	(N/A)	(N/A)
1695	J-645	783.0	<None>	(N/A)	(N/A)	(N/A)
1697	J-646	780.0	<None>	(N/A)	(N/A)	(N/A)
1699	J-647	782.0	<None>	(N/A)	(N/A)	(N/A)
1702	J-648	823.4	<None>	0.00	909.8	37.4
1705	J-649	821.0	<None>	0.00	909.8	38.4
1707	J-650	826.0	<None>	0.00	909.8	36.3
1711	J-651	832.6	<None>	0.00	910.8	33.8
1714	J-652	0.0	<None>	0.00	910.8	394.0
1716	J-653	832.9	<None>	0.00	910.8	33.7

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
36	P-6	836	J-9	J-10	12.0	Ductile Iron	-3.78	0.01	0.000
46	P-11	2,718	J-14	J-15	12.0	Ductile Iron	-114.98	0.33	0.000
48	P-12	1,455	J-15	J-16	12.0	Ductile Iron	-171.16	0.49	0.000
50	P-13	5,229	J-16	J-17	12.0	Ductile Iron	-173.15	0.49	0.000
52	P-14	776	J-17	J-18	12.0	Ductile Iron	0.00	0.00	0.000
56	P-17	134	J-19	J-17	12.0	Ductile Iron	179.04	0.51	0.000
58	P-18	3,031	J-19	J-20	10.0	Ductile Iron	-179.04	0.73	0.000
60	P-19	161	J-20	J-21	10.0	Ductile Iron	-179.04	0.73	0.000
62	P-20	83	J-21	J-22	10.0	Ductile Iron	-340.02	1.39	0.001
64	P-21	1,479	J-22	J-23	16.0	Ductile Iron	-952.34	1.52	0.001
103	P-36	779	J-12	J-46	12.0	Ductile Iron	54.78	0.16	0.000
105	P-37	262	J-46	J-47	12.0	Ductile Iron	54.78	0.16	0.000
107	P-38	241	J-23	J-48	16.0	Ductile Iron	-956.74	1.53	0.001
111	P-41	166	J-48	T-1	16.0	Ductile Iron	-201.15	0.32	0.000
113	P-42	363	J-47	J-49	12.0	Ductile Iron	-135.03	0.38	0.000
115	P-43	394	J-49	J-50	12.0	Ductile Iron	-135.03	0.38	0.000
117	P-44	391	J-50	J-51	12.0	Ductile Iron	-137.05	0.39	0.000
121	P-46	556	J-52	J-53	12.0	Ductile Iron	-140.64	0.40	0.000
123	P-47	467	J-53	J-54	12.0	Ductile Iron	-180.51	0.51	0.000
125	P-48	104	J-54	J-55	12.0	Ductile Iron	-182.40	0.52	0.000
129	P-50	538	J-55	J-57	10.0	Ductile Iron	-188.96	0.77	0.000
131	P-51	559	J-57	J-58	10.0	Ductile Iron	-134.07	0.55	0.000
135	P-53	1,328	J-59	J-60	10.0	Ductile Iron	-140.31	0.57	0.000
137	P-54	152	J-60	J-61	8.0	Ductile Iron	6.23	0.04	0.000
141	P-56	426	J-62	J-63	8.0	Ductile Iron	3.21	0.02	0.000
143	P-57	299	J-63	J-64	8.0	Ductile Iron	3.21	0.02	0.000
147	P-59	2,599	J-60	J-66	16.0	Ductile Iron	-635.01	1.01	0.000
153	P-63	1,260	J-21	J-66	10.0	Ductile Iron	160.98	0.66	0.000
155	P-64	586	J-66	J-69	10.0	Ductile Iron	137.53	0.56	0.000
157	P-65	363	J-69	J-70	10.0	Ductile Iron	137.53	0.56	0.000
159	P-66	303	J-70	J-71	10.0	Ductile Iron	137.53	0.56	0.000
163	P-68	253	J-72	J-73	8.0	Ductile Iron	131.63	0.84	0.000
168	P-71	958	J-43	J-75	16.0	Ductile Iron	557.43	0.89	0.000
170	P-72	1,854	J-75	J-76	16.0	Ductile Iron	557.43	0.89	0.000
172	P-73	1,288	J-76	J-77	16.0	Ductile Iron	554.80	0.89	0.000
176	P-75	316	J-78	J-79	16.0	Ductile Iron	5.28	0.01	0.000
178	P-76	344	J-79	J-80	16.0	Ductile Iron	3.08	0.00	0.000
180	P-77	331	J-80	J-81	16.0	Ductile Iron	3.08	0.00	0.000
182	P-78	163	J-81	J-82	10.0	Ductile Iron	3.08	0.01	0.000
184	P-79	320	J-82	J-83	10.0	Ductile Iron	1.57	0.01	0.000
185	P-80	947	J-83	J-78	10.0	Ductile Iron	0.05	0.00	0.000
189	P-82	310	J-84	J-85	16.0	Ductile Iron	546.53	0.87	0.000
197	P-86	444	J-88	J-89	8.0	Ductile Iron	21.30	0.14	0.000
199	P-87	332	J-89	J-90	8.0	Ductile Iron	19.41	0.12	0.000
201	P-88	178	J-90	J-91	8.0	Ductile Iron	16.76	0.11	0.000
203	P-89	447	J-91	J-92	8.0	Ductile Iron	22.22	0.14	0.000
205	P-91	261	J-87	J-91	8.0	Ductile Iron	52.65	0.34	0.000
207	P-92	274	J-92	J-93	8.0	Ductile Iron	67.31	0.43	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
209	P-93	449	J-93	J-94	8.0	Ductile Iron	-43.79	0.28	0.000
211	P-94	252	J-94	J-95	8.0	Ductile Iron	0.00	0.00	0.000
213	P-95	278	J-95	J-96	8.0	Ductile Iron	0.00	0.00	0.000
215	P-96	443	J-73	J-97	8.0	Ductile Iron	124.04	0.79	0.000
219	P-98	334	J-98	J-99	8.0	Ductile Iron	-18.79	0.12	0.000
223	P-100	116	J-100	J-101	6.0	Ductile Iron	-41.28	0.47	0.000
225	P-101	203	J-101	J-102	6.0	Ductile Iron	-68.56	0.78	0.001
227	P-102	327	J-102	J-103	6.0	Ductile Iron	2.20	0.02	0.000
229	P-103	240	J-101	J-104	6.0	Ductile Iron	24.63	0.28	0.000
231	P-104	511	J-104	J-105	6.0	Ductile Iron	24.63	0.28	0.000
233	P-105	642	J-105	J-106	6.0	Ductile Iron	22.74	0.26	0.000
234	P-106	377	J-106	J-97	8.0	Ductile Iron	-48.06	0.31	0.000
236	P-107	224	J-85	J-107	12.0	Ductile Iron	417.29	1.18	0.001
238	P-108	446	J-107	J-108	12.0	Ductile Iron	415.09	1.18	0.001
242	P-110	473	J-109	J-110	12.0	Ductile Iron	-286.92	0.81	0.000
244	P-111	425	J-110	J-111	12.0	Ductile Iron	-286.92	0.81	0.000
246	P-113	514	J-109	J-106	8.0	Ductile Iron	-24.92	0.16	0.000
248	P-114	138	J-93	J-112	8.0	Ductile Iron	109.78	0.70	0.000
257	P-119	651	J-112	J-116	6.0	Ductile Iron	33.59	0.38	0.000
258	P-120	692	J-116	J-113	6.0	Ductile Iron	78.53	0.89	0.001
259	P-121	33	J-114	J-116	4.0	Ductile Iron	42.00	1.07	0.002
261	P-122	371	J-108	J-117	8.0	Ductile Iron	48.72	0.31	0.000
262	P-123	443	J-117	J-112	8.0	Ductile Iron	-74.30	0.47	0.000
264	P-124	78	J-117	J-118	8.0	Ductile Iron	119.62	0.76	0.000
272	P-128	940	J-118	J-122	4.0	Ductile Iron	2.94	0.08	0.000
274	P-129	577	J-113	J-123	8.0	Ductile Iron	128.56	0.82	0.000
276	P-130	479	J-123	J-124	12.0	Ductile Iron	124.69	0.35	0.000
278	P-131	603	J-118	J-125	8.0	Ductile Iron	116.48	0.74	0.000
280	P-132	636	J-125	J-126	8.0	Ductile Iron	116.48	0.74	0.000
281	P-133	396	J-126	J-109	12.0	Ductile Iron	-264.16	0.75	0.000
283	P-134	71	J-126	J-127	12.0	Ductile Iron	378.57	1.07	0.000
289	P-137	405	J-128	J-129	6.0	Ductile Iron	0.71	0.01	0.000
294	P-140	375	J-130	J-131	8.0	Ductile Iron	-107.22	0.68	0.000
295	P-141	444	J-131	J-127	8.0	Ductile Iron	-73.76	0.47	0.000
297	P-142	443	J-132	J-131	6.0	Ductile Iron	35.36	0.40	0.000
299	P-143	364	J-128	J-133	8.0	Ductile Iron	95.45	0.61	0.000
301	P-144	406	J-133	J-134	8.0	Ductile Iron	-4.04	0.03	0.000
303	P-145	157	J-134	J-135	8.0	Ductile Iron	-5.91	0.04	0.000
305	P-146	466	J-134	J-136	8.0	Ductile Iron	-0.21	0.00	0.000
307	P-147	355	J-130	J-137	10.0	Ductile Iron	130.11	0.53	0.000
309	P-148	365	J-137	J-138	12.0	Ductile Iron	212.74	0.60	0.000
311	P-149	382	J-138	J-139	12.0	Ductile Iron	-137.31	0.39	0.000
313	P-150	347	J-139	J-140	12.0	Ductile Iron	-246.09	0.70	0.000
316	P-152	359	J-137	J-141	8.0	Ductile Iron	-37.67	0.24	0.000
317	P-153	999	J-141	J-133	8.0	Ductile Iron	-45.48	0.29	0.000
319	P-154	749	J-60	J-142	16.0	Ductile Iron	445.20	0.71	0.000
321	P-155	549	J-142	J-143	16.0	Ductile Iron	433.87	0.69	0.000
330	P-159	541	J-144	J-148	6.0	Ductile Iron	-1.32	0.02	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
332	P-160	266	J-148	J-149	6.0	Ductile Iron	-23.19	0.26	0.000
334	P-161	662	J-149	J-150	6.0	Ductile Iron	-8.72	0.10	0.000
338	P-164	275	J-150	J-151	10.0	Ductile Iron	33.14	0.14	0.000
340	P-165	934	J-151	J-152	6.0	Ductile Iron	7.31	0.08	0.000
346	P-169	218	J-47	J-154	12.0	Ductile Iron	189.80	0.54	0.000
351	P-171	335	J-154	J-157	12.0	Ductile Iron	189.80	0.54	0.000
353	P-173	256	J-156	J-157	12.0	Ductile Iron	-79.70	0.23	0.000
357	P-175	245	J-158	J-159	10.0	Ductile Iron	-35.53	0.15	0.000
359	P-176	1,125	J-159	J-160	10.0	Ductile Iron	-145.45	0.59	0.000
363	P-178	298	J-161	J-162	16.0	Ductile Iron	-209.09	0.33	0.000
365	P-179	446	J-162	J-163	16.0	Ductile Iron	-211.62	0.34	0.000
367	P-180	242	J-163	J-164	16.0	Ductile Iron	-211.62	0.34	0.000
369	P-181	429	J-164	J-165	16.0	Ductile Iron	-330.01	0.53	0.000
371	P-182	212	J-165	J-166	16.0	Ductile Iron	-330.01	0.53	0.000
373	P-183	307	J-166	J-167	16.0	Ductile Iron	-351.63	0.56	0.000
375	P-184	417	J-167	J-168	16.0	Ductile Iron	-351.63	0.56	0.000
376	P-185	361	J-168	J-143	16.0	Ductile Iron	-353.90	0.56	0.000
378	P-186	1,314	J-148	J-169	6.0	Ductile Iron	20.36	0.23	0.000
387	P-191	439	J-172	J-173	6.0	Ductile Iron	-8.86	0.10	0.000
389	P-192	282	J-173	J-174	6.0	Ductile Iron	-12.39	0.14	0.000
391	P-193	291	J-174	J-175	6.0	Ductile Iron	-15.04	0.17	0.000
392	P-194	449	J-175	J-169	6.0	Ductile Iron	-16.36	0.19	0.000
395	P-196	322	J-172	J-176	12.0	Ductile Iron	-43.02	0.12	0.000
397	P-197	254	J-176	J-177	12.0	Ductile Iron	-45.55	0.13	0.000
405	P-204	102	J-177	J-178	12.0	Ductile Iron	-45.55	0.13	0.000
406	P-205	620	J-178	J-164	12.0	Ductile Iron	-91.75	0.26	0.000
408	P-206	89	J-178	J-179	8.0	Ductile Iron	-11.22	0.07	0.000
409	P-207	467	J-173	J-179	6.0	Ductile Iron	1.64	0.02	0.000
411	P-208	274	J-179	J-180	6.0	Ductile Iron	-12.87	0.15	0.000
412	P-209	467	J-180	J-174	6.0	Ductile Iron	0.38	0.00	0.000
414	P-210	466	J-169	J-181	6.0	Ductile Iron	-2.90	0.03	0.000
415	P-211	469	J-181	J-166	6.0	Ductile Iron	-20.86	0.24	0.000
416	P-212	740	J-180	J-181	6.0	Ductile Iron	-16.08	0.18	0.000
425	P-217	65	J-184	J-185	4.0	Ductile Iron	0.00	0.00	0.000
427	P-218	398	J-184	J-186	6.0	Ductile Iron	0.00	0.00	0.000
431	P-220	521	J-187	J-188	10.0	Ductile Iron	97.09	0.40	0.000
433	P-221	366	J-188	J-189	10.0	Ductile Iron	159.72	0.65	0.000
435	P-222	418	J-189	J-190	10.0	Ductile Iron	203.59	0.83	0.000
437	P-223	326	J-190	J-191	6.0	Ductile Iron	86.20	0.98	0.001
440	P-225	303	J-192	J-164	12.0	Ductile Iron	-26.63	0.08	0.000
442	P-226	543	J-191	J-193	6.0	Ductile Iron	37.51	0.43	0.000
445	P-228	448	J-190	J-194	10.0	Ductile Iron	117.39	0.48	0.000
466	P-240	44	J-202	J-203	4.0	Ductile Iron	-135.00	3.45	0.018
468	P-241	82	J-202	J-204	16.0	Ductile Iron	153.16	0.24	0.000
470	P-242	373	J-204	J-205	8.0	Ductile Iron	110.30	0.70	0.000
474	P-244	91	J-204	J-207	8.0	Ductile Iron	40.66	0.26	0.000
476	P-245	186	J-207	J-208	8.0	Ductile Iron	-54.29	0.35	0.000
478	P-246	284	J-208	J-209	8.0	Ductile Iron	-115.19	0.74	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
486	P-251	352	J-133	J-212	8.0	Ductile Iron	47.64	0.30	0.000
488	P-252	352	J-212	J-213	12.0	Ductile Iron	-21.71	0.06	0.000
490	P-253	44	J-213	J-214	12.0	Ductile Iron	-14.10	0.04	0.000
496	P-257	334	J-215	J-214	12.0	Ductile Iron	14.10	0.04	0.000
497	P-258	172	J-207	J-216	8.0	Ductile Iron	94.95	0.61	0.000
498	P-259	369	J-216	J-215	12.0	Ductile Iron	34.90	0.10	0.000
500	P-260	545	J-217	J-48	10.0	Ductile Iron	1,000.00	4.08	0.007
507	P-264	251	J-219	J-220	10.0	Ductile Iron	-113.19	0.46	0.000
509	P-265	413	J-220	J-221	12.0	Ductile Iron	99.58	0.28	0.000
511	P-266	350	J-221	J-222	12.0	Ductile Iron	-9.21	0.03	0.000
513	P-267	339	J-222	J-223	10.0	Ductile Iron	111.23	0.45	0.000
514	P-268	360	J-223	J-137	10.0	Ductile Iron	47.60	0.19	0.000
516	P-269	462	J-215	J-224	8.0	Ductile Iron	16.75	0.11	0.000
518	P-270	471	J-213	J-225	12.0	Ductile Iron	7.75	0.02	0.000
520	P-271	419	J-225	J-226	12.0	Ductile Iron	-52.10	0.15	0.000
522	P-272	100	J-226	J-227	12.0	Ductile Iron	-77.47	0.22	0.000
524	P-273	179	J-227	J-228	12.0	Ductile Iron	-83.38	0.24	0.000
526	P-274	44	J-228	J-229	8.0	Ductile Iron	-268.00	1.71	0.002
528	P-275	60	J-228	J-230	12.0	Ductile Iron	184.62	0.52	0.000
529	P-276	127	J-230	J-222	12.0	Ductile Iron	179.56	0.51	0.000
532	P-278	486	J-212	J-231	10.0	Ductile Iron	60.60	0.25	0.000
534	P-279	472	J-231	J-232	10.0	Ductile Iron	50.70	0.21	0.000
535	P-280	399	J-232	J-223	10.0	Ductile Iron	48.81	0.20	0.000
537	P-281	212	J-138	J-233	12.0	Ductile Iron	348.91	0.99	0.000
539	P-282	418	J-233	J-234	12.0	Ductile Iron	240.13	0.68	0.000
541	P-283	1,057	J-234	J-235	12.0	Ductile Iron	-69.54	0.20	0.000
543	P-284	122	J-234	J-236	12.0	Ductile Iron	217.39	0.62	0.000
545	P-285	510	J-236	J-237	12.0	Ductile Iron	214.80	0.61	0.000
547	P-286	274	J-237	J-238	12.0	Ductile Iron	106.02	0.30	0.000
549	P-287	379	J-238	J-239	12.0	Ductile Iron	-2.76	0.01	0.000
551	P-288	575	J-239	J-240	6.0	Ductile Iron	-23.31	0.26	0.000
553	P-289	496	J-240	J-241	6.0	Ductile Iron	-28.03	0.32	0.000
554	P-290	842	J-241	J-234	12.0	Ductile Iron	16.51	0.05	0.000
556	P-291	442	J-242	J-239	8.0	Ductile Iron	-38.93	0.25	0.000
558	P-292	327	J-242	J-243	6.0	Ductile Iron	34.07	0.39	0.000
560	P-293	299	J-243	J-244	6.0	Ductile Iron	29.04	0.33	0.000
562	P-294	708	J-244	J-245	6.0	Ductile Iron	18.10	0.21	0.000
564	P-295	249	J-245	J-246	8.0	Ductile Iron	21.79	0.14	0.000
566	P-296	208	J-246	J-247	8.0	Ductile Iron	9.58	0.06	0.000
568	P-297	638	J-247	J-248	8.0	Ductile Iron	5.99	0.04	0.000
570	P-298	206	J-248	J-249	8.0	Ductile Iron	2.40	0.02	0.000
572	P-299	278	J-249	J-250	8.0	Ductile Iron	-8.32	0.05	0.000
573	P-300	359	J-250	J-246	8.0	Ductile Iron	-8.32	0.05	0.000
577	P-302	222	J-249	J-252	8.0	Ductile Iron	7.13	0.05	0.000
579	P-303	115	J-252	J-253	8.0	Ductile Iron	7.13	0.05	0.000
581	P-304	264	J-253	J-254	10.0	Ductile Iron	7.13	0.03	0.000
585	P-306	328	J-255	J-256	8.0	Ductile Iron	0.94	0.01	0.000
592	P-310	517	J-244	J-259	8.0	Ductile Iron	34.08	0.22	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
594	P-311	449	J-259	J-260	8.0	Ductile Iron	32.94	0.21	0.000
597	P-314	541	J-245	J-260	6.0	Ductile Iron	-6.14	0.07	0.000
599	P-315	121	J-260	J-261	8.0	Ductile Iron	25.29	0.16	0.000
600	P-316	405	J-261	J-254	8.0	Ductile Iron	24.35	0.16	0.000
603	P-317	403	J-220	J-263	12.0	Ductile Iron	462.65	1.31	0.001
605	P-318	308	J-263	J-264	12.0	Ductile Iron	113.68	0.32	0.000
606	P-319	327	J-264	J-241	12.0	Ductile Iron	44.54	0.13	0.000
608	P-320	273	J-263	J-265	8.0	Ductile Iron	76.25	0.49	0.000
610	P-321	153	J-265	J-266	8.0	Ductile Iron	81.26	0.52	0.000
612	P-322	169	J-266	J-267	8.0	Ductile Iron	91.83	0.59	0.000
614	P-323	473	J-267	J-268	12.0	Ductile Iron	91.83	0.26	0.000
616	P-324	224	J-268	J-269	12.0	Ductile Iron	12.51	0.04	0.000
617	P-325	434	J-269	J-239	12.0	Ductile Iron	20.84	0.06	0.000
619	P-326	687	J-269	J-270	4.0	Ductile Iron	-10.60	0.27	0.000
620	P-327	372	J-270	J-264	6.0	Ductile Iron	-14.00	0.16	0.000
623	P-329	171	J-271	J-244	6.0	Ductile Iron	25.78	0.29	0.000
628	P-332	354	J-272	J-273	6.0	Ductile Iron	30.43	0.35	0.000
630	P-333	380	J-273	J-274	6.0	Ductile Iron	47.85	0.54	0.000
632	P-334	167	J-274	J-275	6.0	Ductile Iron	33.56	0.38	0.000
636	P-336	384	J-276	J-277	8.0	Ductile Iron	38.54	0.25	0.000
642	P-340	198	J-277	J-279	16.0	Ductile Iron	-561.62	0.90	0.000
643	P-341	904	J-279	J-275	2.0	Ductile Iron	-0.86	0.09	0.000
645	P-342	405	J-274	J-280	8.0	Ductile Iron	8.88	0.06	0.000
648	P-344	167	J-281	J-279	12.0	Ductile Iron	562.08	1.59	0.001
650	P-345	32	J-281	J-282	12.0	Ductile Iron	-646.76	1.83	0.001
652	P-346	329	J-282	J-283	16.0	Ductile Iron	-654.62	1.04	0.000
654	P-347	353	J-283	J-284	6.0	Ductile Iron	27.68	0.31	0.000
655	P-348	557	J-284	J-273	6.0	Ductile Iron	25.79	0.29	0.000
657	P-349	369	J-283	J-285	16.0	Ductile Iron	-684.20	1.09	0.000
659	P-350	365	J-285	J-286	8.0	Ductile Iron	83.05	0.53	0.000
661	P-352	546	J-286	J-272	8.0	Ductile Iron	81.16	0.52	0.000
663	P-353	365	J-285	J-287	16.0	Ductile Iron	-769.14	1.23	0.000
665	P-354	371	J-287	J-288	6.0	Ductile Iron	-19.11	0.22	0.000
667	P-355	77	J-288	J-289	6.0	Ductile Iron	-21.19	0.24	0.000
669	P-356	460	J-289	J-290	6.0	Ductile Iron	14.53	0.16	0.000
671	P-357	67	J-290	J-291	6.0	Ductile Iron	65.93	0.75	0.001
672	P-358	401	J-291	J-188	6.0	Ductile Iron	65.93	0.75	0.001
674	P-359	470	J-187	J-292	10.0	Ductile Iron	-275.68	1.13	0.001
676	P-360	84	J-292	J-293	8.0	Ductile Iron	56.07	0.36	0.000
677	P-361	434	J-293	J-290	8.0	Ductile Iron	54.74	0.35	0.000
679	P-362	456	J-292	J-294	10.0	Ductile Iron	-140.90	0.58	0.000
680	P-363	522	J-294	J-289	6.0	Ductile Iron	37.23	0.42	0.000
683	P-365	525	J-295	J-287	16.0	Ductile Iron	743.15	1.19	0.000
685	P-366	380	J-282	J-296	8.0	Ductile Iron	5.97	0.04	0.000
687	P-367	60	J-296	J-297	6.0	Ductile Iron	66.30	0.75	0.001
689	P-368	371	J-297	J-298	6.0	Ductile Iron	96.66	1.10	0.001
691	P-369	217	J-298	J-299	6.0	Ductile Iron	37.99	0.43	0.000
693	P-370	212	J-299	J-300	4.0	Ductile Iron	28.05	0.72	0.001

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
695	P-371	232	J-300	J-301	4.0	Ductile Iron	7.30	0.19	0.000
696	P-372	244	J-301	J-265	4.0	Ductile Iron	6.52	0.17	0.000
698	P-373	245	J-266	J-302	4.0	Ductile Iron	-10.57	0.27	0.000
700	P-374	233	J-302	J-303	4.0	Ductile Iron	-2.97	0.08	0.000
701	P-375	561	J-303	J-302	4.0	Ductile Iron	1.85	0.05	0.000
702	P-376	151	J-300	J-303	4.0	Ductile Iron	10.30	0.26	0.000
703	P-377	152	J-301	J-302	4.0	Ductile Iron	5.75	0.15	0.000
704	P-378	473	J-300	J-301	4.0	Ductile Iron	4.97	0.13	0.000
706	P-379	631	J-299	J-304	6.0	Ductile Iron	6.72	0.08	0.000
708	P-380	419	J-271	J-305	6.0	Ductile Iron	-4.31	0.05	0.000
712	P-382	320	J-306	J-307	6.0	Ductile Iron	5.97	0.07	0.000
714	P-383	259	J-306	J-308	6.0	Ductile Iron	-21.46	0.24	0.000
716	P-384	318	J-308	J-309	6.0	Ductile Iron	6.17	0.07	0.000
718	P-385	320	J-308	J-310	6.0	Ductile Iron	3.78	0.04	0.000
720	P-386	514	J-310	J-311	6.0	Ductile Iron	2.08	0.02	0.000
722	P-387	290	J-308	J-312	6.0	Ductile Iron	-37.01	0.42	0.000
724	P-388	331	J-312	J-313	6.0	Ductile Iron	-6.39	0.07	0.000
726	P-389	323	J-313	J-314	6.0	Ductile Iron	-6.88	0.08	0.000
728	P-390	300	J-314	J-315	6.0	Ductile Iron	-36.04	0.41	0.000
730	P-391	795	J-315	J-316	6.0	Ductile Iron	-37.37	0.42	0.000
732	P-392	289	J-316	J-317	6.0	Ductile Iron	42.90	0.49	0.000
733	P-393	793	J-317	J-313	2.0	Ductile Iron	1.97	0.20	0.000
735	P-394	254	J-317	J-318	6.0	Ductile Iron	38.48	0.44	0.000
736	P-395	503	J-318	J-312	6.0	Ductile Iron	35.64	0.40	0.000
738	P-396	99	J-316	J-319	6.0	Ductile Iron	-82.15	0.93	0.001
740	P-397	363	J-319	J-320	6.0	Ductile Iron	-83.85	0.95	0.001
742	P-398	313	J-320	J-321	6.0	Ductile Iron	-86.12	0.98	0.001
744	P-399	72	J-321	J-322	6.0	Ductile Iron	-87.44	0.99	0.001
746	P-400	11	J-322	J-323	6.0	Ductile Iron	-46.43	0.53	0.000
748	P-401	328	J-323	J-324	12.0	Ductile Iron	-53.04	0.15	0.000
750	P-402	145	J-324	J-325	12.0	Ductile Iron	-20.07	0.06	0.000
752	P-403	80	J-325	J-326	12.0	Ductile Iron	-20.07	0.06	0.000
754	P-404	591	J-326	J-327	12.0	Ductile Iron	12.40	0.04	0.000
756	P-405	622	J-327	J-328	12.0	Ductile Iron	11.08	0.03	0.000
758	P-406	169	J-328	J-329	6.0	Ductile Iron	2.46	0.03	0.000
760	P-407	392	J-328	J-330	12.0	Ductile Iron	7.68	0.02	0.000
764	P-409	588	J-331	J-332	6.0	Ductile Iron	2.39	0.03	0.000
771	P-412	402	J-326	J-336	6.0	Ductile Iron	-33.61	0.38	0.000
773	P-413	203	J-336	J-337	6.0	Ductile Iron	-19.95	0.23	0.000
778	P-416	95	J-337	J-339	8.0	Ductile Iron	0.00	0.00	0.000
780	P-417	409	J-324	J-340	6.0	Ductile Iron	-34.48	0.39	0.000
781	P-418	127	J-340	J-336	6.0	Ductile Iron	13.66	0.15	0.000
783	P-419	282	J-340	J-341	8.0	Ductile Iron	-48.14	0.31	0.000
784	P-420	162	J-341	J-337	6.0	Ductile Iron	19.95	0.23	0.000
786	P-421	94	J-341	J-342	8.0	Ductile Iron	-68.09	0.43	0.000
788	P-422	211	J-342	J-343	8.0	Ductile Iron	0.00	0.00	0.000
792	P-425	67	J-342	J-344	8.0	Ductile Iron	-71.11	0.45	0.000
794	P-426	128	J-344	J-345	8.0	Ductile Iron	-71.11	0.45	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
796	P-427	200	J-345	J-346	8.0	Ductile Iron	0.00	0.00	0.000
798	P-428	196	J-345	J-347	8.0	Ductile Iron	-74.32	0.47	0.000
800	P-429	314	J-347	J-348	6.0	Ductile Iron	14.38	0.16	0.000
802	P-430	633	J-348	J-349	6.0	Ductile Iron	10.60	0.12	0.000
804	P-431	48	J-349	J-350	6.0	Ductile Iron	2.27	0.03	0.000
806	P-432	131	J-349	J-351	6.0	Ductile Iron	5.31	0.06	0.000
811	P-437	539	J-351	J-322	6.0	Ductile Iron	43.28	0.49	0.000
815	P-439	385	J-287	J-353	6.0	Ductile Iron	-9.90	0.11	0.000
817	P-440	563	J-353	J-354	6.0	Ductile Iron	35.31	0.40	0.000
818	P-441	506	J-354	J-296	6.0	Ductile Iron	61.85	0.70	0.001
820	P-442	385	J-295	J-355	1.3	Ductile Iron	0.65	0.17	0.000
821	P-443	521	J-355	J-353	6.0	Ductile Iron	35.54	0.40	0.000
823	P-444	416	J-353	J-356	6.0	Ductile Iron	-13.45	0.15	0.000
825	P-445	488	J-356	J-357	6.0	Ductile Iron	30.51	0.35	0.000
826	P-446	384	J-357	J-354	6.0	Ductile Iron	28.62	0.32	0.000
832	P-450	397	J-355	J-359	6.0	Ductile Iron	28.28	0.32	0.000
833	P-451	568	J-359	J-356	8.0	Ductile Iron	46.03	0.29	0.000
835	P-452	618	J-359	J-360	6.0	Ductile Iron	-26.32	0.30	0.000
837	P-453	484	J-360	J-361	6.0	Ductile Iron	44.05	0.50	0.000
839	P-454	590	J-361	J-362	6.0	Ductile Iron	41.97	0.48	0.000
841	P-455	780	J-362	J-363	6.0	Ductile Iron	36.78	0.42	0.000
842	P-456	434	J-363	J-297	6.0	Ductile Iron	34.89	0.40	0.000
844	P-457	149	J-292	J-364	8.0	Ductile Iron	-193.62	1.24	0.001
846	P-458	380	J-364	J-365	8.0	Ductile Iron	-196.92	1.26	0.001
848	P-459	455	J-365	J-366	8.0	Ductile Iron	-196.92	1.26	0.001
850	P-460	304	J-366	J-367	6.0	Ductile Iron	-27.88	0.32	0.000
852	P-461	605	J-367	J-368	6.0	Ductile Iron	36.89	0.42	0.000
854	P-462	323	J-368	J-369	6.0	Ductile Iron	98.15	1.11	0.001
856	P-463	306	J-368	J-370	6.0	Ductile Iron	-61.26	0.70	0.001
858	P-464	326	J-370	J-371	6.0	Ductile Iron	-62.66	0.71	0.001
860	P-465	300	J-371	J-372	8.0	Ductile Iron	38.88	0.25	0.000
861	P-466	327	J-372	J-367	6.0	Ductile Iron	66.66	0.76	0.001
863	P-467	327	J-366	J-373	8.0	Ductile Iron	-173.13	1.11	0.001
864	P-468	303	J-373	J-372	8.0	Ductile Iron	29.48	0.19	0.000
866	P-469	311	J-373	J-374	8.0	Ductile Iron	-202.61	1.29	0.001
868	P-470	500	J-374	J-375	8.0	Ductile Iron	-205.91	1.31	0.001
870	P-471	687	J-375	J-376	8.0	Ductile Iron	-235.01	1.50	0.001
872	P-472	341	J-376	J-377	10.0	Ductile Iron	-187.75	0.77	0.000
874	P-473	239	J-377	J-378	10.0	Ductile Iron	-214.53	0.88	0.000
876	P-474	597	J-378	J-379	10.0	Ductile Iron	-230.78	0.94	0.000
878	P-475	165	J-379	J-380	10.0	Ductile Iron	-283.37	1.16	0.001
880	P-476	144	J-380	J-381	14.0	Ductile Iron	1,041.91	2.17	0.001
882	P-477	412	J-381	J-382	14.0	Ductile Iron	1,077.96	2.25	0.002
887	P-480	244	J-382	J-384	14.0	Ductile Iron	1,041.82	2.17	0.001
889	P-481	74	J-384	J-385	14.0	Ductile Iron	1,026.72	2.14	0.001
891	P-482	593	J-385	J-386	14.0	Ductile Iron	908.58	1.89	0.001
893	P-483	9	J-386	J-387	14.0	Ductile Iron	863.02	1.80	0.001
895	P-484	403	J-387	J-388	8.0	Ductile Iron	182.53	1.17	0.001

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
896	P-485	302	J-388	J-371	8.0	Ductile Iron	103.05	0.66	0.000
905	P-490	300	J-391	J-392	8.0	Ductile Iron	5.28	0.03	0.000
907	P-491	269	J-392	J-393	8.0	Ductile Iron	5.28	0.03	0.000
909	P-492	273	J-393	J-394	8.0	Ductile Iron	5.28	0.03	0.000
911	P-493	300	J-394	J-395	8.0	Ductile Iron	1.98	0.01	0.000
913	P-494	274	J-395	J-396	8.0	Ductile Iron	-1.32	0.01	0.000
916	P-496	451	J-396	J-397	8.0	Ductile Iron	-4.62	0.03	0.000
918	P-497	277	J-397	J-398	8.0	Ductile Iron	-7.92	0.05	0.000
919	P-498	106	J-398	J-384	8.0	Ductile Iron	-13.20	0.08	0.000
920	P-499	68	J-391	J-398	8.0	Ductile Iron	-5.28	0.03	0.000
923	P-500	302	J-370	J-400	6.0	Ductile Iron	-0.12	0.00	0.000
924	P-501	325	J-400	J-388	6.0	Ductile Iron	-77.78	0.88	0.001
926	P-502	324	J-400	J-401	6.0	Ductile Iron	75.97	0.86	0.001
927	P-503	669	J-401	J-295	14.0	Ductile Iron	839.34	1.75	0.001
929	P-504	394	J-401	J-402	14.0	Ductile Iron	-765.64	1.60	0.001
931	P-505	267	J-402	J-403	6.0	Ductile Iron	152.57	1.73	0.003
932	P-506	405	J-403	J-355	6.0	Ductile Iron	67.45	0.77	0.001
934	P-507	334	J-387	J-404	14.0	Ductile Iron	678.22	1.41	0.001
935	P-508	314	J-404	J-402	14.0	Ductile Iron	920.29	1.92	0.001
937	P-509	48	J-360	J-405	6.0	Ductile Iron	-71.88	0.82	0.001
939	P-510	248	J-405	J-406	8.0	Ductile Iron	-72.15	0.46	0.000
941	P-511	297	J-406	J-407	8.0	Ductile Iron	-47.93	0.31	0.000
943	P-512	337	J-407	J-408	8.0	Ductile Iron	-49.82	0.32	0.000
945	P-513	549	J-408	J-409	8.0	Ductile Iron	-51.90	0.33	0.000
946	P-514	245	J-409	J-403	8.0	Ductile Iron	-80.46	0.51	0.000
947	P-515	908	J-409	J-406	6.0	Ductile Iron	27.24	0.31	0.000
949	P-516	655	J-271	J-410	8.0	Ductile Iron	50.10	0.32	0.000
951	P-517	545	J-410	J-411	6.0	Ductile Iron	-23.87	0.27	0.000
953	P-518	516	J-411	J-412	6.0	Ductile Iron	-25.01	0.28	0.000
954	P-519	412	J-412	J-314	6.0	Ductile Iron	-27.27	0.31	0.000
956	P-520	275	J-405	J-413	6.0	Ductile Iron	-1.05	0.01	0.000
957	P-521	846	J-413	J-351	6.0	Ductile Iron	37.97	0.43	0.000
959	P-522	539	J-347	J-414	6.0	Ductile Iron	-91.34	1.04	0.001
960	P-523	2,343	J-71	J-76	2.0	Ductile Iron	-2.63	0.27	0.000
965	P-526	79	J-87	J-416	8.0	Ductile Iron	-79.42	0.51	0.000
967	P-528	262	J-91	J-94	8.0	Ductile Iron	45.87	0.29	0.000
970	P-529	43	J-417	J-418	4.0	Ductile Iron	102.00	2.60	0.011
973	P-532	51	J-418	T-2	14.0	Ductile Iron	-144.04	0.30	0.000
975	P-533	72	J-418	J-419	14.0	Ductile Iron	246.04	0.51	0.000
977	P-534	550	J-419	J-420	14.0	Ductile Iron	246.04	0.51	0.000
978	P-535	367	J-420	J-404	14.0	Ductile Iron	244.15	0.51	0.000
982	P-537	253	J-421	J-422	6.0	Ductile Iron	-52.46	0.60	0.000
984	P-538	394	J-422	J-423	6.0	Ductile Iron	-54.54	0.62	0.000
986	P-539	343	J-423	J-424	8.0	Ductile Iron	-125.70	0.80	0.000
988	P-540	293	J-424	J-425	8.0	Ductile Iron	-42.54	0.27	0.000
989	P-541	675	J-425	J-386	8.0	Ductile Iron	-44.43	0.28	0.000
991	P-542	437	J-421	J-426	4.0	Ductile Iron	8.54	0.22	0.000
993	P-543	225	J-426	J-427	6.0	Ductile Iron	-0.29	0.00	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
995	P-544	419	J-427	J-428	6.0	Ductile Iron	-1.80	0.02	0.000
997	P-545	258	J-428	J-429	6.0	Ductile Iron	107.54	1.22	0.002
999	P-546	24	J-428	J-430	6.0	Ductile Iron	-110.48	1.25	0.002
1005	P-549	209	J-432	J-433	6.0	Ductile Iron	-22.89	0.26	0.000
1006	P-550	230	J-433	J-385	6.0	Ductile Iron	-116.82	1.33	0.002
1008	P-551	429	J-433	J-434	8.0	Ductile Iron	92.61	0.59	0.000
1010	P-552	245	J-434	J-435	8.0	Ductile Iron	90.53	0.58	0.000
1012	P-553	255	J-435	J-436	8.0	Ductile Iron	88.64	0.57	0.000
1013	P-554	364	J-436	J-424	8.0	Ductile Iron	86.75	0.55	0.000
1014	P-555	646	J-382	J-432	4.0	Ductile Iron	34.63	0.88	0.001
1016	P-556	108	J-381	J-437	8.0	Ductile Iron	-36.05	0.23	0.000
1018	P-557	376	J-437	J-438	8.0	Ductile Iron	-37.94	0.24	0.000
1020	P-558	56	J-438	J-439	8.0	Ductile Iron	-37.94	0.24	0.000
1024	P-560	177	J-439	J-441	8.0	Ductile Iron	-15.68	0.10	0.000
1026	P-561	475	J-441	J-442	8.0	Ductile Iron	-16.81	0.11	0.000
1028	P-562	250	J-442	J-443	8.0	Ductile Iron	-19.27	0.12	0.000
1030	P-563	50	J-443	J-444	8.0	Ductile Iron	-20.59	0.13	0.000
1032	P-564	248	J-444	J-445	8.0	Ductile Iron	24.72	0.16	0.000
1033	P-565	254	J-445	J-439	8.0	Ductile Iron	24.72	0.16	0.000
1035	P-566	397	J-444	J-446	8.0	Ductile Iron	-46.82	0.30	0.000
1037	P-567	55	J-446	J-447	6.0	Ductile Iron	-36.20	0.41	0.000
1039	P-568	256	J-447	J-448	6.0	Ductile Iron	-36.20	0.41	0.000
1041	P-569	636	J-448	J-449	6.0	Ductile Iron	16.10	0.18	0.000
1042	P-570	955	J-449	J-446	6.0	Ductile Iron	14.21	0.16	0.000
1044	P-571	295	J-448	J-450	6.0	Ductile Iron	-55.51	0.63	0.000
1046	P-572	873	J-450	J-451	6.0	Ductile Iron	-22.50	0.26	0.000
1048	P-573	283	J-451	J-452	6.0	Ductile Iron	37.55	0.43	0.000
1049	P-574	63	J-452	J-450	6.0	Ductile Iron	34.90	0.40	0.000
1051	P-575	141	J-451	J-453	6.0	Ductile Iron	-63.26	0.72	0.001
1052	P-576	45	J-453	J-380	12.0	Ductile Iron	1,326.42	3.76	0.005
1054	P-577	474	J-453	J-454	12.0	Ductile Iron	-1,390.43	3.94	0.005
1056	P-578	70	J-454	J-455	12.0	Ductile Iron	-1,391.37	3.95	0.005
1058	P-579	54	J-455	J-456	8.0	Ductile Iron	3.21	0.02	0.000
1060	P-580	306	J-456	J-457	8.0	Ductile Iron	0.00	0.00	0.000
1062	P-581	376	J-376	J-458	8.0	Ductile Iron	-50.28	0.32	0.000
1064	P-582	290	J-458	J-459	8.0	Ductile Iron	-51.98	0.33	0.000
1068	P-584	394	J-459	J-461	8.0	Ductile Iron	-16.32	0.10	0.000
1070	P-585	266	J-461	J-462	8.0	Ductile Iron	-37.48	0.24	0.000
1072	P-586	372	J-462	J-463	8.0	Ductile Iron	-55.24	0.35	0.000
1078	P-590	266	J-463	J-465	8.0	Ductile Iron	-56.57	0.36	0.000
1080	P-591	352	J-465	J-466	8.0	Ductile Iron	-58.27	0.37	0.000
1082	P-592	145	J-466	J-467	8.0	Ductile Iron	-59.59	0.38	0.000
1084	P-593	382	J-467	J-468	6.0	Ductile Iron	-48.82	0.55	0.000
1085	P-594	385	J-468	J-379	6.0	Ductile Iron	-50.33	0.57	0.000
1086	P-595	405	J-467	J-378	6.0	Ductile Iron	-13.98	0.16	0.000
1088	P-596	436	J-462	J-469	8.0	Ductile Iron	16.45	0.10	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1090	P-597	188	J-469	J-470	8.0	Ductile Iron	37.37	0.24	0.000
1091	P-598	69	J-470	J-459	8.0	Ductile Iron	37.37	0.24	0.000
1093	P-599	312	J-469	J-471	8.0	Ductile Iron	-22.06	0.14	0.000
1094	P-600	352	J-471	J-377	6.0	Ductile Iron	-23.76	0.27	0.000
1096	P-601	283	J-158	J-472	6.0	Ductile Iron	66.50	0.75	0.001
1100	P-603	412	J-224	J-474	8.0	Ductile Iron	-14.98	0.10	0.000
1101	P-604	384	J-474	J-226	8.0	Ductile Iron	-20.31	0.13	0.000
1107	P-606	683	J-477	J-478	6.0	Ductile Iron	68.49	0.78	0.001
1113	P-610	90	J-479	J-480	6.0	Ductile Iron	-22.81	0.26	0.000
1115	P-611	104	J-480	J-481	6.0	Ductile Iron	-186.31	2.11	0.004
1117	P-612	710	J-481	J-482	12.0	Ductile Iron	1,088.69	3.09	0.003
1119	P-613	62	J-482	J-483	12.0	Ductile Iron	-149.20	0.42	0.000
1121	P-614	640	J-480	J-484	6.0	Ductile Iron	160.66	1.82	0.003
1122	P-615	33	J-484	J-482	12.0	Ductile Iron	-1,236.01	3.51	0.004
1123	P-616	267	J-484	J-455	12.0	Ductile Iron	1,394.59	3.96	0.005
1125	P-617	280	J-483	J-485	12.0	Ductile Iron	-153.29	0.43	0.000
1127	P-618	450	J-485	J-486	12.0	Ductile Iron	-154.42	0.44	0.000
1129	P-619	66	J-486	J-487	12.0	Ductile Iron	-157.82	0.45	0.000
1131	P-620	203	J-487	J-488	12.0	Ductile Iron	-158.58	0.45	0.000
1133	P-621	504	J-488	J-489	12.0	Ductile Iron	-159.33	0.45	0.000
1137	P-623	78	J-489	J-491	12.0	Ductile Iron	-159.33	0.45	0.000
1144	P-627	362	J-493	J-494	6.0	Ductile Iron	-83.93	0.95	0.001
1146	P-628	459	J-494	J-495	6.0	Ductile Iron	-85.82	0.97	0.001
1148	P-629	171	J-486	J-496	6.0	Ductile Iron	2.46	0.03	0.000
1151	P-630	55	J-497	J-498	4.0	Ductile Iron	0.00	0.00	0.000
1152	P-631	72	J-498	J-492	6.0	Ductile Iron	0.00	0.00	0.000
1154	P-632	400	J-13	J-499	12.0	Ductile Iron	-112.95	0.32	0.000
1157	P-634	400	J-499	J-500	12.0	Ductile Iron	-112.95	0.32	0.000
1158	P-635	140	J-500	J-14	12.0	Ductile Iron	-112.95	0.32	0.000
1160	P-636	1,235	J-66	J-501	16.0	Ductile Iron	-612.31	0.98	0.000
1161	P-637	88	J-501	J-22	16.0	Ductile Iron	-612.31	0.98	0.000
1169	P-642	564	J-97	J-504	8.0	Ductile Iron	103.51	0.66	0.000
1170	P-643	236	J-504	J-128	8.0	Ductile Iron	99.20	0.63	0.000
1172	P-644	236	J-129	J-505	6.0	Ductile Iron	-38.43	0.44	0.000
1174	P-646	405	J-504	J-505	4.0	Ductile Iron	4.31	0.11	0.000
1176	P-647	171	J-426	J-506	6.0	Ductile Iron	6.76	0.08	0.000
1178	P-648	127	J-506	J-507	6.0	Ductile Iron	1.89	0.02	0.000
1180	P-649	198	J-506	J-508	6.0	Ductile Iron	2.98	0.03	0.000
1182	P-650	502	J-413	J-509	4.0	Ductile Iron	-43.49	1.11	0.002
1183	P-651	171	J-509	J-421	6.0	Ductile Iron	-42.40	0.48	0.000
1186	P-654	429	J-85	J-416	8.0	Ductile Iron	129.24	0.82	0.000
1187	P-655	239	J-509	J-508	6.0	Ductile Iron	-2.98	0.03	0.000
1190	P-656	250	J-510	J-511	8.0	Ductile Iron	-3.35	0.02	0.000
1192	P-657	213	J-511	J-512	8.0	Ductile Iron	-5.61	0.04	0.000
1194	P-658	329	J-512	J-513	8.0	Ductile Iron	-7.88	0.05	0.000
1196	P-659	13	J-254	J-514	10.0	Ductile Iron	30.15	0.12	0.000
1197	P-660	329	J-514	J-255	10.0	Ductile Iron	0.94	0.00	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1198	P-661	224	J-513	J-514	8.0	Ductile Iron	-10.53	0.07	0.000
1203	P-663	18	J-113	J-517	8.0	Ductile Iron	-51.35	0.33	0.000
1204	P-664	448	J-517	J-140	12.0	Ductile Iron	248.74	0.71	0.000
1205	P-665	365	J-517	J-127	12.0	Ductile Iron	-302.17	0.86	0.000
1207	P-666	21	J-108	J-518	8.0	Ductile Iron	363.35	2.32	0.003
1208	P-667	138	J-518	J-102	6.0	Ductile Iron	73.59	0.84	0.001
1209	P-668	421	J-518	J-111	12.0	Ductile Iron	286.92	0.81	0.000
1211	P-669	199	J-205	J-519	8.0	Ductile Iron	110.30	0.70	0.000
1212	P-670	315	J-519	J-206	6.0	Ductile Iron	108.78	1.23	0.002
1214	P-671	418	J-208	J-520	8.0	Ductile Iron	58.70	0.37	0.000
1215	P-672	53	J-520	J-211	6.0	Ductile Iron	3.30	0.04	0.000
1218	P-674	306	J-521	J-158	10.0	Ductile Iron	30.97	0.13	0.000
1221	P-675	250	J-193	J-523	12.0	Ductile Iron	35.49	0.10	0.000
1222	P-676	132	J-523	J-192	12.0	Ductile Iron	84.17	0.24	0.000
1223	P-677	412	J-423	J-430	6.0	Ductile Iron	69.27	0.79	0.001
1225	P-678	1,612	J-491	J-524	12.0	Ductile Iron	-83.23	0.24	0.000
1226	P-679	239	J-524	J-490	4.0	Ductile Iron	-92.00	2.35	0.009
1230	P-680	59	J-478	J-527	6.0	Ductile Iron	66.60	0.76	0.001
1231	P-681	346	J-527	J-479	6.0	Ductile Iron	-21.87	0.25	0.000
1232	P-682	640	J-495	J-527	6.0	Ductile Iron	-87.71	1.00	0.001
1233	P-683	83	J-48	J-37	10.0	Ductile Iron	-315.00	1.29	0.001
1240	P-685	81	J-529	J-18	3.0	Ductile Iron	0.00	0.00	0.000
1246	P-688	528	J-531	J-514	10.0	Ductile Iron	-18.68	0.08	0.000
1248	P-689	147	J-55	J-532	10.0	Ductile Iron	2.46	0.01	0.000
1249	P-690	193	J-532	J-56	10.0	Ductile Iron	2.46	0.01	0.000
1251	P-691	220	J-58	J-533	10.0	Ductile Iron	-135.58	0.55	0.000
1252	P-692	558	J-533	J-59	10.0	Ductile Iron	-138.42	0.57	0.000
1254	P-693	812	J-534	J-142	6.0	Ductile Iron	-11.34	0.13	0.000
1256	P-694	319	J-161	J-535	6.0	Ductile Iron	-13.21	0.15	0.000
1259	P-696	969	J-160	J-536	10.0	Ductile Iron	-146.77	0.60	0.000
1260	P-697	674	J-536	J-161	10.0	Ductile Iron	-148.97	0.61	0.000
1262	P-698	316	J-61	J-537	8.0	Ductile Iron	3.21	0.02	0.000
1263	P-699	192	J-537	J-62	8.0	Ductile Iron	3.21	0.02	0.000
1265	P-700	282	J-73	J-538	6.0	Ductile Iron	7.60	0.09	0.000
1266	P-701	493	J-538	J-74	6.0	Ductile Iron	7.60	0.09	0.000
1268	P-702	464	J-129	J-539	6.0	Ductile Iron	30.01	0.34	0.000
1269	P-703	490	J-539	J-130	6.0	Ductile Iron	25.91	0.29	0.000
1271	P-704	95	J-87	J-540	8.0	Ductile Iron	25.45	0.16	0.000
1272	P-705	369	J-540	J-88	8.0	Ductile Iron	23.00	0.15	0.000
1274	P-706	319	J-416	J-541	8.0	Ductile Iron	48.68	0.31	0.000
1275	P-707	309	J-541	J-92	8.0	Ductile Iron	46.41	0.30	0.000
1277	P-708	208	J-189	J-542	8.0	Ductile Iron	-46.07	0.29	0.000
1278	P-709	250	J-542	J-272	8.0	Ductile Iron	-46.07	0.29	0.000
1283	P-711	322	J-544	J-492	12.0	Ductile Iron	-79.88	0.23	0.000
1285	P-712	294	J-491	J-545	12.0	Ductile Iron	-77.61	0.22	0.000
1286	P-713	651	J-545	J-544	12.0	Ductile Iron	-78.93	0.22	0.000
1289	P-715	404	J-546	J-432	6.0	Ductile Iron	-57.52	0.65	0.001
1291	P-716	318	J-431	J-547	6.0	Ductile Iron	-56.39	0.64	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1292	P-717	282	J-547	J-546	6.0	Ductile Iron	-56.39	0.64	0.000
1295	P-719	357	J-548	J-431	6.0	Ductile Iron	-49.83	0.57	0.000
1305	P-726	549	J-10	J-551	12.0	Ductile Iron	17.20	0.05	0.000
1307	P-727	459	J-551	J-552	10.0	Ductile Iron	17.20	0.07	0.000
1309	P-728	501	J-552	J-553	10.0	Ductile Iron	17.20	0.07	0.000
1311	P-729	388	J-553	J-554	10.0	Ductile Iron	17.20	0.07	0.000
1313	P-730	510	J-10	J-555	12.0	Ductile Iron	-20.98	0.06	0.000
1314	P-731	844	J-555	J-12	12.0	Ductile Iron	-58.18	0.17	0.000
1315	P-732	450	J-554	J-555	10.0	Ductile Iron	-37.19	0.15	0.000
1317	P-733	189	J-156	J-556	12.0	Ductile Iron	79.70	0.23	0.000
1318	P-734	333	J-556	J-521	12.0	Ductile Iron	34.11	0.10	0.000
1320	P-735	392	J-556	J-557	6.0	Ductile Iron	45.59	0.52	0.000
1322	P-736	284	J-521	J-558	8.0	Ductile Iron	2.20	0.01	0.000
1324	P-737	182	J-535	J-559	6.0	Ductile Iron	-67.60	0.77	0.001
1325	P-738	147	J-559	J-184	6.0	Ductile Iron	-176.38	2.00	0.004
1327	P-739	891	J-559	J-560	6.0	Ductile Iron	108.78	1.23	0.002
1329	P-740	321	J-192	J-561	6.0	Ductile Iron	110.81	1.26	0.002
1331	P-741	326	J-98	J-562	6.0	Ductile Iron	1.01	0.01	0.000
1333	P-742	151	J-530	J-563	10.0	Ductile Iron	-19.57	0.08	0.000
1334	P-743	66	J-563	J-531	10.0	Ductile Iron	-20.52	0.08	0.000
1336	P-744	202	J-563	J-564	8.0	Ductile Iron	0.00	0.00	0.000
1338	P-745	293	J-268	J-565	8.0	Ductile Iron	77.81	0.50	0.000
1339	P-746	327	J-565	J-271	8.0	Ductile Iron	74.03	0.47	0.000
1341	P-747	375	J-565	J-566	8.0	Ductile Iron	1.51	0.01	0.000
1344	P-749	264	J-567	J-306	6.0	Ductile Iron	-15.49	0.18	0.000
1346	P-750	221	J-567	J-568	8.0	Ductile Iron	5.40	0.03	0.000
1348	P-751	72	J-305	J-569	6.0	Ductile Iron	-4.31	0.05	0.000
1349	P-752	163	J-569	J-567	6.0	Ductile Iron	-8.96	0.10	0.000
1351	P-753	117	J-569	J-570	8.0	Ductile Iron	4.65	0.03	0.000
1353	P-754	191	J-194	J-571	8.0	Ductile Iron	115.19	0.74	0.000
1354	P-755	138	J-571	J-209	8.0	Ductile Iron	115.19	0.74	0.000
1356	P-756	238	J-571	J-572	8.0	Ductile Iron	0.00	0.00	0.000
1358	P-757	136	J-184	J-573	10.0	Ductile Iron	-176.38	0.72	0.000
1359	P-758	146	J-573	J-187	10.0	Ductile Iron	-178.58	0.73	0.000
1361	P-759	208	J-573	J-574	8.0	Ductile Iron	2.20	0.01	0.000
1363	P-760	222	J-150	J-575	10.0	Ductile Iron	-44.69	0.18	0.000
1364	P-761	21	J-575	J-143	6.0	Ductile Iron	-61.24	0.69	0.001
1365	P-762	408	J-575	J-149	6.0	Ductile Iron	14.47	0.16	0.000
1372	P-763	481	J-323	J-577	6.0	Ductile Iron	3.02	0.03	0.000
1380	P-768	45	J-122	J-116	6.0	Ductile Iron	2.94	0.03	0.000
1415	P-771	222	J-582	J-136	8.0	Ductile Iron	2.10	0.01	0.000
1417	P-772	301	J-109	J-583	6.0	Ductile Iron	41.51	0.47	0.000
1419	P-773	197	J-505	J-584	6.0	Ductile Iron	-39.93	0.45	0.000
1422	P-775	476	J-584	J-585	6.0	Ductile Iron	1.53	0.02	0.000
1423	P-776	69	J-583	J-585	6.0	Ductile Iron	37.54	0.43	0.000
1424	P-777	76	J-585	J-132	6.0	Ductile Iron	36.87	0.42	0.000
1426	P-778	307	J-152	J-586	6.0	Ductile Iron	-8.75	0.10	0.000
1427	P-779	659	J-586	J-151	10.0	Ductile Iron	-24.32	0.10	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1429	P-780	301	J-586	J-587	10.0	Ductile Iron	12.55	0.05	0.000
1431	P-781	66	J-135	J-588	8.0	Ductile Iron	-5.91	0.04	0.000
1432	P-782	471	J-588	J-582	8.0	Ductile Iron	3.61	0.02	0.000
1433	P-783	310	J-587	J-588	8.0	Ductile Iron	11.04	0.07	0.000
1434	P-784	858	J-235	J-124	12.0	Ductile Iron	-124.69	0.35	0.000
1436	P-785	150	J-492	J-589	6.0	Ductile Iron	-79.88	0.91	0.001
1437	P-786	101	J-589	J-493	6.0	Ductile Iron	-82.42	0.94	0.001
1443	P-789	229	J-589	J-592	6.0	Ductile Iron	1.79	0.02	0.000
1444	P-790	715	J-592	J-590	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1447	P-791	355	J-57	J-594	10.0	Ductile Iron	-63.50	0.26	0.000
1448	P-792	154	J-594	J-172	6.0	Ductile Iron	-50.75	0.58	0.000
1450	P-794	939	J-594	J-161	10.0	Ductile Iron	-71.31	0.29	0.000
1452	P-795	44	J-71	J-595	8.0	Ductile Iron	136.57	0.87	0.001
1453	P-796	245	J-595	J-72	8.0	Ductile Iron	135.44	0.86	0.001
1455	P-797	368	J-595	J-596	6.0	Ductile Iron	0.00	0.00	0.000
1457	P-798	323	J-74	J-597	6.0	Ductile Iron	2.74	0.03	0.000
1458	P-799	711	J-597	J-72	2.0	Ductile Iron	-2.48	0.25	0.000
1459	P-800	563	J-596	J-597	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1460	P-801	355	J-220	J-278	16.0	Ductile Iron	-676.17	1.08	0.000
1461	P-802	339	J-523	J-191	6.0	Ductile Iron	-48.69	0.55	0.000
1462	P-803	400	J-106	J-584	6.0	Ductile Iron	41.46	0.47	0.000
1463	P-804	56	J-531	J-510	8.0	Ductile Iron	-1.84	0.01	0.000
1465	P-805	318	J-476	J-598	4.0	Ductile Iron	70.00	1.79	0.005
1466	P-806	47	J-598	J-477	4.0	Ductile Iron	70.00	1.79	0.005
1467	P-807	189	J-590	J-598	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1470	P-808	354	J-277	J-599	16.0	Ductile Iron	598.46	0.95	0.000
1471	P-809	30	J-599	J-278	16.0	Ductile Iron	677.87	1.08	0.000
1474	P-811	65	J-600	J-276	6.0	Ductile Iron	38.54	0.44	0.000
1477	P-813	219	J-275	J-601	6.0	Ductile Iron	31.19	0.35	0.000
1478	P-814	376	J-601	J-600	8.0	Ductile Iron	29.68	0.19	0.000
1480	P-815	1,820	J-331	J-602	6.0	Ductile Iron	2.65	0.03	0.000
1486	P-820	444	J-330	J-603	12.0	Ductile Iron	7.68	0.02	0.000
1487	P-821	246	J-603	J-331	6.0	Ductile Iron	6.73	0.08	0.000
1490	P-823	347	J-410	J-604	10.0	Ductile Iron	72.27	0.30	0.000
1491	P-824	99	J-604	J-530	10.0	Ductile Iron	-14.74	0.06	0.000
1492	P-825	5,362	J-604	J-603	10.0	Ductile Iron	0.00	0.00	0.000
1495	P-827	449	J-599	J-605	8.0	Ductile Iron	-79.41	0.51	0.000
1496	P-828	356	J-605	J-600	8.0	Ductile Iron	-81.49	0.52	0.000
1502	P-833	563	J-218	J-219	10.0	Ductile Iron	-4.41	0.02	0.000
1504	P-834	281	J-430	J-607	6.0	Ductile Iron	-41.20	0.47	0.000
1505	P-835	94	J-607	J-548	6.0	Ductile Iron	-45.36	0.51	0.000
1506	P-836	1,409	J-548	J-607	6.0	Ductile Iron	0.00	0.00	0.000
1513	P-841	418	J-216	J-609	8.0	Ductile Iron	32.80	0.21	0.000
1514	P-842	113	J-609	J-218	10.0	Ductile Iron	104.38	0.43	0.000
1519	P-844	354	J-51	J-610	12.0	Ductile Iron	-137.05	0.39	0.000
1520	P-845	121	J-610	J-52	12.0	Ductile Iron	-140.64	0.40	0.000
1559	P-877	519	J-230	J-616	6.0	Ductile Iron	5.06	0.06	0.000
1568	P-884	193	J-216	J-618	12.0	Ductile Iron	24.21	0.07	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1569	P-885	921	J-618	J-213	12.0	Ductile Iron	20.42	0.06	0.000
1571	P-886	746	J-143	J-619	16.0	Ductile Iron	18.16	0.03	0.000
1572	P-887	173	J-619	J-202	16.0	Ductile Iron	18.16	0.03	0.000
1586	P-889	45	J-280	J-620	8.0	Ductile Iron	8.88	0.06	0.000
1587	P-890	455	J-620	J-281	8.0	Ductile Iron	-84.68	0.54	0.000
1588	P-891	362	J-600	J-620	8.0	Ductile Iron	-92.05	0.59	0.000
1592	P-894	371	J-609	J-224	12.0	Ductile Iron	-79.28	0.22	0.000
1593	P-895	380	J-224	J-225	12.0	Ductile Iron	-54.80	0.16	0.000
1611	P-896	445	J-320	J-622	12.0	Ductile Iron	0.00	0.00	0.000
1619	P-897	103	T-3	J-159	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1626	P-898	221	J-48	J-624	16.0	Ductile Iron	559.42	0.89	0.000
1627	P-899	709	J-624	J-43	16.0	Ductile Iron	559.42	0.89	0.000
1628	P-900	78	J-624	T-4	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1638	P-905	220	J-79	T-5	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1646	P-910	118	J-630	J-624	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1648	P-911	171	J-79	J-631	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1651	P-912	836	J-603	J-633	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1652	P-913	108	J-633	T-6	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1653	P-914	78	J-632	J-633	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1655	P-915	817	J-429	J-414	8.0	Ductile Iron	99.66	0.64	0.000
1659	P-917	1,144	J-587	J-71	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1661	P-918	153	J-294	J-634	10.0	Ductile Iron	-182.23	0.74	0.000
1662	P-919	301	J-634	J-295	10.0	Ductile Iron	-85.97	0.35	0.000
1663	P-920	362	J-369	J-634	6.0	Ductile Iron	96.26	1.09	0.001
1665	P-921	1,467	J-12	J-635	12.0	Ductile Iron	-112.95	0.32	0.000
1666	P-922	192	J-635	J-13	12.0	Ductile Iron	-112.95	0.32	0.000
1668	P-923	3,122	J-635	J-636	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1670	P-924	1,759	J-14	J-637	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1672	P-925	7,439	J-14	J-638	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1674	P-926	139	J-638	T-7	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1675	P-927	1,232	J-472	J-557	8.0	Ductile Iron	-42.28	0.27	0.000
1677	P-928	153	J-557	J-639	10.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1679	P-929	131	J-77	J-640	16.0	Ductile Iron	546.53	0.87	0.000
1680	P-930	377	J-640	J-84	16.0	Ductile Iron	546.53	0.87	0.000
1682	P-931	188	J-640	J-641	6.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1690	P-932	466	J-461	J-642	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1692	P-933	257	J-642	J-643	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1694	P-934	176	J-643	J-644	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1696	P-935	862	J-642	J-645	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1698	P-936	246	J-645	J-646	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1700	P-937	143	J-646	J-647	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1701	P-938	848	J-646	J-643	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1703	P-97 (1)	770	J-97	J-648	8.0	Ductile Iron	-37.18	0.24	0.000
1704	P-97 (2)	171	J-648	J-98	8.0	Ductile Iron	-17.78	0.11	0.000
1706	P-939	267	J-648	J-649	8.0	Ductile Iron	-19.40	0.12	0.000
1708	P-99 (1)	278	J-99	J-650	8.0	Ductile Iron	-19.80	0.13	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1709	P-99 (2)	180	J-650	J-100	8.0	Ductile Iron	-39.20	0.25	0.000
1710	P-940	602	J-649	J-650	8.0	Ductile Iron	-19.40	0.12	0.000
1712	P-74 (1)	151	J-77	J-651	16.0	Ductile Iron	6.25	0.01	0.000
1715	P-941	827	J-651	J-652	12.0	Ductile Iron	1.48	0.00	0.000
1717	P-74 (2)(1)	352	J-651	J-653	16.0	Ductile Iron	4.76	0.01	0.000
1718	P-74 (2)(2)	388	J-653	J-78	16.0	Ductile Iron	6.25	0.01	0.000
1719	P-942	466	J-652	J-653	12.0	Ductile Iron	1.48	0.00	0.000

FlexTable: Tank Table

ID	Label	Zone	Elevation (Base) (ft)	Elevation (Minimum) (ft)	Elevation (Initial) (ft)	Elevation (Maximum) (ft)	Diameter (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
110	T-1	<None>	855.0	855.0	912.0	941.6	77.00	201.15	912.0
285	T-2	<None>	834.0	906.0	912.0	941.6	51.00	144.04	912.0
1618	T-3	<None>	770.5	770.5	919.8	941.6	75.00	(N/A)	(N/A)
1623	T-4	<None>	855.0	855.0	919.8	941.6	77.00	(N/A)	(N/A)
1629	T-5	<None>	833.0	833.0	919.8	941.6	110.86	(N/A)	(N/A)
1639	T-6	<None>	834.0	834.0	919.8	941.6	110.86	(N/A)	(N/A)
1673	T-7	<None>	897.5	897.5	919.8	941.6	75.00	(N/A)	(N/A)

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
34	J-9	735.8	<None>	6.81	924.3	81.5
35	J-10	746.7	<None>	0.00	924.3	76.8
39	J-12	774.9	<None>	0.00	924.3	64.6
41	J-13	740.5	<None>	0.00	924.7	79.7
43	J-14	754.3	<None>	3.64	924.9	73.8
45	J-15	753.4	<None>	101.10	925.4	74.4
47	J-16	780.6	<None>	3.58	926.0	62.9
49	J-17	830.7	<None>	10.59	928.2	42.2
51	J-18	805.9	<None>	0.00	928.2	52.9
54	J-19	831.2	<None>	0.00	928.2	42.0
57	J-20	830.3	<None>	0.00	931.4	43.7
59	J-21	830.5	<None>	0.00	931.6	43.7
61	J-22	831.6	<None>	0.00	931.9	43.4
63	J-23	844.2	<None>	7.92	935.6	39.6
86	J-37	850.6	<None>	-315.00	936.3	37.1
98	J-43	851.3	<None>	3.58	935.4	36.4
102	J-46	762.6	<None>	0.00	924.3	69.9
104	J-47	762.6	<None>	0.00	924.2	69.9
106	J-48	851.1	<None>	0.00	936.3	36.8
112	J-49	765.5	<None>	0.00	924.3	68.7
114	J-50	763.7	<None>	3.64	924.4	69.5
116	J-51	763.2	<None>	0.00	924.5	69.8
118	J-52	766.8	<None>	0.00	924.6	68.3
120	J-53	772.0	<None>	71.74	924.7	66.1
122	J-54	769.9	<None>	3.40	924.8	67.0
124	J-55	772.4	<None>	7.38	924.9	66.0
126	J-56	772.9	<None>	4.42	924.9	65.7
128	J-57	782.0	<None>	15.51	925.3	62.0
130	J-58	782.7	<None>	2.72	925.7	61.9
132	J-59	785.0	<None>	3.40	926.1	61.1
134	J-60	793.0	<None>	77.86	927.0	58.0
136	J-61	789.7	<None>	5.44	927.0	59.4
138	J-62	797.0	<None>	0.00	927.0	56.2
140	J-63	798.0	<None>	0.00	927.0	55.8
142	J-64	801.2	<None>	5.78	927.0	54.4
146	J-66	829.8	<None>	1.36	930.4	43.5
154	J-69	821.9	<None>	0.00	930.1	46.8
156	J-70	821.4	<None>	0.00	929.9	46.9
158	J-71	821.3	<None>	6.46	929.7	46.9
160	J-72	821.0	<None>	2.38	929.3	46.9
162	J-73	820.7	<None>	0.00	929.0	46.8
164	J-74	827.1	<None>	8.73	928.9	44.1
167	J-75	852.6	<None>	0.00	934.6	35.5
169	J-76	839.3	<None>	0.00	933.0	40.5
171	J-77	832.4	<None>	3.64	931.9	43.0
173	J-78	833.3	<None>	1.82	931.9	42.6
175	J-79	832.8	<None>	3.96	931.9	42.9
177	J-80	833.2	<None>	0.00	931.9	42.7

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
179	J-81	836.2	<None>	0.00	931.9	41.4
181	J-82	835.2	<None>	2.73	931.9	41.8
183	J-83	834.3	<None>	2.73	931.9	42.2
186	J-84	826.4	<None>	0.00	931.4	45.4
188	J-85	824.6	<None>	0.00	931.2	46.1
192	J-87	822.0	<None>	2.38	930.3	46.8
194	J-88	824.4	<None>	3.06	930.2	45.8
196	J-89	822.8	<None>	3.40	930.2	46.5
198	J-90	822.0	<None>	4.76	930.2	46.8
200	J-91	820.8	<None>	2.38	930.2	47.3
202	J-92	820.4	<None>	2.38	930.1	47.5
206	J-93	821.0	<None>	2.38	930.0	47.1
208	J-94	820.4	<None>	3.74	930.1	47.5
210	J-95	820.7	<None>	0.00	930.1	47.3
212	J-96	821.7	<None>	0.00	930.1	46.9
214	J-97	819.3	<None>	17.36	928.4	47.2
216	J-98	824.3	<None>	0.00	928.6	45.1
218	J-99	827.2	<None>	1.82	928.6	43.9
220	J-100	825.2	<None>	3.75	928.6	44.8
222	J-101	825.0	<None>	4.76	928.8	44.9
224	J-102	823.6	<None>	5.10	929.3	45.7
226	J-103	824.5	<None>	3.96	929.3	45.3
228	J-104	823.2	<None>	0.00	928.7	45.6
230	J-105	818.8	<None>	3.40	928.6	47.5
232	J-106	816.0	<None>	7.95	928.4	48.6
235	J-107	822.6	<None>	3.96	930.7	46.8
237	J-108	822.2	<None>	5.44	929.8	46.6
240	J-109	812.8	<None>	11.11	928.6	50.1
241	J-110	815.9	<None>	0.00	929.0	48.9
243	J-111	819.1	<None>	0.00	929.3	47.7
247	J-112	819.6	<None>	3.40	929.7	47.7
249	J-113	809.1	<None>	2.38	925.5	50.3
251	J-114	814.7	<None>	-42.00	928.6	49.3
256	J-116	814.8	<None>	0.00	928.5	49.2
260	J-117	818.2	<None>	6.12	929.6	48.2
263	J-118	817.7	<None>	0.34	929.4	48.3
271	J-122	815.1	<None>	0.00	928.5	49.1
273	J-123	809.1	<None>	6.96	925.0	50.1
275	J-124	805.2	<None>	0.00	924.6	51.7
277	J-125	815.9	<None>	0.00	928.4	48.7
279	J-126	810.2	<None>	3.74	927.3	50.7
282	J-127	810.0	<None>	4.76	926.7	50.5
286	J-128	813.9	<None>	5.46	926.7	48.8
288	J-129	812.2	<None>	16.44	926.7	49.5
291	J-130	806.3	<None>	5.44	925.6	51.6
293	J-131	806.8	<None>	3.40	926.1	51.6
296	J-132	811.9	<None>	2.72	926.1	49.4
298	J-133	811.2	<None>	11.48	925.9	49.6

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
300	J-134	811.4	<None>	3.74	925.9	49.5
302	J-135	811.4	<None>	0.00	925.9	49.5
304	J-136	815.1	<None>	3.40	925.9	47.9
306	J-137	803.2	<None>	4.76	925.3	52.8
308	J-138	800.6	<None>	2.04	925.0	53.8
310	J-139	803.5	<None>	195.76	925.1	52.6
312	J-140	806.1	<None>	4.76	925.3	51.6
315	J-141	804.2	<None>	14.04	925.4	52.5
318	J-142	799.9	<None>	0.00	926.4	54.7
320	J-143	801.2	<None>	1.02	926.1	54.0
322	J-144	806.1	<None>	2.38	925.9	51.8
329	J-148	800.1	<None>	2.72	925.9	54.4
331	J-149	799.8	<None>	0.00	926.0	54.6
333	J-150	802.9	<None>	5.10	926.0	53.3
337	J-151	804.9	<None>	2.72	926.0	52.4
339	J-152	809.5	<None>	28.90	925.9	50.4
345	J-154	760.8	<None>	0.00	924.2	70.7
349	J-156	758.4	<None>	0.00	924.0	71.6
350	J-157	758.4	<None>	198.14	924.0	71.7
354	J-158	770.5	<None>	0.00	923.9	66.4
356	J-159	770.3	<None>	197.80	923.9	66.5
358	J-160	770.0	<None>	2.38	924.5	66.9
360	J-161	785.0	<None>	3.64	925.5	60.8
362	J-162	785.9	<None>	4.55	925.5	60.4
364	J-163	789.2	<None>	0.00	925.5	59.0
366	J-164	790.8	<None>	0.00	925.6	58.3
368	J-165	793.4	<None>	0.00	925.7	57.2
370	J-166	794.6	<None>	1.36	925.7	56.7
372	J-167	796.5	<None>	0.00	925.8	56.0
374	J-168	798.9	<None>	4.09	925.9	55.0
377	J-169	790.8	<None>	12.40	925.6	58.3
384	J-172	782.7	<None>	2.04	925.5	61.8
386	J-173	787.9	<None>	3.40	925.5	59.5
388	J-174	790.6	<None>	5.44	925.5	58.4
390	J-175	791.2	<None>	2.38	925.6	58.1
394	J-176	783.8	<None>	4.55	925.5	61.3
396	J-177	786.9	<None>	0.00	925.5	60.0
398	J-178	787.5	<None>	103.34	925.5	59.7
407	J-179	788.1	<None>	5.91	925.5	59.4
410	J-180	790.1	<None>	5.10	925.5	58.6
413	J-181	794.4	<None>	3.40	925.6	56.8
422	J-184	792.1	<None>	0.00	927.3	58.5
424	J-185	791.8	<None>	0.00	927.3	58.6
426	J-186	791.0	<None>	0.00	927.3	59.0
428	J-187	795.0	<None>	0.00	927.5	57.3
430	J-188	790.0	<None>	5.94	927.3	59.4
432	J-189	794.1	<None>	3.96	927.1	57.5
434	J-190	796.4	<None>	0.00	926.7	56.4

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
436	J-191	799.8	<None>	0.00	925.9	54.5
438	J-192	794.4	<None>	0.00	925.6	56.7
441	J-193	797.5	<None>	3.64	925.6	55.4
444	J-194	795.6	<None>	3.96	926.6	56.7
463	J-202	800.9	<None>	0.00	926.0	54.1
465	J-203	800.5	<None>	-135.00	926.8	54.6
467	J-204	800.3	<None>	3.96	926.0	54.4
469	J-205	800.0	<None>	0.00	925.6	54.3
471	J-206	798.2	<None>	195.76	923.8	54.4
473	J-207	799.3	<None>	0.00	925.9	54.8
475	J-208	798.4	<None>	3.96	926.0	55.2
477	J-209	797.3	<None>	0.00	926.2	55.8
483	J-211	794.0	<None>	5.94	925.8	57.0
485	J-212	808.7	<None>	15.75	925.6	50.6
487	J-213	806.2	<None>	9.10	925.6	51.7
489	J-214	805.8	<None>	0.00	925.6	51.8
491	J-215	803.4	<None>	7.28	925.6	52.9
493	J-216	800.6	<None>	5.46	925.6	54.1
499	J-217	838.8	<None>	-1,000.00	940.1	43.8
502	J-218	798.9	<None>	195.76	925.4	54.7
504	J-219	798.0	<None>	195.76	925.3	55.1
506	J-220	796.6	<None>	1.36	925.5	55.8
508	J-221	797.9	<None>	195.76	925.5	55.2
510	J-222	796.5	<None>	106.39	925.5	55.8
512	J-223	798.5	<None>	202.35	925.3	54.9
515	J-224	802.1	<None>	13.06	925.5	53.4
517	J-225	804.8	<None>	9.10	925.5	52.2
519	J-226	803.7	<None>	9.10	925.5	52.7
521	J-227	803.1	<None>	10.64	925.5	53.0
523	J-228	798.7	<None>	0.00	925.5	54.9
525	J-229	798.8	<None>	-268.00	925.6	54.9
527	J-230	798.1	<None>	0.00	925.5	55.1
531	J-231	807.3	<None>	17.82	925.4	51.1
533	J-232	801.9	<None>	3.40	925.4	53.4
536	J-233	800.6	<None>	195.76	924.8	53.7
538	J-234	795.7	<None>	195.76	924.5	55.7
540	J-235	794.6	<None>	99.24	924.5	56.2
542	J-236	793.5	<None>	4.66	924.5	56.7
544	J-237	785.2	<None>	195.76	924.3	60.2
546	J-238	782.4	<None>	195.76	924.3	61.4
548	J-239	779.7	<None>	4.42	924.3	62.5
550	J-240	788.9	<None>	8.50	924.4	58.6
552	J-241	791.6	<None>	0.00	924.5	57.5
555	J-242	791.9	<None>	8.75	924.2	57.3
557	J-243	798.0	<None>	9.04	924.2	54.6
559	J-244	804.7	<None>	4.76	924.1	51.7
561	J-245	797.9	<None>	4.42	924.1	54.6
563	J-246	800.0	<None>	7.00	924.1	53.7

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
565	J-247	798.9	<None>	6.46	924.1	54.2
567	J-248	810.8	<None>	6.46	924.1	49.0
569	J-249	809.6	<None>	6.46	924.1	49.5
571	J-250	805.2	<None>	0.00	924.1	51.4
576	J-252	812.7	<None>	0.00	924.1	48.2
578	J-253	814.4	<None>	0.00	924.1	47.5
580	J-254	815.4	<None>	2.38	924.1	47.0
582	J-255	816.2	<None>	0.00	924.1	46.7
584	J-256	812.7	<None>	1.70	924.1	48.2
591	J-259	811.6	<None>	2.04	924.1	48.7
593	J-260	807.5	<None>	2.72	924.1	50.5
598	J-261	808.8	<None>	1.70	924.1	49.9
602	J-263	794.2	<None>	490.76	924.7	56.5
604	J-264	792.3	<None>	99.24	924.5	57.2
607	J-265	790.8	<None>	2.72	924.6	57.9
609	J-266	789.1	<None>	0.00	924.5	58.6
611	J-267	784.7	<None>	0.00	924.3	60.4
613	J-268	777.9	<None>	2.72	924.3	63.3
615	J-269	776.0	<None>	4.08	924.3	64.2
618	J-270	786.3	<None>	6.12	924.5	59.8
621	J-271	803.2	<None>	4.42	924.1	52.3
625	J-272	797.5	<None>	8.40	927.2	56.1
627	J-273	795.2	<None>	15.06	927.0	57.0
629	J-274	790.6	<None>	9.74	926.6	58.8
631	J-275	787.7	<None>	2.72	926.5	60.0
633	J-276	796.5	<None>	0.00	926.3	56.1
635	J-277	793.3	<None>	3.06	926.2	57.5
637	J-278	794.5	<None>	3.06	925.9	56.9
641	J-279	794.8	<None>	2.38	926.4	56.9
644	J-280	794.9	<None>	0.00	926.6	57.0
646	J-281	792.9	<None>	0.00	926.8	57.9
649	J-282	792.6	<None>	3.40	927.0	58.1
651	J-283	797.0	<None>	3.40	927.3	56.4
653	J-284	797.9	<None>	3.40	927.2	55.9
656	J-285	804.6	<None>	3.40	927.7	53.2
658	J-286	801.4	<None>	3.40	927.5	54.5
662	J-287	808.4	<None>	5.44	928.1	51.8
664	J-288	803.2	<None>	3.74	928.2	54.1
666	J-289	802.1	<None>	2.72	928.2	54.6
668	J-290	797.7	<None>	6.02	928.2	56.4
670	J-291	797.1	<None>	0.00	928.0	56.7
673	J-292	800.0	<None>	5.00	928.3	55.5
675	J-293	800.0	<None>	2.38	928.3	55.5
678	J-294	807.1	<None>	7.38	928.6	52.6
681	J-295	817.4	<None>	17.21	928.8	48.2
684	J-296	794.0	<None>	2.72	926.9	57.5
686	J-297	793.4	<None>	8.16	926.8	57.7
688	J-298	790.0	<None>	105.58	925.4	58.6

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
690	J-299	785.4	<None>	5.78	925.2	60.5
692	J-300	788.9	<None>	9.86	924.7	58.7
694	J-301	791.2	<None>	0.00	924.6	57.7
697	J-302	790.6	<None>	0.00	924.6	58.0
699	J-303	786.3	<None>	9.86	924.6	59.8
705	J-304	782.7	<None>	12.10	925.2	61.7
707	J-305	799.0	<None>	0.00	924.1	54.1
709	J-306	789.6	<None>	0.00	924.1	58.2
711	J-307	800.0	<None>	10.75	924.1	53.7
713	J-308	783.8	<None>	10.07	924.1	60.7
715	J-309	796.3	<None>	11.11	924.1	55.3
717	J-310	774.2	<None>	3.06	924.1	64.8
719	J-311	774.6	<None>	3.74	924.1	64.7
721	J-312	775.6	<None>	9.03	924.1	64.3
723	J-313	792.0	<None>	4.42	924.1	57.2
725	J-314	800.7	<None>	3.40	924.1	53.4
727	J-315	804.2	<None>	2.38	924.2	51.9
729	J-316	770.0	<None>	3.40	924.4	66.8
731	J-317	767.2	<None>	4.42	924.3	68.0
734	J-318	767.9	<None>	5.10	924.2	67.6
737	J-319	770.1	<None>	3.06	924.4	66.8
739	J-320	775.4	<None>	4.08	924.8	64.6
741	J-321	759.5	<None>	2.38	925.2	71.7
743	J-322	761.8	<None>	4.08	925.2	70.7
745	J-323	762.0	<None>	6.46	925.2	70.6
747	J-324	770.9	<None>	2.72	925.2	66.8
749	J-325	784.8	<None>	0.00	925.2	60.8
751	J-326	791.6	<None>	2.04	925.2	57.8
753	J-327	821.4	<None>	2.38	925.2	44.9
755	J-328	827.2	<None>	1.70	925.1	42.3
757	J-329	823.0	<None>	4.42	925.1	44.2
759	J-330	828.9	<None>	0.00	925.0	41.6
761	J-331	815.1	<None>	3.06	925.0	47.5
763	J-332	800.5	<None>	4.30	925.0	53.9
770	J-336	748.8	<None>	0.00	925.6	76.5
772	J-337	740.6	<None>	0.00	925.7	80.1
777	J-339	746.0	<None>	0.00	925.7	77.7
779	J-340	748.2	<None>	0.00	925.6	76.8
782	J-341	747.6	<None>	0.00	925.8	77.1
785	J-342	754.8	<None>	5.44	925.8	74.0
787	J-343	771.5	<None>	0.00	925.8	66.8
791	J-344	759.7	<None>	0.00	925.9	71.9
793	J-345	765.8	<None>	5.78	926.0	69.3
795	J-346	776.2	<None>	0.00	926.0	64.8
797	J-347	772.9	<None>	4.76	926.1	66.3
799	J-348	772.7	<None>	6.80	926.1	66.4
801	J-349	783.1	<None>	5.44	926.1	61.9
803	J-350	785.8	<None>	4.08	926.1	60.7

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
805	J-351	771.4	<None>	0.00	926.1	67.0
814	J-353	819.4	<None>	6.80	928.1	47.0
816	J-354	802.3	<None>	3.74	927.7	54.3
819	J-355	828.7	<None>	7.72	928.4	43.1
822	J-356	813.8	<None>	3.74	928.1	49.4
824	J-357	802.5	<None>	3.40	927.9	54.2
831	J-359	830.2	<None>	15.41	928.1	42.3
834	J-360	806.2	<None>	2.72	928.0	52.7
836	J-361	788.6	<None>	3.74	927.7	60.2
838	J-362	792.6	<None>	9.34	927.3	58.3
840	J-363	791.5	<None>	3.40	927.0	58.6
843	J-364	799.6	<None>	5.94	928.7	55.8
845	J-365	797.5	<None>	0.00	929.6	57.1
847	J-366	795.9	<None>	7.36	930.7	58.3
849	J-367	805.2	<None>	3.40	930.8	54.4
851	J-368	810.0	<None>	0.00	930.6	52.2
853	J-369	808.8	<None>	3.40	929.6	52.2
855	J-370	814.9	<None>	2.72	931.2	50.3
857	J-371	817.1	<None>	2.72	931.5	49.5
859	J-372	808.7	<None>	3.06	931.3	53.1
862	J-373	799.9	<None>	0.00	931.3	56.9
865	J-374	803.6	<None>	5.94	931.7	55.4
867	J-375	809.4	<None>	52.36	932.4	53.2
869	J-376	815.1	<None>	5.44	933.8	51.3
871	J-377	822.5	<None>	5.44	933.9	48.2
873	J-378	822.9	<None>	4.08	934.1	48.1
875	J-379	812.7	<None>	4.08	934.5	52.7
877	J-380	808.3	<None>	2.04	934.7	54.7
879	J-381	809.1	<None>	0.00	934.5	54.3
881	J-382	818.3	<None>	2.72	934.0	50.1
886	J-384	828.9	<None>	3.40	933.8	45.4
888	J-385	831.0	<None>	2.38	933.7	44.4
890	J-386	833.8	<None>	2.04	933.3	43.0
892	J-387	833.5	<None>	4.08	933.2	43.2
894	J-388	825.8	<None>	3.06	931.9	45.9
902	J-391	831.0	<None>	0.00	933.8	44.5
904	J-392	825.9	<None>	0.00	933.8	46.7
906	J-393	828.3	<None>	0.00	933.8	45.6
908	J-394	825.8	<None>	5.94	933.7	46.7
910	J-395	824.2	<None>	5.94	933.7	47.4
912	J-396	826.9	<None>	5.94	933.7	46.2
915	J-397	834.0	<None>	5.94	933.8	43.2
917	J-398	830.7	<None>	0.00	933.8	44.6
922	J-400	820.9	<None>	3.06	931.2	47.7
925	J-401	817.4	<None>	4.08	930.9	49.1
928	J-402	826.8	<None>	3.74	932.0	45.5
930	J-403	825.2	<None>	8.37	929.6	45.2
933	J-404	831.0	<None>	3.74	933.2	44.2

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
936	J-405	804.0	<None>	2.38	928.0	53.7
938	J-406	809.1	<None>	5.44	928.4	51.6
940	J-407	820.3	<None>	3.40	928.9	47.0
942	J-408	831.0	<None>	3.74	928.9	42.4
944	J-409	831.4	<None>	2.38	929.1	42.3
948	J-410	816.0	<None>	3.06	924.1	46.8
950	J-411	817.2	<None>	2.04	924.1	46.3
952	J-412	811.1	<None>	4.08	924.1	48.9
955	J-413	793.3	<None>	8.04	927.9	58.2
958	J-414	791.3	<None>	14.96	928.5	59.4
964	J-416	821.5	<None>	2.04	930.3	47.1
968	J-417	827.2	<None>	-102.00	936.9	47.5
969	J-418	826.7	<None>	0.00	936.5	47.5
974	J-419	826.8	<None>	0.00	936.2	47.3
976	J-420	834.0	<None>	3.40	934.4	43.4
979	J-421	818.2	<None>	2.72	931.0	48.8
981	J-422	823.0	<None>	3.74	931.3	46.9
983	J-423	821.5	<None>	3.40	932.0	47.8
985	J-424	820.8	<None>	6.46	932.5	48.3
987	J-425	827.2	<None>	3.40	932.7	45.7
990	J-426	821.0	<None>	3.74	930.8	47.5
992	J-427	821.8	<None>	2.72	930.8	47.1
994	J-428	821.6	<None>	2.04	930.8	47.2
996	J-429	819.0	<None>	14.19	929.3	47.7
998	J-430	821.8	<None>	0.00	930.9	47.2
1000	J-431	814.7	<None>	11.80	931.5	50.5
1002	J-432	823.2	<None>	0.00	932.8	47.4
1004	J-433	827.5	<None>	2.38	932.9	45.6
1007	J-434	833.0	<None>	3.74	932.8	43.2
1009	J-435	829.1	<None>	3.40	932.7	44.8
1011	J-436	817.8	<None>	3.40	932.6	49.7
1015	J-437	805.4	<None>	3.40	934.5	55.9
1017	J-438	804.9	<None>	0.00	934.5	56.1
1019	J-439	803.5	<None>	4.42	934.5	56.7
1023	J-441	800.7	<None>	2.04	934.5	57.9
1025	J-442	800.3	<None>	4.42	934.5	58.1
1027	J-443	797.0	<None>	2.38	934.5	59.5
1029	J-444	796.4	<None>	2.72	934.5	59.8
1031	J-445	797.3	<None>	0.00	934.5	59.4
1034	J-446	794.1	<None>	6.46	934.6	60.8
1036	J-447	793.4	<None>	0.00	934.6	61.1
1038	J-448	793.0	<None>	5.78	934.6	61.3
1040	J-449	783.5	<None>	3.40	934.6	65.4
1043	J-450	797.1	<None>	3.40	934.7	59.6
1045	J-451	802.6	<None>	5.78	934.8	57.2
1047	J-452	796.8	<None>	4.76	934.8	59.7
1050	J-453	807.5	<None>	1.36	934.9	55.1
1053	J-454	802.1	<None>	1.70	937.4	58.5

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1055	J-455	800.4	<None>	0.00	937.7	59.4
1057	J-456	801.0	<None>	5.78	937.7	59.1
1059	J-457	804.0	<None>	0.00	937.7	57.9
1061	J-458	809.3	<None>	3.06	933.8	53.9
1063	J-459	807.9	<None>	3.06	933.8	54.5
1067	J-461	811.4	<None>	38.08	933.8	53.0
1069	J-462	811.8	<None>	2.38	933.8	52.8
1071	J-463	814.0	<None>	2.38	933.9	51.9
1077	J-465	813.1	<None>	3.06	933.9	52.3
1079	J-466	812.1	<None>	2.38	934.0	52.7
1081	J-467	813.3	<None>	5.78	934.0	52.2
1083	J-468	813.3	<None>	2.72	934.3	52.3
1087	J-469	815.2	<None>	2.04	933.8	51.3
1089	J-470	809.5	<None>	0.00	933.8	53.8
1092	J-471	817.4	<None>	3.06	933.8	50.4
1095	J-472	766.5	<None>	195.76	923.4	67.9
1099	J-474	801.4	<None>	9.58	925.5	53.7
1103	J-476	775.7	<None>	-70.00	943.6	72.7
1104	J-477	776.0	<None>	2.72	941.7	71.7
1106	J-478	778.5	<None>	3.40	941.2	70.4
1108	J-479	784.7	<None>	1.70	941.2	67.7
1110	J-480	784.9	<None>	5.10	941.2	67.6
1114	J-481	784.0	<None>	-1,275.00	941.7	68.2
1116	J-482	791.1	<None>	3.40	939.2	64.1
1118	J-483	792.0	<None>	7.35	939.2	63.7
1120	J-484	791.3	<None>	3.74	939.1	63.9
1124	J-485	796.7	<None>	2.04	939.3	61.7
1126	J-486	802.1	<None>	1.70	939.3	59.4
1128	J-487	803.0	<None>	1.36	939.3	59.0
1130	J-488	808.0	<None>	1.36	939.3	56.8
1132	J-489	820.8	<None>	0.00	939.4	51.3
1134	J-490	804.0	<None>	-92.00	941.5	59.5
1136	J-491	822.0	<None>	2.72	939.4	50.8
1139	J-492	809.2	<None>	0.00	939.4	56.3
1141	J-493	798.9	<None>	2.72	939.6	60.9
1143	J-494	790.2	<None>	3.40	940.0	64.8
1145	J-495	791.6	<None>	3.40	940.5	64.4
1147	J-496	800.4	<None>	4.42	939.3	60.1
1149	J-497	811.3	<None>	0.00	939.4	55.4
1150	J-498	809.2	<None>	0.00	939.4	56.3
1153	J-499	746.3	<None>	0.00	924.7	77.2
1156	J-500	750.9	<None>	0.00	924.8	75.2
1159	J-501	831.0	<None>	0.00	931.8	43.6
1168	J-504	815.3	<None>	0.00	927.2	48.4
1171	J-505	813.5	<None>	10.45	927.1	49.2
1175	J-506	814.7	<None>	3.40	930.8	50.2
1177	J-507	809.5	<None>	3.40	930.8	52.5
1179	J-508	815.4	<None>	0.00	930.8	49.9

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1181	J-509	812.6	<None>	3.40	930.8	51.1
1188	J-510	818.6	<None>	2.72	924.1	45.6
1189	J-511	818.0	<None>	4.08	924.1	45.9
1191	J-512	817.8	<None>	4.08	924.1	46.0
1193	J-513	819.1	<None>	4.76	924.1	45.4
1195	J-514	815.3	<None>	0.00	924.1	47.1
1202	J-517	809.1	<None>	3.74	925.5	50.3
1206	J-518	822.2	<None>	5.10	929.6	46.5
1210	J-519	799.7	<None>	2.72	925.4	54.4
1213	J-520	794.7	<None>	99.70	925.8	56.7
1216	J-521	767.6	<None>	1.70	924.0	67.6
1220	J-523	795.3	<None>	0.00	925.6	56.4
1224	J-524	808.3	<None>	15.77	939.4	56.7
1229	J-527	780.0	<None>	1.36	941.2	69.7
1239	J-529	804.7	<None>	0.00	928.2	53.4
1242	J-530	821.5	<None>	8.70	924.1	44.4
1244	J-531	818.0	<None>	0.00	924.1	45.9
1247	J-532	774.0	<None>	0.00	924.9	65.3
1250	J-533	782.0	<None>	5.10	925.8	62.2
1253	J-534	795.0	<None>	20.40	926.4	56.8
1255	J-535	788.0	<None>	97.88	925.5	59.5
1258	J-536	778.0	<None>	3.96	925.1	63.6
1261	J-537	795.0	<None>	0.00	927.0	57.1
1264	J-538	823.0	<None>	0.00	929.0	45.8
1267	J-539	809.0	<None>	7.38	926.1	50.7
1270	J-540	823.5	<None>	4.42	930.2	46.2
1273	J-541	819.5	<None>	4.08	930.2	47.9
1276	J-542	794.0	<None>	0.00	927.1	57.6
1281	J-544	819.7	<None>	1.70	939.4	51.8
1284	J-545	821.0	<None>	2.38	939.4	51.2
1287	J-546	810.0	<None>	2.04	932.3	52.9
1290	J-547	808.5	<None>	0.00	931.9	53.4
1293	J-548	821.0	<None>	8.04	931.1	47.7
1304	J-551	739.0	<None>	0.00	924.3	80.2
1306	J-552	747.0	<None>	0.00	924.3	76.7
1308	J-553	746.0	<None>	0.00	924.3	77.1
1310	J-554	744.0	<None>	97.88	924.3	78.0
1312	J-555	761.0	<None>	0.00	924.3	70.6
1316	J-556	760.0	<None>	0.00	924.0	70.9
1319	J-557	758.5	<None>	5.94	923.6	71.4
1321	J-558	765.5	<None>	3.96	924.0	68.6
1323	J-559	791.0	<None>	0.00	925.7	58.3
1326	J-560	784.5	<None>	195.76	921.3	59.2
1328	J-561	791.0	<None>	199.40	923.9	57.5
1330	J-562	824.0	<None>	1.82	928.6	45.2
1332	J-563	819.0	<None>	1.70	924.1	45.5
1335	J-564	817.0	<None>	0.00	924.1	46.3
1337	J-565	789.0	<None>	4.08	924.2	58.5

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1340	J-566	785.0	<None>	2.72	924.2	60.2
1342	J-567	798.0	<None>	2.04	924.1	54.5
1345	J-568	791.0	<None>	9.72	924.1	57.6
1347	J-569	799.0	<None>	0.00	924.1	54.1
1350	J-570	796.0	<None>	8.36	924.1	55.4
1352	J-571	796.5	<None>	0.00	926.4	56.2
1355	J-572	793.0	<None>	0.00	926.4	57.7
1357	J-573	792.0	<None>	0.00	927.4	58.6
1360	J-574	791.0	<None>	3.96	927.4	59.0
1362	J-575	801.0	<None>	3.74	926.0	54.1
1371	J-577	760.6	<None>	5.44	925.2	71.2
1413	J-582	815.0	<None>	2.72	925.9	48.0
1416	J-583	812.8	<None>	7.14	927.9	49.8
1418	J-584	814.5	<None>	0.00	927.6	48.9
1421	J-585	813.0	<None>	3.96	927.5	49.5
1425	J-586	809.7	<None>	5.44	925.9	50.3
1428	J-587	812.0	<None>	2.72	925.9	49.3
1430	J-588	811.0	<None>	2.72	925.9	49.7
1435	J-589	801.0	<None>	1.36	939.5	59.9
1438	J-590	776.0	<None>	(N/A)	(N/A)	(N/A)
1442	J-592	799.0	<None>	3.22	939.5	60.8
1446	J-594	781.5	<None>	105.37	925.4	62.2
1451	J-595	821.5	<None>	2.04	929.7	46.8
1454	J-596	826.0	<None>	0.00	929.7	44.9
1456	J-597	829.0	<None>	9.41	928.9	43.2
1464	J-598	776.5	<None>	0.00	941.9	71.6
1469	J-599	749.5	<None>	0.00	925.9	76.3
1472	J-600	797.0	<None>	3.06	926.3	56.0
1476	J-601	797.0	<None>	2.72	926.4	56.0
1479	J-602	822.3	<None>	4.76	925.0	44.4
1485	J-603	820.0	<None>	1.70	925.0	45.4
1489	J-604	821.5	<None>	156.58	924.1	44.4
1494	J-605	797.4	<None>	3.74	926.1	55.7
1503	J-607	821.3	<None>	7.48	931.1	47.5
1512	J-609	799.5	<None>	13.86	925.5	54.5
1518	J-610	765.5	<None>	6.47	924.5	68.8
1558	J-616	803.9	<None>	9.10	925.5	52.6
1567	J-618	801.0	<None>	6.82	925.6	53.9
1570	J-619	801.0	<None>	0.00	926.0	54.1
1585	J-620	794.7	<None>	2.72	926.6	57.0
1610	J-622	815.0	<None>	0.00	924.8	47.5
1625	J-624	851.1	<None>	0.00	936.1	36.7
1645	J-630	855.0	<None>	(N/A)	(N/A)	(N/A)
1647	J-631	833.0	<None>	(N/A)	(N/A)	(N/A)
1649	J-632	832.4	<None>	(N/A)	(N/A)	(N/A)
1650	J-633	832.4	<None>	(N/A)	(N/A)	(N/A)
1660	J-634	810.6	<None>	0.00	928.7	51.1
1664	J-635	734.0	<None>	0.00	924.6	82.5

FlexTable: Junction Table

ID	Label	Elevation (ft)	Zone	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
1667	J-636	751.0	<None>	(N/A)	(N/A)	(N/A)
1669	J-637	740.1	<None>	(N/A)	(N/A)	(N/A)
1671	J-638	870.0	<None>	(N/A)	(N/A)	(N/A)
1676	J-639	758.0	<None>	(N/A)	(N/A)	(N/A)
1678	J-640	830.9	<None>	0.00	931.7	43.6
1681	J-641	831.0	<None>	(N/A)	(N/A)	(N/A)
1689	J-642	807.0	<None>	(N/A)	(N/A)	(N/A)
1691	J-643	807.0	<None>	(N/A)	(N/A)	(N/A)
1693	J-644	807.0	<None>	(N/A)	(N/A)	(N/A)
1695	J-645	783.0	<None>	(N/A)	(N/A)	(N/A)
1697	J-646	780.0	<None>	(N/A)	(N/A)	(N/A)
1699	J-647	782.0	<None>	(N/A)	(N/A)	(N/A)
1702	J-648	823.4	<None>	0.00	928.6	45.5
1705	J-649	821.0	<None>	0.00	928.6	46.5
1707	J-650	826.0	<None>	0.00	928.6	44.4
1711	J-651	832.6	<None>	0.00	931.9	43.0
1714	J-652	0.0	<None>	0.00	931.9	403.2
1716	J-653	832.9	<None>	0.00	931.9	42.8

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
36	P-6	836	J-9	J-10	12.0	Ductile Iron	-6.81	0.02	0.000
46	P-11	2,718	J-14	J-15	12.0	Ductile Iron	-240.66	0.68	0.000
48	P-12	1,455	J-15	J-16	12.0	Ductile Iron	-341.76	0.97	0.000
50	P-13	5,229	J-16	J-17	12.0	Ductile Iron	-345.34	0.98	0.000
52	P-14	776	J-17	J-18	12.0	Ductile Iron	0.00	0.00	0.000
56	P-17	134	J-19	J-17	12.0	Ductile Iron	355.93	1.01	0.000
58	P-18	3,031	J-19	J-20	10.0	Ductile Iron	-355.93	1.45	0.001
60	P-19	161	J-20	J-21	10.0	Ductile Iron	-355.93	1.45	0.001
62	P-20	83	J-21	J-22	10.0	Ductile Iron	-693.24	2.83	0.004
64	P-21	1,479	J-22	J-23	16.0	Ductile Iron	-1,969.06	3.14	0.003
103	P-36	779	J-12	J-46	12.0	Ductile Iron	132.33	0.38	0.000
105	P-37	262	J-46	J-47	12.0	Ductile Iron	132.33	0.38	0.000
107	P-38	241	J-23	J-48	16.0	Ductile Iron	-1,976.98	3.15	0.003
111	P-41	166	J-48	T-1	16.0	Ductile Iron	-1,773.98	2.83	0.002
113	P-42	363	J-47	J-49	12.0	Ductile Iron	-224.54	0.64	0.000
115	P-43	394	J-49	J-50	12.0	Ductile Iron	-224.54	0.64	0.000
117	P-44	391	J-50	J-51	12.0	Ductile Iron	-228.18	0.65	0.000
121	P-46	556	J-52	J-53	12.0	Ductile Iron	-234.65	0.67	0.000
123	P-47	467	J-53	J-54	12.0	Ductile Iron	-306.39	0.87	0.000
125	P-48	104	J-54	J-55	12.0	Ductile Iron	-309.79	0.88	0.000
129	P-50	538	J-55	J-57	10.0	Ductile Iron	-321.59	1.31	0.001
131	P-51	559	J-57	J-58	10.0	Ductile Iron	-261.24	1.07	0.001
135	P-53	1,328	J-59	J-60	10.0	Ductile Iron	-272.46	1.11	0.001
137	P-54	152	J-60	J-61	8.0	Ductile Iron	11.22	0.07	0.000
141	P-56	426	J-62	J-63	8.0	Ductile Iron	5.78	0.04	0.000
143	P-57	299	J-63	J-64	8.0	Ductile Iron	5.78	0.04	0.000
147	P-59	2,599	J-60	J-66	16.0	Ductile Iron	-1,372.29	2.19	0.001
153	P-63	1,260	J-21	J-66	10.0	Ductile Iron	337.31	1.38	0.001
155	P-64	586	J-66	J-69	10.0	Ductile Iron	239.48	0.98	0.001
157	P-65	363	J-69	J-70	10.0	Ductile Iron	239.48	0.98	0.001
159	P-66	303	J-70	J-71	10.0	Ductile Iron	239.48	0.98	0.001
163	P-68	253	J-72	J-73	8.0	Ductile Iron	230.74	1.47	0.001
168	P-71	958	J-43	J-75	16.0	Ductile Iron	1,108.41	1.77	0.001
170	P-72	1,854	J-75	J-76	16.0	Ductile Iron	1,108.41	1.77	0.001
172	P-73	1,288	J-76	J-77	16.0	Ductile Iron	1,102.95	1.76	0.001
176	P-75	316	J-78	J-79	16.0	Ductile Iron	10.11	0.02	0.000
178	P-76	344	J-79	J-80	16.0	Ductile Iron	6.15	0.01	0.000
180	P-77	331	J-80	J-81	16.0	Ductile Iron	6.15	0.01	0.000
182	P-78	163	J-81	J-82	10.0	Ductile Iron	6.15	0.03	0.000
184	P-79	320	J-82	J-83	10.0	Ductile Iron	3.42	0.01	0.000
185	P-80	947	J-83	J-78	10.0	Ductile Iron	0.69	0.00	0.000
189	P-82	310	J-84	J-85	16.0	Ductile Iron	1,088.07	1.74	0.001
197	P-86	444	J-88	J-89	8.0	Ductile Iron	45.99	0.29	0.000
199	P-87	332	J-89	J-90	8.0	Ductile Iron	42.59	0.27	0.000
201	P-88	178	J-90	J-91	8.0	Ductile Iron	37.83	0.24	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
203	P-89	447	J-91	J-92	8.0	Ductile Iron	49.09	0.31	0.000
205	P-91	261	J-87	J-91	8.0	Ductile Iron	113.78	0.73	0.000
207	P-92	274	J-92	J-93	8.0	Ductile Iron	147.45	0.94	0.001
209	P-93	449	J-93	J-94	8.0	Ductile Iron	-96.39	0.62	0.000
211	P-94	252	J-94	J-95	8.0	Ductile Iron	0.00	0.00	0.000
213	P-95	278	J-95	J-96	8.0	Ductile Iron	0.00	0.00	0.000
215	P-96	443	J-73	J-97	8.0	Ductile Iron	215.93	1.38	0.001
219	P-98	334	J-98	J-99	8.0	Ductile Iron	-39.27	0.25	0.000
223	P-100	116	J-100	J-101	6.0	Ductile Iron	-85.33	0.97	0.001
225	P-101	203	J-101	J-102	6.0	Ductile Iron	-133.88	1.52	0.002
227	P-102	327	J-102	J-103	6.0	Ductile Iron	3.96	0.04	0.000
229	P-103	240	J-101	J-104	6.0	Ductile Iron	43.79	0.50	0.000
231	P-104	511	J-104	J-105	6.0	Ductile Iron	43.79	0.50	0.000
233	P-105	642	J-105	J-106	6.0	Ductile Iron	40.39	0.46	0.000
234	P-106	377	J-106	J-97	8.0	Ductile Iron	17.07	0.11	0.000
236	P-107	224	J-85	J-107	12.0	Ductile Iron	811.58	2.30	0.002
238	P-108	446	J-107	J-108	12.0	Ductile Iron	807.62	2.29	0.002
242	P-110	473	J-109	J-110	12.0	Ductile Iron	-489.74	1.39	0.001
244	P-111	425	J-110	J-111	12.0	Ductile Iron	-489.74	1.39	0.001
246	P-113	514	J-109	J-106	8.0	Ductile Iron	110.23	0.70	0.000
248	P-114	138	J-93	J-112	8.0	Ductile Iron	241.47	1.54	0.002
257	P-119	651	J-112	J-116	6.0	Ductile Iron	115.55	1.31	0.002
258	P-120	692	J-116	J-113	6.0	Ductile Iron	184.61	2.09	0.004
259	P-121	33	J-114	J-116	4.0	Ductile Iron	42.00	1.07	0.002
261	P-122	371	J-108	J-117	8.0	Ductile Iron	164.41	1.05	0.001
262	P-123	443	J-117	J-112	8.0	Ductile Iron	-122.51	0.78	0.000
264	P-124	78	J-117	J-118	8.0	Ductile Iron	280.80	1.79	0.002
272	P-128	940	J-118	J-122	4.0	Ductile Iron	27.06	0.69	0.001
274	P-129	577	J-113	J-123	8.0	Ductile Iron	174.92	1.12	0.001
276	P-130	479	J-123	J-124	8.0	Ductile Iron	167.96	1.07	0.001
278	P-131	603	J-118	J-125	8.0	Ductile Iron	253.40	1.62	0.002
280	P-132	636	J-125	J-126	8.0	Ductile Iron	253.40	1.62	0.002
281	P-133	396	J-126	J-109	8.0	Ductile Iron	-361.26	2.31	0.003
283	P-134	71	J-126	J-127	8.0	Ductile Iron	610.92	3.90	0.009
289	P-137	405	J-128	J-129	6.0	Ductile Iron	-8.65	0.10	0.000
294	P-140	375	J-130	J-131	8.0	Ductile Iron	-226.02	1.44	0.001
295	P-141	444	J-131	J-127	8.0	Ductile Iron	-232.14	1.48	0.001
297	P-142	443	J-132	J-131	6.0	Ductile Iron	-2.72	0.03	0.000
299	P-143	364	J-128	J-133	8.0	Ductile Iron	289.73	1.85	0.002
301	P-144	406	J-133	J-134	8.0	Ductile Iron	-21.92	0.14	0.000
303	P-145	157	J-134	J-135	8.0	Ductile Iron	-20.70	0.13	0.000
305	P-146	466	J-134	J-136	8.0	Ductile Iron	-4.97	0.03	0.000
307	P-147	355	J-130	J-137	10.0	Ductile Iron	306.33	1.25	0.001
309	P-148	365	J-137	J-138	12.0	Ductile Iron	464.34	1.32	0.001
311	P-149	382	J-138	J-139	12.0	Ductile Iron	-177.07	0.50	0.000
313	P-150	347	J-139	J-140	12.0	Ductile Iron	-372.83	1.06	0.000
316	P-152	359	J-137	J-141	8.0	Ductile Iron	-113.43	0.72	0.000
317	P-153	999	J-141	J-133	8.0	Ductile Iron	-127.47	0.81	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
319	P-154	749	J-60	J-142	16.0	Ductile Iron	1,010.75	1.61	0.001
321	P-155	549	J-142	J-143	16.0	Ductile Iron	990.35	1.58	0.001
330	P-159	541	J-144	J-148	6.0	Ductile Iron	-2.38	0.03	0.000
332	P-160	266	J-148	J-149	6.0	Ductile Iron	-40.19	0.46	0.000
334	P-161	662	J-149	J-150	6.0	Ductile Iron	-14.11	0.16	0.000
338	P-164	275	J-150	J-151	10.0	Ductile Iron	74.28	0.30	0.000
340	P-165	934	J-151	J-152	6.0	Ductile Iron	14.84	0.17	0.000
346	P-169	218	J-47	J-154	12.0	Ductile Iron	356.87	1.01	0.000
351	P-171	335	J-154	J-157	12.0	Ductile Iron	356.87	1.01	0.000
353	P-173	256	J-156	J-157	12.0	Ductile Iron	-158.73	0.45	0.000
357	P-175	245	J-158	J-159	10.0	Ductile Iron	-48.63	0.20	0.000
359	P-176	1,125	J-159	J-160	10.0	Ductile Iron	-246.43	1.01	0.001
363	P-178	298	J-161	J-162	16.0	Ductile Iron	-357.53	0.57	0.000
365	P-179	446	J-162	J-163	16.0	Ductile Iron	-362.08	0.58	0.000
367	P-180	242	J-163	J-164	16.0	Ductile Iron	-362.08	0.58	0.000
369	P-181	429	J-164	J-165	16.0	Ductile Iron	-580.31	0.93	0.000
371	P-182	212	J-165	J-166	16.0	Ductile Iron	-580.31	0.93	0.000
373	P-183	307	J-166	J-167	16.0	Ductile Iron	-618.29	0.99	0.000
375	P-184	417	J-167	J-168	16.0	Ductile Iron	-618.29	0.99	0.000
376	P-185	361	J-168	J-143	16.0	Ductile Iron	-622.38	0.99	0.000
378	P-186	1,314	J-148	J-169	6.0	Ductile Iron	35.09	0.40	0.000
387	P-191	439	J-172	J-173	6.0	Ductile Iron	-14.05	0.16	0.000
389	P-192	282	J-173	J-174	6.0	Ductile Iron	-20.98	0.24	0.000
391	P-193	291	J-174	J-175	6.0	Ductile Iron	-25.80	0.29	0.000
392	P-194	449	J-175	J-169	6.0	Ductile Iron	-28.18	0.32	0.000
395	P-196	322	J-172	J-176	12.0	Ductile Iron	-65.81	0.19	0.000
397	P-197	254	J-176	J-177	12.0	Ductile Iron	-70.36	0.20	0.000
405	P-204	102	J-177	J-178	12.0	Ductile Iron	-70.36	0.20	0.000
406	P-205	620	J-178	J-164	12.0	Ductile Iron	-154.06	0.44	0.000
408	P-206	89	J-178	J-179	8.0	Ductile Iron	-19.64	0.13	0.000
409	P-207	467	J-173	J-179	6.0	Ductile Iron	3.53	0.04	0.000
411	P-208	274	J-179	J-180	6.0	Ductile Iron	-22.02	0.25	0.000
412	P-209	467	J-180	J-174	6.0	Ductile Iron	0.61	0.01	0.000
414	P-210	466	J-169	J-181	6.0	Ductile Iron	-5.49	0.06	0.000
415	P-211	469	J-181	J-166	6.0	Ductile Iron	-36.62	0.42	0.000
416	P-212	740	J-180	J-181	6.0	Ductile Iron	-27.73	0.31	0.000
425	P-217	65	J-184	J-185	4.0	Ductile Iron	0.00	0.00	0.000
427	P-218	398	J-184	J-186	6.0	Ductile Iron	0.00	0.00	0.000
431	P-220	521	J-187	J-188	10.0	Ductile Iron	166.05	0.68	0.000
433	P-221	366	J-188	J-189	10.0	Ductile Iron	271.85	1.11	0.001
435	P-222	418	J-189	J-190	10.0	Ductile Iron	334.68	1.37	0.001
437	P-223	326	J-190	J-191	6.0	Ductile Iron	138.87	1.58	0.003
440	P-225	303	J-192	J-164	12.0	Ductile Iron	-64.17	0.18	0.000
442	P-226	543	J-191	J-193	6.0	Ductile Iron	60.43	0.69	0.001
445	P-228	448	J-190	J-194	10.0	Ductile Iron	195.81	0.80	0.000
466	P-240	44	J-202	J-203	4.0	Ductile Iron	-135.00	3.45	0.018
468	P-241	82	J-202	J-204	16.0	Ductile Iron	378.63	0.60	0.000
470	P-242	373	J-204	J-205	8.0	Ductile Iron	198.48	1.27	0.001

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
474	P-244	91	J-204	J-207	8.0	Ductile Iron	176.19	1.12	0.001
476	P-245	186	J-207	J-208	8.0	Ductile Iron	-82.24	0.52	0.000
478	P-246	284	J-208	J-209	8.0	Ductile Iron	-191.84	1.22	0.001
486	P-251	352	J-133	J-212	8.0	Ductile Iron	172.70	1.10	0.001
488	P-252	352	J-212	J-213	12.0	Ductile Iron	108.71	0.31	0.000
490	P-253	44	J-213	J-214	12.0	Ductile Iron	-22.48	0.06	0.000
496	P-257	334	J-215	J-214	12.0	Ductile Iron	22.48	0.06	0.000
497	P-258	172	J-207	J-216	8.0	Ductile Iron	258.44	1.65	0.002
498	P-259	369	J-216	J-215	12.0	Ductile Iron	98.27	0.28	0.000
500	P-260	545	J-217	J-48	10.0	Ductile Iron	1,000.00	4.08	0.007
507	P-264	251	J-219	J-220	8.0	Ductile Iron	-168.44	1.08	0.001
509	P-265	413	J-220	J-221	12.0	Ductile Iron	217.85	0.62	0.000
511	P-266	350	J-221	J-222	12.0	Ductile Iron	22.09	0.06	0.000
513	P-267	339	J-222	J-223	10.0	Ductile Iron	224.66	0.92	0.000
514	P-268	360	J-223	J-137	10.0	Ductile Iron	49.34	0.20	0.000
516	P-269	462	J-215	J-224	8.0	Ductile Iron	68.52	0.44	0.000
518	P-270	471	J-213	J-225	12.0	Ductile Iron	176.89	0.50	0.000
520	P-271	419	J-225	J-226	12.0	Ductile Iron	76.88	0.22	0.000
522	P-272	100	J-226	J-227	12.0	Ductile Iron	60.71	0.17	0.000
524	P-273	179	J-227	J-228	12.0	Ductile Iron	50.07	0.14	0.000
526	P-274	44	J-228	J-229	8.0	Ductile Iron	-268.00	1.71	0.002
528	P-275	60	J-228	J-230	12.0	Ductile Iron	318.07	0.90	0.000
529	P-276	127	J-230	J-222	12.0	Ductile Iron	308.97	0.88	0.000
532	P-278	486	J-212	J-231	6.0	Ductile Iron	48.24	0.55	0.000
534	P-279	472	J-231	J-232	6.0	Ductile Iron	30.42	0.35	0.000
535	P-280	399	J-232	J-223	6.0	Ductile Iron	27.02	0.31	0.000
537	P-281	212	J-138	J-233	12.0	Ductile Iron	639.37	1.81	0.001
539	P-282	418	J-233	J-234	12.0	Ductile Iron	443.61	1.26	0.001
541	P-283	1,057	J-234	J-235	12.0	Ductile Iron	-68.72	0.19	0.000
543	P-284	122	J-234	J-236	12.0	Ductile Iron	324.09	0.92	0.000
545	P-285	510	J-236	J-237	12.0	Ductile Iron	319.43	0.91	0.000
547	P-286	274	J-237	J-238	12.0	Ductile Iron	123.67	0.35	0.000
549	P-287	379	J-238	J-239	12.0	Ductile Iron	-72.09	0.20	0.000
551	P-288	575	J-239	J-240	6.0	Ductile Iron	-32.25	0.37	0.000
553	P-289	496	J-240	J-241	6.0	Ductile Iron	-40.75	0.46	0.000
554	P-290	842	J-241	J-234	12.0	Ductile Iron	7.52	0.02	0.000
556	P-291	442	J-242	J-239	8.0	Ductile Iron	-44.68	0.29	0.000
558	P-292	327	J-242	J-243	6.0	Ductile Iron	35.93	0.41	0.000
560	P-293	299	J-243	J-244	6.0	Ductile Iron	26.89	0.31	0.000
562	P-294	708	J-244	J-245	6.0	Ductile Iron	14.21	0.16	0.000
564	P-295	249	J-245	J-246	8.0	Ductile Iron	15.64	0.10	0.000
566	P-296	208	J-246	J-247	8.0	Ductile Iron	7.38	0.05	0.000
568	P-297	638	J-247	J-248	8.0	Ductile Iron	0.92	0.01	0.000
570	P-298	206	J-248	J-249	8.0	Ductile Iron	-5.54	0.04	0.000
572	P-299	278	J-249	J-250	8.0	Ductile Iron	-1.26	0.01	0.000
573	P-300	359	J-250	J-246	8.0	Ductile Iron	-1.26	0.01	0.000
577	P-302	222	J-249	J-252	8.0	Ductile Iron	-10.74	0.07	0.000
579	P-303	115	J-252	J-253	8.0	Ductile Iron	-10.74	0.07	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
581	P-304	264	J-253	J-254	10.0	Ductile Iron	-10.74	0.04	0.000
585	P-306	328	J-255	J-256	8.0	Ductile Iron	1.70	0.01	0.000
592	P-310	517	J-244	J-259	8.0	Ductile Iron	26.57	0.17	0.000
594	P-311	449	J-259	J-260	8.0	Ductile Iron	24.53	0.16	0.000
597	P-314	541	J-245	J-260	6.0	Ductile Iron	-5.85	0.07	0.000
599	P-315	121	J-260	J-261	8.0	Ductile Iron	15.96	0.10	0.000
600	P-316	405	J-261	J-254	8.0	Ductile Iron	14.26	0.09	0.000
603	P-317	403	J-220	J-263	12.0	Ductile Iron	805.96	2.29	0.002
605	P-318	308	J-263	J-264	8.0	Ductile Iron	168.52	1.08	0.001
606	P-319	327	J-264	J-241	12.0	Ductile Iron	48.27	0.14	0.000
608	P-320	273	J-263	J-265	8.0	Ductile Iron	146.68	0.94	0.001
610	P-321	153	J-265	J-266	8.0	Ductile Iron	153.90	0.98	0.001
612	P-322	169	J-266	J-267	8.0	Ductile Iron	172.53	1.10	0.001
614	P-323	473	J-267	J-268	12.0	Ductile Iron	172.53	0.49	0.000
616	P-324	224	J-268	J-269	12.0	Ductile Iron	78.13	0.22	0.000
617	P-325	434	J-269	J-239	12.0	Ductile Iron	88.94	0.25	0.000
619	P-326	687	J-269	J-270	4.0	Ductile Iron	-14.89	0.38	0.000
620	P-327	372	J-270	J-264	6.0	Ductile Iron	-21.01	0.24	0.000
623	P-329	171	J-271	J-244	6.0	Ductile Iron	18.65	0.21	0.000
628	P-332	354	J-272	J-273	6.0	Ductile Iron	59.64	0.68	0.001
630	P-333	380	J-273	J-274	6.0	Ductile Iron	87.71	1.00	0.001
632	P-334	167	J-274	J-275	6.0	Ductile Iron	59.82	0.68	0.001
636	P-336	384	J-276	J-277	8.0	Ductile Iron	68.75	0.44	0.000
642	P-340	198	J-277	J-279	16.0	Ductile Iron	-990.44	1.58	0.001
643	P-341	904	J-279	J-275	2.0	Ductile Iron	-1.62	0.17	0.000
645	P-342	405	J-274	J-280	8.0	Ductile Iron	18.16	0.12	0.000
648	P-344	167	J-281	J-279	12.0	Ductile Iron	991.20	2.81	0.003
650	P-345	32	J-281	J-282	12.0	Ductile Iron	-1,139.10	3.23	0.004
652	P-346	329	J-282	J-283	16.0	Ductile Iron	-1,169.22	1.87	0.001
654	P-347	353	J-283	J-284	6.0	Ductile Iron	46.54	0.53	0.000
655	P-348	557	J-284	J-273	6.0	Ductile Iron	43.14	0.49	0.000
657	P-349	369	J-283	J-285	16.0	Ductile Iron	-1,219.16	1.95	0.001
659	P-350	365	J-285	J-286	8.0	Ductile Iron	138.23	0.88	0.001
661	P-352	546	J-286	J-272	8.0	Ductile Iron	134.83	0.86	0.001
663	P-353	365	J-285	J-287	16.0	Ductile Iron	-1,360.79	2.17	0.001
665	P-354	371	J-287	J-288	6.0	Ductile Iron	-34.27	0.39	0.000
667	P-355	77	J-288	J-289	6.0	Ductile Iron	-38.01	0.43	0.000
669	P-356	460	J-289	J-290	6.0	Ductile Iron	25.69	0.29	0.000
671	P-357	67	J-290	J-291	6.0	Ductile Iron	111.73	1.27	0.002
672	P-358	401	J-291	J-188	6.0	Ductile Iron	111.73	1.27	0.002
674	P-359	470	J-187	J-292	10.0	Ductile Iron	-465.95	1.90	0.002
676	P-360	84	J-292	J-293	8.0	Ductile Iron	94.44	0.60	0.000
677	P-361	434	J-293	J-290	8.0	Ductile Iron	92.06	0.59	0.000
679	P-362	456	J-292	J-294	10.0	Ductile Iron	-259.04	1.06	0.001
680	P-363	522	J-294	J-289	6.0	Ductile Iron	66.42	0.75	0.001

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
683	P-365	525	J-295	J-287	16.0	Ductile Iron	1,356.55	2.16	0.001
685	P-366	380	J-282	J-296	8.0	Ductile Iron	26.72	0.17	0.000
687	P-367	60	J-296	J-297	6.0	Ductile Iron	129.66	1.47	0.002
689	P-368	371	J-297	J-298	6.0	Ductile Iron	171.75	1.95	0.004
691	P-369	217	J-298	J-299	6.0	Ductile Iron	66.17	0.75	0.001
693	P-370	212	J-299	J-300	4.0	Ductile Iron	48.29	1.23	0.003
695	P-371	232	J-300	J-301	4.0	Ductile Iron	12.23	0.31	0.000
696	P-372	244	J-301	J-265	4.0	Ductile Iron	9.94	0.25	0.000
698	P-373	245	J-266	J-302	4.0	Ductile Iron	-18.63	0.48	0.000
700	P-374	233	J-302	J-303	4.0	Ductile Iron	-4.94	0.13	0.000
701	P-375	561	J-303	J-302	4.0	Ductile Iron	3.08	0.08	0.000
702	P-376	151	J-300	J-303	4.0	Ductile Iron	17.88	0.46	0.000
703	P-377	152	J-301	J-302	4.0	Ductile Iron	10.61	0.27	0.000
704	P-378	473	J-300	J-301	4.0	Ductile Iron	8.32	0.21	0.000
706	P-379	631	J-299	J-304	6.0	Ductile Iron	12.10	0.14	0.000
708	P-380	419	J-271	J-305	6.0	Ductile Iron	25.73	0.29	0.000
712	P-382	320	J-306	J-307	6.0	Ductile Iron	10.75	0.12	0.000
714	P-383	259	J-306	J-308	6.0	Ductile Iron	-5.14	0.06	0.000
716	P-384	318	J-308	J-309	6.0	Ductile Iron	11.11	0.13	0.000
718	P-385	320	J-308	J-310	6.0	Ductile Iron	6.80	0.08	0.000
720	P-386	514	J-310	J-311	6.0	Ductile Iron	3.74	0.04	0.000
722	P-387	290	J-308	J-312	6.0	Ductile Iron	-33.12	0.38	0.000
724	P-388	331	J-312	J-313	6.0	Ductile Iron	-10.89	0.12	0.000
726	P-389	323	J-313	J-314	6.0	Ductile Iron	-13.58	0.15	0.000
728	P-390	300	J-314	J-315	6.0	Ductile Iron	-31.59	0.36	0.000
730	P-391	795	J-315	J-316	6.0	Ductile Iron	-33.97	0.39	0.000
732	P-392	289	J-316	J-317	6.0	Ductile Iron	42.51	0.48	0.000
733	P-393	793	J-317	J-313	2.0	Ductile Iron	1.74	0.18	0.000
735	P-394	254	J-317	J-318	6.0	Ductile Iron	36.35	0.41	0.000
736	P-395	503	J-318	J-312	6.0	Ductile Iron	31.25	0.35	0.000
738	P-396	99	J-316	J-319	6.0	Ductile Iron	-79.88	0.91	0.001
740	P-397	363	J-319	J-320	6.0	Ductile Iron	-82.94	0.94	0.001
742	P-398	313	J-320	J-321	6.0	Ductile Iron	-87.03	0.99	0.001
744	P-399	72	J-321	J-322	6.0	Ductile Iron	-89.41	1.01	0.001
746	P-400	11	J-322	J-323	6.0	Ductile Iron	16.40	0.19	0.000
748	P-401	328	J-323	J-324	12.0	Ductile Iron	4.50	0.01	0.000
750	P-402	145	J-324	J-325	12.0	Ductile Iron	84.39	0.24	0.000
752	P-403	80	J-325	J-326	12.0	Ductile Iron	84.39	0.24	0.000
754	P-404	591	J-326	J-327	12.0	Ductile Iron	163.98	0.47	0.000
756	P-405	622	J-327	J-328	12.0	Ductile Iron	161.60	0.46	0.000
758	P-406	169	J-328	J-329	6.0	Ductile Iron	4.42	0.05	0.000
760	P-407	392	J-328	J-330	12.0	Ductile Iron	155.48	0.44	0.000
764	P-409	588	J-331	J-332	6.0	Ductile Iron	4.30	0.05	0.000
771	P-412	402	J-326	J-336	6.0	Ductile Iron	-81.63	0.93	0.001
773	P-413	203	J-336	J-337	6.0	Ductile Iron	-48.22	0.55	0.000
778	P-416	95	J-337	J-339	8.0	Ductile Iron	0.00	0.00	0.000
780	P-417	409	J-324	J-340	6.0	Ductile Iron	-82.61	0.94	0.001
781	P-418	127	J-340	J-336	6.0	Ductile Iron	33.42	0.38	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
783	P-419	282	J-340	J-341	8.0	Ductile Iron	-116.03	0.74	0.000
784	P-420	162	J-341	J-337	6.0	Ductile Iron	48.22	0.55	0.000
786	P-421	94	J-341	J-342	8.0	Ductile Iron	-164.24	1.05	0.001
788	P-422	211	J-342	J-343	8.0	Ductile Iron	0.00	0.00	0.000
792	P-425	67	J-342	J-344	8.0	Ductile Iron	-169.69	1.08	0.001
794	P-426	128	J-344	J-345	8.0	Ductile Iron	-169.69	1.08	0.001
796	P-427	200	J-345	J-346	8.0	Ductile Iron	0.00	0.00	0.000
798	P-428	196	J-345	J-347	8.0	Ductile Iron	-175.47	1.12	0.001
800	P-429	314	J-347	J-348	6.0	Ductile Iron	4.10	0.05	0.000
802	P-430	633	J-348	J-349	6.0	Ductile Iron	-2.70	0.03	0.000
804	P-431	48	J-349	J-350	6.0	Ductile Iron	4.08	0.05	0.000
806	P-432	131	J-349	J-351	6.0	Ductile Iron	-12.22	0.14	0.000
811	P-437	539	J-351	J-322	6.0	Ductile Iron	109.88	1.25	0.002
815	P-439	385	J-287	J-353	6.0	Ductile Iron	24.59	0.28	0.000
817	P-440	563	J-353	J-354	6.0	Ductile Iron	63.42	0.72	0.001
818	P-441	506	J-354	J-296	6.0	Ductile Iron	105.66	1.20	0.002
820	P-442	385	J-295	J-355	1.3	Ductile Iron	1.33	0.35	0.001
821	P-443	521	J-355	J-353	6.0	Ductile Iron	64.57	0.73	0.001
823	P-444	416	J-353	J-356	6.0	Ductile Iron	18.94	0.21	0.000
825	P-445	488	J-356	J-357	6.0	Ductile Iron	49.38	0.56	0.000
826	P-446	384	J-357	J-354	6.0	Ductile Iron	45.98	0.52	0.000
832	P-450	397	J-355	J-359	6.0	Ductile Iron	75.26	0.85	0.001
833	P-451	568	J-359	J-356	8.0	Ductile Iron	34.18	0.22	0.000
835	P-452	618	J-359	J-360	6.0	Ductile Iron	25.67	0.29	0.000
837	P-453	484	J-360	J-361	6.0	Ductile Iron	66.73	0.76	0.001
839	P-454	590	J-361	J-362	6.0	Ductile Iron	62.99	0.71	0.001
841	P-455	780	J-362	J-363	6.0	Ductile Iron	53.65	0.61	0.000
842	P-456	434	J-363	J-297	6.0	Ductile Iron	50.25	0.57	0.000
844	P-457	149	J-292	J-364	8.0	Ductile Iron	-306.35	1.96	0.002
846	P-458	380	J-364	J-365	8.0	Ductile Iron	-312.29	1.99	0.002
848	P-459	455	J-365	J-366	8.0	Ductile Iron	-312.29	1.99	0.002
850	P-460	304	J-366	J-367	6.0	Ductile Iron	-53.47	0.61	0.000
852	P-461	605	J-367	J-368	6.0	Ductile Iron	45.14	0.51	0.000
854	P-462	323	J-368	J-369	6.0	Ductile Iron	158.65	1.80	0.003
856	P-463	306	J-368	J-370	6.0	Ductile Iron	-113.51	1.29	0.002
858	P-464	326	J-370	J-371	6.0	Ductile Iron	-81.73	0.93	0.001
860	P-465	300	J-371	J-372	8.0	Ductile Iron	150.08	0.96	0.001
861	P-466	327	J-372	J-367	6.0	Ductile Iron	102.01	1.16	0.001
863	P-467	327	J-366	J-373	8.0	Ductile Iron	-266.18	1.70	0.002
864	P-468	303	J-373	J-372	8.0	Ductile Iron	-45.01	0.29	0.000
866	P-469	311	J-373	J-374	8.0	Ductile Iron	-221.17	1.41	0.001
868	P-470	500	J-374	J-375	8.0	Ductile Iron	-227.11	1.45	0.001
870	P-471	687	J-375	J-376	8.0	Ductile Iron	-279.47	1.78	0.002
872	P-472	341	J-376	J-377	10.0	Ductile Iron	-231.78	0.95	0.000
874	P-473	239	J-377	J-378	10.0	Ductile Iron	-271.36	1.11	0.001
876	P-474	597	J-378	J-379	10.0	Ductile Iron	-296.71	1.21	0.001
878	P-475	165	J-379	J-380	10.0	Ductile Iron	-366.51	1.50	0.001
880	P-476	144	J-380	J-381	14.0	Ductile Iron	917.14	1.91	0.001

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
882	P-477	412	J-381	J-382	14.0	Ductile Iron	934.32	1.95	0.001
887	P-480	244	J-382	J-384	14.0	Ductile Iron	891.11	1.86	0.001
889	P-481	74	J-384	J-385	14.0	Ductile Iron	863.95	1.80	0.001
891	P-482	593	J-385	J-386	14.0	Ductile Iron	700.76	1.46	0.001
893	P-483	9	J-386	J-387	14.0	Ductile Iron	532.47	1.11	0.000
895	P-484	403	J-387	J-388	8.0	Ductile Iron	362.30	2.31	0.003
896	P-485	302	J-388	J-371	8.0	Ductile Iron	234.53	1.50	0.001
905	P-490	300	J-391	J-392	8.0	Ductile Iron	9.51	0.06	0.000
907	P-491	269	J-392	J-393	8.0	Ductile Iron	9.51	0.06	0.000
909	P-492	273	J-393	J-394	8.0	Ductile Iron	9.51	0.06	0.000
911	P-493	300	J-394	J-395	8.0	Ductile Iron	3.57	0.02	0.000
913	P-494	274	J-395	J-396	8.0	Ductile Iron	-2.37	0.02	0.000
916	P-496	451	J-396	J-397	8.0	Ductile Iron	-8.31	0.05	0.000
918	P-497	277	J-397	J-398	8.0	Ductile Iron	-14.25	0.09	0.000
919	P-498	106	J-398	J-384	8.0	Ductile Iron	-23.76	0.15	0.000
920	P-499	68	J-391	J-398	8.0	Ductile Iron	-9.51	0.06	0.000
923	P-500	302	J-370	J-400	6.0	Ductile Iron	-34.50	0.39	0.000
924	P-501	325	J-400	J-388	6.0	Ductile Iron	-124.71	1.42	0.002
926	P-502	324	J-400	J-401	6.0	Ductile Iron	87.16	0.99	0.001
927	P-503	669	J-401	J-295	14.0	Ductile Iron	1,552.68	3.24	0.003
929	P-504	394	J-401	J-402	14.0	Ductile Iron	-1,469.60	3.06	0.003
931	P-505	267	J-402	J-403	6.0	Ductile Iron	272.48	3.09	0.009
932	P-506	405	J-403	J-355	6.0	Ductile Iron	146.22	1.66	0.003
934	P-507	334	J-387	J-404	14.0	Ductile Iron	166.09	0.35	0.000
935	P-508	314	J-404	J-402	14.0	Ductile Iron	1,745.82	3.64	0.004
937	P-509	48	J-360	J-405	6.0	Ductile Iron	-43.78	0.50	0.000
939	P-510	248	J-405	J-406	6.0	Ductile Iron	-102.92	1.17	0.001
941	P-511	297	J-406	J-407	4.0	Ductile Iron	-36.01	0.92	0.002
943	P-512	337	J-407	J-408	6.0	Ductile Iron	-39.41	0.45	0.000
945	P-513	549	J-408	J-409	6.0	Ductile Iron	-43.15	0.49	0.000
946	P-514	245	J-409	J-403	6.0	Ductile Iron	-117.88	1.34	0.002
947	P-515	908	J-409	J-406	6.0	Ductile Iron	72.35	0.82	0.001
949	P-516	655	J-271	J-410	8.0	Ductile Iron	36.08	0.23	0.000
951	P-517	545	J-410	J-411	6.0	Ductile Iron	-8.50	0.10	0.000
953	P-518	516	J-411	J-412	6.0	Ductile Iron	-10.54	0.12	0.000
954	P-519	412	J-412	J-314	6.0	Ductile Iron	-14.62	0.17	0.000
956	P-520	275	J-405	J-413	6.0	Ductile Iron	56.77	0.64	0.000
957	P-521	846	J-413	J-351	6.0	Ductile Iron	122.11	1.39	0.002
959	P-522	539	J-347	J-414	6.0	Ductile Iron	-184.32	2.09	0.004
960	P-523	2,343	J-71	J-76	2.0	Ductile Iron	-5.47	0.56	0.001
965	P-526	79	J-87	J-416	8.0	Ductile Iron	-169.62	1.08	0.001
967	P-528	262	J-91	J-94	8.0	Ductile Iron	100.13	0.64	0.000
970	P-529	43	J-417	J-418	4.0	Ductile Iron	102.00	2.60	0.011
973	P-532	51	J-418	T-2	14.0	Ductile Iron	-1,484.87	3.09	0.003
975	P-533	72	J-418	J-419	14.0	Ductile Iron	1,586.87	3.31	0.003
977	P-534	550	J-419	J-420	14.0	Ductile Iron	1,586.87	3.31	0.003

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
978	P-535	367	J-420	J-404	14.0	Ductile Iron	1,583.47	3.30	0.003
982	P-537	253	J-421	J-422	6.0	Ductile Iron	-102.88	1.17	0.001
984	P-538	394	J-422	J-423	6.0	Ductile Iron	-106.62	1.21	0.002
986	P-539	343	J-423	J-424	8.0	Ductile Iron	-248.55	1.59	0.002
988	P-540	293	J-424	J-425	8.0	Ductile Iron	-162.85	1.04	0.001
989	P-541	675	J-425	J-386	8.0	Ductile Iron	-166.25	1.06	0.001
991	P-542	437	J-421	J-426	4.0	Ductile Iron	17.36	0.44	0.000
993	P-543	225	J-426	J-427	6.0	Ductile Iron	12.85	0.15	0.000
995	P-544	419	J-427	J-428	6.0	Ductile Iron	10.13	0.11	0.000
997	P-545	258	J-428	J-429	6.0	Ductile Iron	213.47	2.42	0.006
999	P-546	24	J-428	J-430	6.0	Ductile Iron	-205.39	2.33	0.005
1005	P-549	209	J-432	J-433	6.0	Ductile Iron	-55.73	0.63	0.000
1006	P-550	230	J-433	J-385	6.0	Ductile Iron	-160.81	1.82	0.003
1008	P-551	429	J-433	J-434	8.0	Ductile Iron	102.70	0.66	0.000
1010	P-552	245	J-434	J-435	8.0	Ductile Iron	98.96	0.63	0.000
1012	P-553	255	J-435	J-436	8.0	Ductile Iron	95.56	0.61	0.000
1013	P-554	364	J-436	J-424	8.0	Ductile Iron	92.16	0.59	0.000
1014	P-555	646	J-382	J-432	4.0	Ductile Iron	40.49	1.03	0.002
1016	P-556	108	J-381	J-437	8.0	Ductile Iron	-17.18	0.11	0.000
1018	P-557	376	J-437	J-438	8.0	Ductile Iron	-20.58	0.13	0.000
1020	P-558	56	J-438	J-439	8.0	Ductile Iron	-20.58	0.13	0.000
1024	P-560	177	J-439	J-441	8.0	Ductile Iron	-8.35	0.05	0.000
1026	P-561	475	J-441	J-442	8.0	Ductile Iron	-10.39	0.07	0.000
1028	P-562	250	J-442	J-443	8.0	Ductile Iron	-14.81	0.09	0.000
1030	P-563	50	J-443	J-444	8.0	Ductile Iron	-17.19	0.11	0.000
1032	P-564	248	J-444	J-445	8.0	Ductile Iron	16.65	0.11	0.000
1033	P-565	254	J-445	J-439	8.0	Ductile Iron	16.65	0.11	0.000
1035	P-566	397	J-444	J-446	8.0	Ductile Iron	-36.56	0.23	0.000
1037	P-567	55	J-446	J-447	6.0	Ductile Iron	-31.45	0.36	0.000
1039	P-568	256	J-447	J-448	6.0	Ductile Iron	-31.45	0.36	0.000
1041	P-569	636	J-448	J-449	6.0	Ductile Iron	14.98	0.17	0.000
1042	P-570	955	J-449	J-446	6.0	Ductile Iron	11.58	0.13	0.000
1044	P-571	295	J-448	J-450	6.0	Ductile Iron	-52.20	0.59	0.000
1046	P-572	873	J-450	J-451	6.0	Ductile Iron	-22.48	0.26	0.000
1048	P-573	283	J-451	J-452	6.0	Ductile Iron	37.88	0.43	0.000
1049	P-574	63	J-452	J-450	6.0	Ductile Iron	33.12	0.38	0.000
1051	P-575	141	J-451	J-453	6.0	Ductile Iron	-66.14	0.75	0.001
1052	P-576	45	J-453	J-380	12.0	Ductile Iron	1,285.69	3.65	0.005
1054	P-577	474	J-453	J-454	12.0	Ductile Iron	-1,353.19	3.84	0.005
1056	P-578	70	J-454	J-455	12.0	Ductile Iron	-1,354.89	3.84	0.005
1058	P-579	54	J-455	J-456	8.0	Ductile Iron	5.78	0.04	0.000
1060	P-580	306	J-456	J-457	8.0	Ductile Iron	0.00	0.00	0.000
1062	P-581	376	J-376	J-458	8.0	Ductile Iron	-53.14	0.34	0.000
1064	P-582	290	J-458	J-459	8.0	Ductile Iron	-56.20	0.36	0.000
1068	P-584	394	J-459	J-461	8.0	Ductile Iron	-12.13	0.08	0.000
1070	P-585	266	J-461	J-462	8.0	Ductile Iron	-50.21	0.32	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1072	P-586	372	J-462	J-463	8.0	Ductile Iron	-70.67	0.45	0.000
1078	P-590	266	J-463	J-465	8.0	Ductile Iron	-73.05	0.47	0.000
1080	P-591	352	J-465	J-466	8.0	Ductile Iron	-76.11	0.49	0.000
1082	P-592	145	J-466	J-467	8.0	Ductile Iron	-78.49	0.50	0.000
1084	P-593	382	J-467	J-468	6.0	Ductile Iron	-63.01	0.71	0.001
1085	P-594	385	J-468	J-379	6.0	Ductile Iron	-65.73	0.75	0.001
1086	P-595	405	J-467	J-378	6.0	Ductile Iron	-21.26	0.24	0.000
1088	P-596	436	J-462	J-469	8.0	Ductile Iron	18.08	0.12	0.000
1090	P-597	188	J-469	J-470	8.0	Ductile Iron	47.13	0.30	0.000
1091	P-598	69	J-470	J-459	8.0	Ductile Iron	47.13	0.30	0.000
1093	P-599	312	J-469	J-471	8.0	Ductile Iron	-31.09	0.20	0.000
1094	P-600	352	J-471	J-377	6.0	Ductile Iron	-34.15	0.39	0.000
1096	P-601	283	J-158	J-472	6.0	Ductile Iron	119.28	1.35	0.002
1100	P-603	412	J-224	J-474	8.0	Ductile Iron	2.51	0.02	0.000
1101	P-604	384	J-474	J-226	8.0	Ductile Iron	-7.07	0.05	0.000
1107	P-606	683	J-477	J-478	6.0	Ductile Iron	67.28	0.76	0.001
1113	P-610	90	J-479	J-480	6.0	Ductile Iron	-28.03	0.32	0.000
1115	P-611	104	J-480	J-481	6.0	Ductile Iron	-191.76	2.18	0.004
1117	P-612	710	J-481	J-482	12.0	Ductile Iron	1,083.24	3.07	0.003
1119	P-613	62	J-482	J-483	12.0	Ductile Iron	-125.94	0.36	0.000
1121	P-614	640	J-480	J-484	6.0	Ductile Iron	158.63	1.80	0.003
1122	P-615	33	J-484	J-482	12.0	Ductile Iron	-1,205.78	3.42	0.004
1123	P-616	267	J-484	J-455	12.0	Ductile Iron	1,360.67	3.86	0.005
1125	P-617	280	J-483	J-485	12.0	Ductile Iron	-133.29	0.38	0.000
1127	P-618	450	J-485	J-486	12.0	Ductile Iron	-135.33	0.38	0.000
1129	P-619	66	J-486	J-487	12.0	Ductile Iron	-141.45	0.40	0.000
1131	P-620	203	J-487	J-488	12.0	Ductile Iron	-142.81	0.41	0.000
1133	P-621	504	J-488	J-489	12.0	Ductile Iron	-144.17	0.41	0.000
1137	P-623	78	J-489	J-491	12.0	Ductile Iron	-144.17	0.41	0.000
1144	P-627	362	J-493	J-494	6.0	Ductile Iron	-82.05	0.93	0.001
1146	P-628	459	J-494	J-495	6.0	Ductile Iron	-85.45	0.97	0.001
1148	P-629	171	J-486	J-496	6.0	Ductile Iron	4.42	0.05	0.000
1151	P-630	55	J-497	J-498	4.0	Ductile Iron	0.00	0.00	0.000
1152	P-631	72	J-498	J-492	6.0	Ductile Iron	0.00	0.00	0.000
1154	P-632	400	J-13	J-499	12.0	Ductile Iron	-237.02	0.67	0.000
1157	P-634	400	J-499	J-500	12.0	Ductile Iron	-237.02	0.67	0.000
1158	P-635	140	J-500	J-14	12.0	Ductile Iron	-237.02	0.67	0.000
1160	P-636	1,235	J-66	J-501	16.0	Ductile Iron	-1,275.82	2.04	0.001
1161	P-637	88	J-501	J-22	16.0	Ductile Iron	-1,275.82	2.04	0.001
1169	P-642	564	J-97	J-504	8.0	Ductile Iron	293.57	1.87	0.002
1170	P-643	236	J-504	J-128	8.0	Ductile Iron	286.54	1.83	0.002
1172	P-644	236	J-129	J-505	6.0	Ductile Iron	-118.23	1.34	0.002
1174	P-646	405	J-504	J-505	4.0	Ductile Iron	7.04	0.18	0.000
1176	P-647	171	J-426	J-506	6.0	Ductile Iron	0.77	0.01	0.000
1178	P-648	127	J-506	J-507	6.0	Ductile Iron	3.40	0.04	0.000
1180	P-649	198	J-506	J-508	6.0	Ductile Iron	-6.03	0.07	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1182	P-650	502	J-413	J-509	4.0	Ductile Iron	-73.38	1.87	0.006
1183	P-651	171	J-509	J-421	6.0	Ductile Iron	-82.81	0.94	0.001
1186	P-654	429	J-85	J-416	8.0	Ductile Iron	276.49	1.76	0.002
1187	P-655	239	J-509	J-508	6.0	Ductile Iron	6.03	0.07	0.000
1190	P-656	250	J-510	J-511	8.0	Ductile Iron	6.72	0.04	0.000
1192	P-657	213	J-511	J-512	8.0	Ductile Iron	2.64	0.02	0.000
1194	P-658	329	J-512	J-513	8.0	Ductile Iron	-1.44	0.01	0.000
1196	P-659	13	J-254	J-514	10.0	Ductile Iron	1.14	0.00	0.000
1197	P-660	329	J-514	J-255	10.0	Ductile Iron	1.70	0.01	0.000
1198	P-661	224	J-513	J-514	8.0	Ductile Iron	-6.20	0.04	0.000
1203	P-663	18	J-113	J-517	8.0	Ductile Iron	7.31	0.05	0.000
1204	P-664	448	J-517	J-140	12.0	Ductile Iron	377.59	1.07	0.000
1205	P-665	365	J-517	J-127	8.0	Ductile Iron	-374.02	2.39	0.003
1207	P-666	21	J-108	J-518	8.0	Ductile Iron	637.78	4.07	0.009
1208	P-667	138	J-518	J-102	6.0	Ductile Iron	142.94	1.62	0.003
1209	P-668	421	J-518	J-111	12.0	Ductile Iron	489.74	1.39	0.001
1211	P-669	199	J-205	J-519	8.0	Ductile Iron	198.48	1.27	0.001
1212	P-670	315	J-519	J-206	6.0	Ductile Iron	195.76	2.22	0.005
1214	P-671	418	J-208	J-520	8.0	Ductile Iron	105.64	0.67	0.000
1215	P-672	53	J-520	J-211	6.0	Ductile Iron	5.94	0.07	0.000
1218	P-674	306	J-521	J-158	10.0	Ductile Iron	70.65	0.29	0.000
1221	P-675	250	J-193	J-523	12.0	Ductile Iron	56.79	0.16	0.000
1222	P-676	132	J-523	J-192	12.0	Ductile Iron	135.23	0.38	0.000
1223	P-677	412	J-423	J-430	6.0	Ductile Iron	138.53	1.57	0.003
1225	P-678	1,612	J-491	J-524	12.0	Ductile Iron	-76.23	0.22	0.000
1226	P-679	239	J-524	J-490	4.0	Ductile Iron	-92.00	2.35	0.009
1230	P-680	59	J-478	J-527	6.0	Ductile Iron	63.88	0.72	0.001
1231	P-681	346	J-527	J-479	6.0	Ductile Iron	-26.33	0.30	0.000
1232	P-682	640	J-495	J-527	6.0	Ductile Iron	-88.85	1.01	0.001
1233	P-683	83	J-48	J-37	10.0	Ductile Iron	-315.00	1.29	0.001
1240	P-685	81	J-529	J-18	3.0	Ductile Iron	0.00	0.00	0.000
1246	P-688	528	J-531	J-514	10.0	Ductile Iron	6.76	0.03	0.000
1248	P-689	147	J-55	J-532	10.0	Ductile Iron	4.42	0.02	0.000
1249	P-690	193	J-532	J-56	10.0	Ductile Iron	4.42	0.02	0.000
1251	P-691	220	J-58	J-533	10.0	Ductile Iron	-263.96	1.08	0.001
1252	P-692	558	J-533	J-59	10.0	Ductile Iron	-269.06	1.10	0.001
1254	P-693	812	J-534	J-142	6.0	Ductile Iron	-20.40	0.23	0.000
1256	P-694	319	J-161	J-535	6.0	Ductile Iron	-2.29	0.03	0.000
1259	P-696	969	J-160	J-536	10.0	Ductile Iron	-248.81	1.02	0.001
1260	P-697	674	J-536	J-161	10.0	Ductile Iron	-252.77	1.03	0.001
1262	P-698	316	J-61	J-537	8.0	Ductile Iron	5.78	0.04	0.000
1263	P-699	192	J-537	J-62	8.0	Ductile Iron	5.78	0.04	0.000
1265	P-700	282	J-73	J-538	6.0	Ductile Iron	14.82	0.17	0.000
1266	P-701	493	J-538	J-74	6.0	Ductile Iron	14.82	0.17	0.000
1268	P-702	464	J-129	J-539	6.0	Ductile Iron	93.13	1.06	0.001
1269	P-703	490	J-539	J-130	6.0	Ductile Iron	85.75	0.97	0.001
1271	P-704	95	J-87	J-540	8.0	Ductile Iron	53.47	0.34	0.000
1272	P-705	369	J-540	J-88	8.0	Ductile Iron	49.05	0.31	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1274	P-706	319	J-416	J-541	8.0	Ductile Iron	104.82	0.67	0.000
1275	P-707	309	J-541	J-92	8.0	Ductile Iron	100.74	0.64	0.000
1277	P-708	208	J-189	J-542	8.0	Ductile Iron	-66.79	0.43	0.000
1278	P-709	250	J-542	J-272	8.0	Ductile Iron	-66.79	0.43	0.000
1283	P-711	322	J-544	J-492	12.0	Ductile Iron	-74.74	0.21	0.000
1285	P-712	294	J-491	J-545	12.0	Ductile Iron	-70.66	0.20	0.000
1286	P-713	651	J-545	J-544	12.0	Ductile Iron	-73.04	0.21	0.000
1289	P-715	404	J-546	J-432	6.0	Ductile Iron	-96.22	1.09	0.001
1291	P-716	318	J-431	J-547	6.0	Ductile Iron	-94.18	1.07	0.001
1292	P-717	282	J-547	J-546	6.0	Ductile Iron	-94.18	1.07	0.001
1295	P-719	357	J-548	J-431	6.0	Ductile Iron	-82.38	0.93	0.001
1305	P-726	549	J-10	J-551	12.0	Ductile Iron	30.95	0.09	0.000
1307	P-727	459	J-551	J-552	10.0	Ductile Iron	30.95	0.13	0.000
1309	P-728	501	J-552	J-553	10.0	Ductile Iron	30.95	0.13	0.000
1311	P-729	388	J-553	J-554	10.0	Ductile Iron	30.95	0.13	0.000
1313	P-730	510	J-10	J-555	12.0	Ductile Iron	-37.76	0.11	0.000
1314	P-731	844	J-555	J-12	12.0	Ductile Iron	-104.69	0.30	0.000
1315	P-732	450	J-554	J-555	10.0	Ductile Iron	-66.93	0.27	0.000
1317	P-733	189	J-156	J-556	12.0	Ductile Iron	158.73	0.45	0.000
1318	P-734	333	J-556	J-521	12.0	Ductile Iron	76.31	0.22	0.000
1320	P-735	392	J-556	J-557	6.0	Ductile Iron	82.42	0.94	0.001
1322	P-736	284	J-521	J-558	8.0	Ductile Iron	3.96	0.03	0.000
1324	P-737	182	J-535	J-559	6.0	Ductile Iron	-100.17	1.14	0.001
1325	P-738	147	J-559	J-184	6.0	Ductile Iron	-295.93	3.36	0.011
1327	P-739	891	J-559	J-560	6.0	Ductile Iron	195.76	2.22	0.005
1329	P-740	321	J-192	J-561	6.0	Ductile Iron	199.40	2.26	0.005
1331	P-741	326	J-98	J-562	6.0	Ductile Iron	1.82	0.02	0.000
1333	P-742	151	J-530	J-563	10.0	Ductile Iron	17.90	0.07	0.000
1334	P-743	66	J-563	J-531	10.0	Ductile Iron	16.20	0.07	0.000
1336	P-744	202	J-563	J-564	8.0	Ductile Iron	0.00	0.00	0.000
1338	P-745	293	J-268	J-565	8.0	Ductile Iron	91.68	0.59	0.000
1339	P-746	327	J-565	J-271	8.0	Ductile Iron	84.88	0.54	0.000
1341	P-747	375	J-565	J-566	8.0	Ductile Iron	2.72	0.02	0.000
1344	P-749	264	J-567	J-306	6.0	Ductile Iron	5.61	0.06	0.000
1346	P-750	221	J-567	J-568	8.0	Ductile Iron	9.72	0.06	0.000
1348	P-751	72	J-305	J-569	6.0	Ductile Iron	25.73	0.29	0.000
1349	P-752	163	J-569	J-567	6.0	Ductile Iron	17.37	0.20	0.000
1351	P-753	117	J-569	J-570	8.0	Ductile Iron	8.36	0.05	0.000
1353	P-754	191	J-194	J-571	8.0	Ductile Iron	191.85	1.22	0.001
1354	P-755	138	J-571	J-209	8.0	Ductile Iron	191.84	1.22	0.001
1356	P-756	238	J-571	J-572	8.0	Ductile Iron	0.00	0.00	0.000
1358	P-757	136	J-184	J-573	10.0	Ductile Iron	-295.93	1.21	0.001
1359	P-758	146	J-573	J-187	10.0	Ductile Iron	-299.89	1.23	0.001
1361	P-759	208	J-573	J-574	8.0	Ductile Iron	3.96	0.03	0.000
1363	P-760	222	J-150	J-575	10.0	Ductile Iron	-93.49	0.38	0.000
1364	P-761	21	J-575	J-143	6.0	Ductile Iron	-123.32	1.40	0.002
1365	P-762	408	J-575	J-149	6.0	Ductile Iron	26.09	0.30	0.000
1372	P-763	481	J-323	J-577	6.0	Ductile Iron	5.44	0.06	0.000

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1380	P-768	45	J-122	J-116	6.0	Ductile Iron	27.06	0.31	0.000
1415	P-771	222	J-582	J-136	8.0	Ductile Iron	8.37	0.05	0.000
1417	P-772	301	J-109	J-583	2.0	Ductile Iron	7.14	0.73	0.002
1419	P-773	197	J-505	J-584	6.0	Ductile Iron	-121.64	1.38	0.002
1422	P-775	476	J-584	J-585	3.0	Ductile Iron	3.96	0.18	0.000
1423	P-776	69	J-583	J-585	6.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1424	P-777	76	J-585	J-132	6.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1426	P-778	307	J-152	J-586	6.0	Ductile Iron	-14.06	0.16	0.000
1427	P-779	659	J-586	J-151	10.0	Ductile Iron	-56.73	0.23	0.000
1429	P-780	301	J-586	J-587	10.0	Ductile Iron	37.22	0.15	0.000
1431	P-781	66	J-135	J-588	8.0	Ductile Iron	-20.70	0.13	0.000
1432	P-782	471	J-588	J-582	8.0	Ductile Iron	11.09	0.07	0.000
1433	P-783	310	J-587	J-588	8.0	Ductile Iron	34.50	0.22	0.000
1434	P-784	858	J-235	J-124	12.0	Ductile Iron	-167.96	0.48	0.000
1436	P-785	150	J-492	J-589	6.0	Ductile Iron	-74.75	0.85	0.001
1437	P-786	101	J-589	J-493	6.0	Ductile Iron	-79.33	0.90	0.001
1443	P-789	229	J-589	J-592	6.0	Ductile Iron	3.22	0.04	0.000
1444	P-790	715	J-592	J-590	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1447	P-791	355	J-57	J-594	10.0	Ductile Iron	-75.87	0.31	0.000
1448	P-792	154	J-594	J-172	6.0	Ductile Iron	-77.82	0.88	0.001
1450	P-794	939	J-594	J-161	10.0	Ductile Iron	-103.42	0.42	0.000
1452	P-795	44	J-71	J-595	8.0	Ductile Iron	238.49	1.52	0.001
1453	P-796	245	J-595	J-72	8.0	Ductile Iron	236.45	1.51	0.001
1455	P-797	368	J-595	J-596	6.0	Ductile Iron	0.00	0.00	0.000
1457	P-798	323	J-74	J-597	6.0	Ductile Iron	6.09	0.07	0.000
1458	P-799	711	J-597	J-72	2.0	Ductile Iron	-3.32	0.34	0.001
1459	P-800	563	J-596	J-597	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1460	P-801	355	J-220	J-278	16.0	Ductile Iron	-1,193.61	1.90	0.001
1461	P-802	339	J-523	J-191	6.0	Ductile Iron	-78.44	0.89	0.001
1462	P-803	400	J-106	J-584	6.0	Ductile Iron	125.60	1.43	0.002
1463	P-804	56	J-531	J-510	8.0	Ductile Iron	9.44	0.06	0.000
1465	P-805	318	J-476	J-598	4.0	Ductile Iron	70.00	1.79	0.005
1466	P-806	47	J-598	J-477	4.0	Ductile Iron	70.00	1.79	0.005
1467	P-807	189	J-590	J-598	2.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1470	P-808	354	J-277	J-599	16.0	Ductile Iron	1,056.13	1.69	0.001
1471	P-809	30	J-599	J-278	16.0	Ductile Iron	1,196.67	1.91	0.001
1474	P-811	65	J-600	J-276	6.0	Ductile Iron	68.75	0.78	0.001
1477	P-813	219	J-275	J-601	6.0	Ductile Iron	55.47	0.63	0.000
1478	P-814	376	J-601	J-600	8.0	Ductile Iron	52.75	0.34	0.000
1480	P-815	1,820	J-331	J-602	6.0	Ductile Iron	4.76	0.05	0.000
1486	P-820	444	J-330	J-603	12.0	Ductile Iron	155.48	0.44	0.000
1487	P-821	246	J-603	J-331	6.0	Ductile Iron	12.12	0.14	0.000
1490	P-823	347	J-410	J-604	10.0	Ductile Iron	41.51	0.17	0.000
1491	P-824	99	J-604	J-530	10.0	Ductile Iron	26.60	0.11	0.000
1492	P-825	5,362	J-604	J-603	10.0	Ductile Iron	-141.67	0.58	0.000
1495	P-827	449	J-599	J-605	8.0	Ductile Iron	-140.54	0.90	0.000
1496	P-828	356	J-605	J-600	8.0	Ductile Iron	-144.28	0.92	0.001

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1502	P-833	563	J-218	J-219	8.0	Ductile Iron	27.32	0.17	0.000
1504	P-834	281	J-430	J-607	6.0	Ductile Iron	-66.86	0.76	0.001
1505	P-835	94	J-607	J-548	6.0	Ductile Iron	-58.35	0.66	0.001
1506	P-836	1,409	J-548	J-607	6.0	Ductile Iron	15.99	0.18	0.000
1513	P-841	418	J-216	J-609	8.0	Ductile Iron	93.08	0.59	0.000
1514	P-842	113	J-609	J-218	8.0	Ductile Iron	223.08	1.42	0.001
1519	P-844	354	J-51	J-610	12.0	Ductile Iron	-228.18	0.65	0.000
1520	P-845	121	J-610	J-52	12.0	Ductile Iron	-234.65	0.67	0.000
1559	P-877	519	J-230	J-616	6.0	Ductile Iron	9.10	0.10	0.000
1568	P-884	193	J-216	J-618	12.0	Ductile Iron	61.62	0.17	0.000
1569	P-885	921	J-618	J-213	12.0	Ductile Iron	54.80	0.16	0.000
1571	P-886	746	J-143	J-619	16.0	Ductile Iron	243.63	0.39	0.000
1572	P-887	173	J-619	J-202	16.0	Ductile Iron	243.63	0.39	0.000
1586	P-889	45	J-280	J-620	8.0	Ductile Iron	18.16	0.12	0.000
1587	P-890	455	J-620	J-281	8.0	Ductile Iron	-147.90	0.94	0.001
1588	P-891	362	J-600	J-620	8.0	Ductile Iron	-163.34	1.04	0.001
1592	P-894	371	J-609	J-224	12.0	Ductile Iron	-143.86	0.41	0.000
1593	P-895	380	J-224	J-225	12.0	Ductile Iron	-90.92	0.26	0.000
1611	P-896	445	J-320	J-622	12.0	Ductile Iron	0.00	0.00	0.000
1619	P-897	103	T-3	J-159	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1626	P-898	221	J-48	J-624	16.0	Ductile Iron	1,111.99	1.77	0.001
1627	P-899	709	J-624	J-43	16.0	Ductile Iron	1,111.99	1.77	0.001
1628	P-900	78	J-624	T-4	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1638	P-905	220	J-79	T-5	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1646	P-910	118	J-630	J-624	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1648	P-911	171	J-79	J-631	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1651	P-912	836	J-603	J-633	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1652	P-913	108	J-633	T-6	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1653	P-914	78	J-632	J-633	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1655	P-915	817	J-429	J-414	8.0	Ductile Iron	199.28	1.27	0.001
1659	P-917	1,144	J-587	J-71	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1661	P-918	153	J-294	J-634	10.0	Ductile Iron	-332.84	1.36	0.001
1662	P-919	301	J-634	J-295	10.0	Ductile Iron	-177.59	0.73	0.000
1663	P-920	362	J-369	J-634	6.0	Ductile Iron	155.25	1.76	0.002
1665	P-921	1,467	J-12	J-635	12.0	Ductile Iron	-237.02	0.67	0.000
1666	P-922	192	J-635	J-13	12.0	Ductile Iron	-237.02	0.67	0.000
1668	P-923	3,122	J-635	J-636	12.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1670	P-924	1,759	J-14	J-637	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1672	P-925	7,439	J-14	J-638	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1674	P-926	139	J-638	T-7	16.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1675	P-927	1,232	J-472	J-557	8.0	Ductile Iron	-76.48	0.49	0.000
1677	P-928	153	J-557	J-639	10.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1679	P-929	131	J-77	J-640	16.0	Ductile Iron	1,088.07	1.74	0.001
1680	P-930	377	J-640	J-84	16.0	Ductile Iron	1,088.07	1.74	0.001
1682	P-931	188	J-640	J-641	6.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1690	P-932	466	J-461	J-642	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1692	P-933	257	J-642	J-643	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1694	P-934	176	J-643	J-644	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)

FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)
1696	P-935	862	J-642	J-645	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1698	P-936	246	J-645	J-646	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1700	P-937	143	J-646	J-647	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1701	P-938	848	J-646	J-643	8.0	Ductile Iron	(N/A)	(N/A)	(N/A)
1703	P-97 (1)	770	J-97	J-648	8.0	Ductile Iron	-77.94	0.50	0.000
1704	P-97 (2)	171	J-648	J-98	8.0	Ductile Iron	-37.45	0.24	0.000
1706	P-939	267	J-648	J-649	8.0	Ductile Iron	-40.49	0.26	0.000
1708	P-99 (1)	278	J-99	J-650	8.0	Ductile Iron	-41.09	0.26	0.000
1709	P-99 (2)	180	J-650	J-100	8.0	Ductile Iron	-81.58	0.52	0.000
1710	P-940	602	J-649	J-650	8.0	Ductile Iron	-40.49	0.26	0.000
1712	P-74 (1)	151	J-77	J-651	16.0	Ductile Iron	11.24	0.02	0.000
1715	P-941	827	J-651	J-652	12.0	Ductile Iron	2.92	0.01	0.000
1717	P-74 (2)(1)	352	J-651	J-653	16.0	Ductile Iron	8.32	0.01	0.000
1718	P-74 (2)(2)	388	J-653	J-78	16.0	Ductile Iron	11.24	0.02	0.000
1719	P-942	466	J-652	J-653	12.0	Ductile Iron	2.92	0.01	0.000

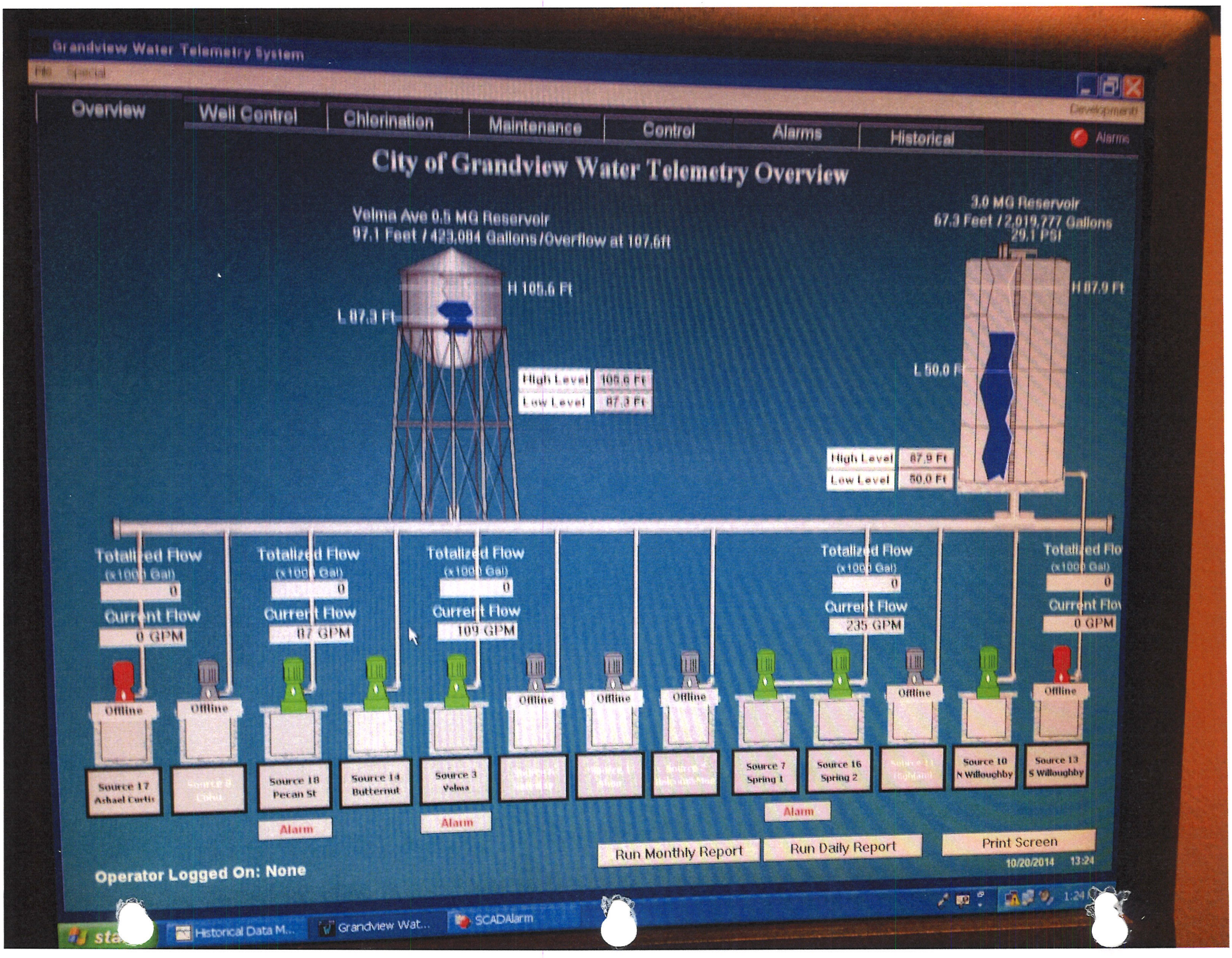
FlexTable: Tank Table

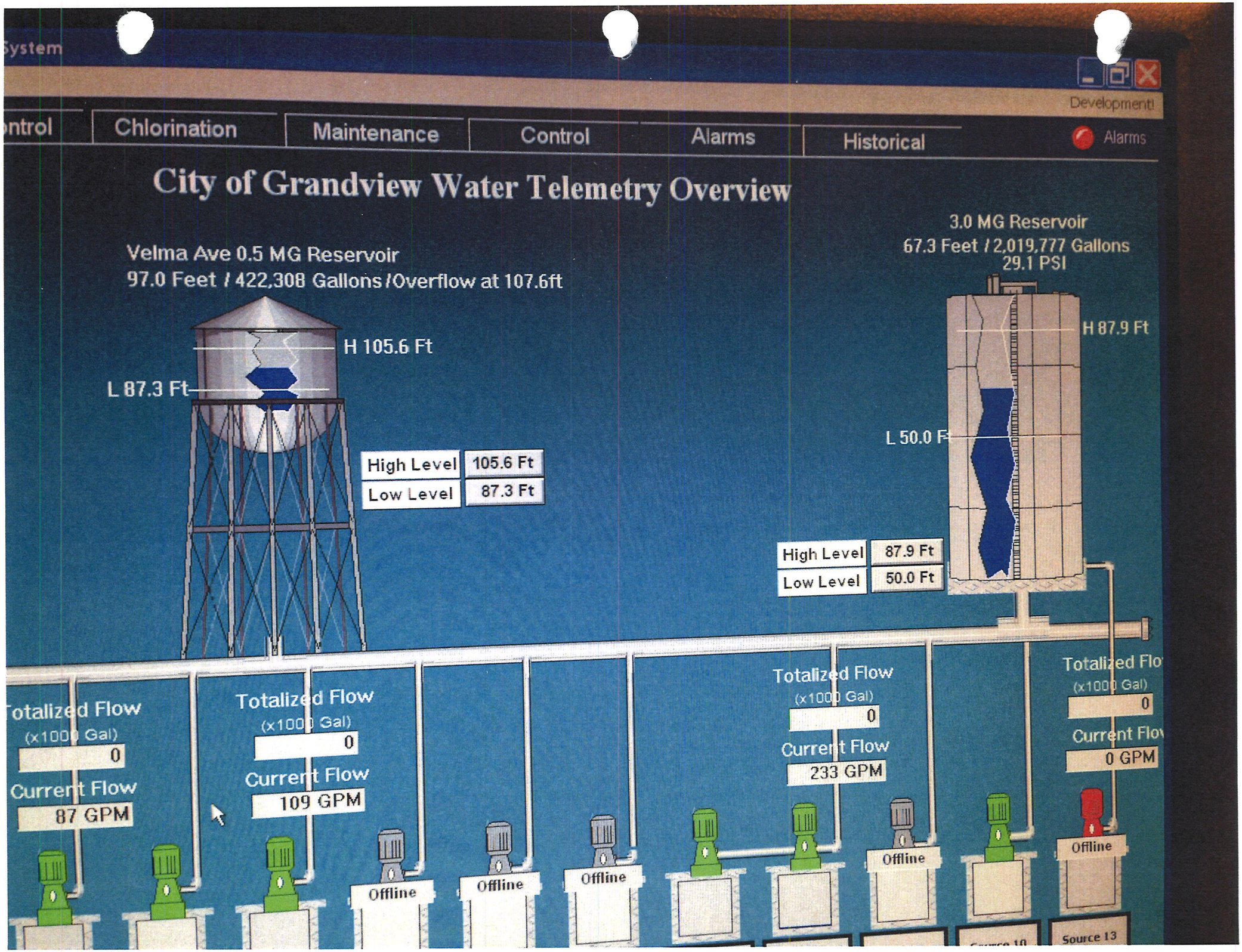
ID	Label	Zone	Elevation (Base) (ft)	Elevation (Minimum) (ft)	Elevation (Initial) (ft)	Elevation (Maximum) (ft)	Diameter (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
110	T-1	<None>	855.0	855.0	936.6	941.6	77.00	1,773.98	936.6
285	T-2	<None>	834.0	906.0	936.6	941.6	51.00	1,484.87	936.6
1618	T-3	<None>	770.5	770.5	937.1	941.6	75.00	(N/A)	(N/A)
1623	T-4	<None>	855.0	855.0	937.1	941.6	77.00	(N/A)	(N/A)
1629	T-5	<None>	833.0	833.0	937.1	941.6	110.86	(N/A)	(N/A)
1639	T-6	<None>	834.0	834.0	937.1	941.6	110.86	(N/A)	(N/A)
1673	T-7	<None>	897.5	897.5	937.1	941.6	75.00	(N/A)	(N/A)

CITY OF GRANDVIEW

25.
TELEMETRY CONTROL SYSTEM SCREEN PRINTOUTS

HLA
Engineering and Land Surveying, Inc.


Grandview Water Telemetry System
Overview
Well Control
Chlorination
Maintenance
Control
Alarms
Historical
Alarms
City of Grandview Water Telemetry Overview
Velma Ave 0.5 MG Reservoir
97.1 Feet / 423,084 Gallons/Overflow at 107.6ft
H 105.6 Ft
L 87.3 Ft
High Level 105.6 Ft
Low Level 87.3 Ft
3.0 MG Reservoir
67.3 Feet / 2,019,777 Gallons
29.1 PSI
H 87.9 Ft
L 50.0 Ft
High Level 87.9 Ft
Low Level 50.0 Ft
Totalized Flow
Current Flow
0 GPM
87 GPM
109 GPM
235 GPM
Offline
Source 17 Ashael Curtis
Source 18 Pecan St
Source 14 Butternut
Source 3 Velma
Source 7 Spring 1
Source 16 Spring 2
Source 10 N Willoughby
Source 13 S Willoughby
Alarm
Run Monthly Report
Run Daily Report
Print Screen
10/20/2014 13:24
Operator Logged On: None
Historical Data M...
Grandview Wat...
SCADAlarm
1:24


System
Development!
ntrol
Chlorination
Maintenance
Control
Alarms
Historical
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29.1 PSI
H 87.9 Ft
L 50.0 F
High Level 87.9 Ft
Low Level 50.0 Ft
Totalized Flow
(x1000 Gal)
0
Current Flow
87 GPM
Totalized Flow
(x1000 Gal)
0
Current Flow
109 GPM
Offline
Offline
Offline
Totalized Flow
(x1000 Gal)
0
Current Flow
233 GPM
Offline
Totalized Flo
(x1000 Gal)
0
Current Flo
0 GPM
Offline
Source 13

26.
CITY OF GRANDVIEW DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS FOR PUBLIC WORKS IMPROVEMENTS

HLA
Engineering and Land Surveying, Inc.

CITY OF GRANDVIEW

DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS FOR PUBLIC WORKS IMPROVEMENTS

JANUARY 2015

CITY OF GRANDVIEW

DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS FOR PUBLIC WORKS IMPROVEMENTS

City of Grandview
603 North Willoughby Road
Grandview, WA 98930

(509) 882-9211
FAX (509) 882-9232

JANUARY 2015

INDEX

CHAPTER 1 - GENERAL

1. ENACTING AUTHORITY

These Design and Construction Standards are enacted by the City of Grandview, in accordance with state law, to protect and preserve the public health, safety, and general welfare.

2. PURPOSE

The purpose of these Design and Construction Standards is to provide consistent requirements, standards, and specifications for the design and construction of public works infrastructure improvements by the City and by private developers.

3. STATE ENVIRONMENT POLICY ACT (SEPA)

These Design and Construction Standards will not affect any considerations involving issues under the State Environmental Policy Act (SEPA). The City's responsible official will continue to make all necessary SEPA decisions when individual proposals are submitted.

4. CONFLICTING PROVISIONS

The standards, procedures, and requirements of these Design and Construction Standards are the minimum necessary to promote the health, safety, and welfare of the residents of the City of Grandview. The City may adopt more rigorous or different standards, procedures, and requirements whenever necessary. If the provisions of these Design and Construction Standards conflict with one another, or if a provision of these Design and Construction conflicts with the provision of the City Code or another Ordinance of the City, the most restrictive provision or the provision imposing the highest standard shall prevail.

5. SEVERANCE

If any provision of these Design and Construction Standards or its application to any person or circumstance is for any reason held to be invalid, the remainder of these Design and Construction Standards or the application of the provisions is not affected.

6. PROCESS

Design Phase

Any person, firm, or corporation (the "Developer") whom intends to construct a public works improvement shall apply to the City Public Works Director. The request by the Developer shall include a map showing the area to be served; the number and type of proposed units, or the type and size of the proposed facility and a general layout of the development.

Upon receipt of the design requirements from the Public Works Director, the Developer shall employ a Civil Engineer licensed by the State of Washington to prepare plans and specifications for the public works improvements in accordance with these Design and Construction Standards and the Grandview Municipal Code. The Developer or its Consulting Engineer shall submit two (2) paper sets of plans and specifications for review by the City and/or the City's Engineer.

The City shall review the initial submittal and indicate corrections or additions or request additional information and return one "red-lined" set to the Developer. The Developer shall make the required

corrections and resubmit one (1) paper set of revised plans and specifications to the City Public Works Department.

When it has been determined the plans and specifications indicate compliance with City of Grandview Design and Construction Standards, the Developer shall submit to the City the original plan tracings and specifications for final approval. The cover sheet of the original plans shall contain an approval signature block as specified in CHAPTER 2, Section 2. The City's responsible official will sign the plans. Such approved plans and specifications shall not be changed, modified, or altered without authorization from the City Public Works Director. The Developer shall provide the City with a minimum of two (2) copies of the approved plan set and specifications for use by City Inspectors and City Departments as required.

Upon receipt by the Public Works Director of the plan review fee, as discussed in CHAPTER 1, Section 8, the approved original plans and specifications will be returned to the Developer.

Construction Phase

Before the Developer's Contractor commences any work, he shall be required to attend a Preconstruction Conference with the City Public Works Department, the City's Engineer, and utility companies as determined by the City of Grandview. The Contractor will submit his insurance and construction schedule at this meeting.

All construction shall be inspected by the City of Grandview or its authorized agent. The Contractor shall give ten (10) days minimum prior notice to the Public Works Director the start of any construction activities.

After cleanup by the Contractor and final inspection by the City, the City will calculate the inspection fees and submit them to the Developer. The Developer will pay the inspection fee, as discussed in Section 8, to the Public Works Department.

7. ENGINEERING DESIGN PLAN REQUIREMENTS

All plans, specifications, engineering calculations, diagrams, details, and other relevant data shall be designed and prepared by a Civil Engineer licensed by the State of Washington (Consultant), in accordance with CHAPTER 2.

8. PLAN REVIEW AND INSPECTION FEE

Plan review and inspection fees are hereby established to defray the administrative expense of plan review and inspection costs incurred by the City of Grandview.

The plan review and inspection fee shall be the total actual costs incurred by the City of Grandview, its agents, employees, and elected or appointed officials, for review and approval of the plans and specifications and for inspection of construction of the public works improvements. The fee shall include, but not be limited to, initial plan review, subsequent meetings with the Developer, explanations to the Developer's engineering consultant, reviews of revised plans, construction inspection, re-inspections, and a final inspection prior to the expiration of the maintenance period.

The plan review fee shall be tabulated and sent to the Developer and paid by the Developer in full prior to the City releasing the approved original plans and specifications for construction or the issuance of a Building Permit.

The construction inspection fee shall be tabulated and sent to the Developer and paid by the Developer in full prior to the City issuing a Certificate of Occupancy or final acceptance of the public works improvements.

9. RECORD DRAWINGS

The Developer's Consulting Engineer shall prepare and maintain a neatly marked, full-sized print set of record drawings showing the final location and layout of all new construction of the public facilities. Prior to final acceptance by the City of Grandview, one (1) set of reproducible Record Drawings and two (2) sets of prints prepared by the Developer's engineer and clearly marked "Record Drawings" shall be delivered to the Public Works Director for review and acceptance.

10. TRANSFER OF OWNERSHIP

The Developer shall complete a Transfer of Ownership of Utility System Form upon completion of the construction of the public works improvements and pending acceptance by the City. This form may be found in Appendix A.

11. EASEMENTS

Public utility easements shall be established for the location of new and future public improvements serving new land divisions and land developments. Easements shall also be granted across the front of new lots and existing lots to provide future utility access as required.

All easements required shall be prepared by the Developer on the proper form and format for recording at the Yakima County Auditor's Office. The easement legal description shall be prepared by a land surveyor licensed in the State of Washington. The executed and notarized easement document shall be submitted to the Public Works Director for recording.

Ten (10) foot wide utility easements shall be dedicated along the front of each lot in subdivisions and short subdivisions. Easements for new and/or future utility lines shall be a minimum of sixteen (16) feet wide, provided the width of the easements for buried utilities will be at least twice the depth of the planned excavation.

Utility easements shall be continuous and aligned from block to block within a subdivision and with easements in adjoining subdivisions to facilitate the extension and future extension of public utilities.

CHAPTER 2 - GENERAL PLAN REQUIREMENTS

All plans, details, specifications, engineering calculations, diagrams, and other relevant data shall be designed and prepared by a Civil Engineer licensed by the State of Washington.

GENERAL PLAN FORMAT

1. Plan sheets and profile sheets or combined plan and profile sheets and detail sheets shall be on a sheet size of 24" x 36" or 22" x 34".

2. The Cover sheet shall contain the following:

    a. Name, address, and phone number of the owner/developer;
    b. Name, address, and phone number and stamp of the Civil Engineer preparing the plans (Consultant);
    c. "APPROVED FOR CONSTRUCTION BY THE CITY OF GRANDVIEW" with signature block for City final approval of the plans;
    d. "APPROVED FOR CONSTRUCTION BY THE GRANDVIEW FIRE DEPARTMENT" with signature block for final approval of the plans;
    e. "APPROVED FOR CONSTRUCTION BY _____ IRRIGATION DISTRICT" (when applicable) with signature block for final approval of the plans;
    f. Vicinity map showing the project site location;
    g. An overall site plan with contours;
    h. Sheet Index;
    i. Applicable project information; and
    j. The utility locate call # 1-800-424-5555.

3. Each sheet shall contain the following project information:

    a. Project title and City project number, work order number, or LID number, if appropriate;
    b. Quarter section, Section - Township – Range;
    c. Sheet title;
    d. Page (of page) numbering;
    e. Revision block;
    f. Subdivision or short plat name.

4. All plan sheets must have a NORTH arrow preferably pointing to the top of the sheet or to the left, and must indicate the drawing scale. All engineering plans must be drawn to an appropriate engineer's scale. For profiles, the vertical scale shall be 1"=2', 1"=5' or 1"=10'. The horizontal scale shall be the same for both plan and profile and shall normally be 1" = 20'. Plan and profile stationing shall generally read left to right.

5. The Vertical Datum for all plan submittals must be based on the City of Grandview datum. The benchmark used shall be referenced on the plans. An assumed datum will not be accepted.

6. Existing features and topography within the project construction limits must be shown on the plans. This shall include existing road width and surfacing, utility poles, existing underground utilities and surface appurtenances, significant trees, landscaping, and other elements that may affect design/construction.

7. Plan sheets shall indicate all adjacent property lines, right-of-way lines, and easements.

8. Plan sheets shall show all horizontal survey control as required to properly locate and tie the improvements in horizontal location.

WATER SYSTEM PLAN REQUIREMENTS

See CHAPTER 4 for specific design requirements.

1. Show all existing and proposed water system features if known, including but not limited to:

    a. Water mains;
    b. Water valves;
    c. Water meters;
    d. Water service lines;
    e. Fire hydrants;
    f. Blow offs;
    g. Air and vacuum release valve assemblies;
    h. Pressure reducing valves;
    i. Fire sprinkler system lines;
    j. Double check valves;
    k. Post indicator valves;
    l. Thrust blocking.

2. Indicate all easements required for the water main extensions and future extensions.

3. Show the water system and the sanitary sewer system on the same plan and profile view for verification of minimum separation requirements. The design information for each system may be on individual drawings for that system.

4. Show the length, size, and pipe type for all main extensions, fire sprinkler system services, and domestic services where applicable.

5. Identify all joint connections; provide detail of all non-standard joints.

6. Show by station or dimension the location of all fire hydrants, tees, crosses, and services relative to centerline or property lines.

7. A profile view shall be shown for all City water main extensions, aligned if practical with the plan view. Clearly indicate the horizontal and vertical scales.

8. Show the minimum cover and minimum separation on each sheet.

9. In the profile view, show all utilities crossing the proposed water main.

SANITARY SEWER SYSTEM PLAN REQUIREMENTS

See CHAPTER 5 for specific design requirements.

1. Show all existing and proposed sanitary sewer system features including, but not limited to, the following:

a. Sewer mains, gravity and force mains;
b. Side service, proposed locations;
c. Manholes;
d. Clean outs;
e. Pump stations.

2. Indicate all easements required for the sanitary sewer main extensions and laterals.

3. Provide an overall site plan of development with contours, to show that all lots/parcels will be served by the proposed sewer system at design depth for all new development.

4. Show the sanitary sewer system and water system on the same plan and profile for verification of minimum separation requirements. The design information for each may be on individual drawings for that system.

5. Slope, length, size, and pipe type shall be indicated for all lines and side sewers. Pipe length shall be measured from centerline of manholes.

6. Provide a profile for each sanitary sewer main extension. Clearly indicate the vertical and horizontal scale. Show the profile on the same sheet with, and aligned underneath, the plan view as practical.

7. The plan and profile must show the location of all existing and proposed gas, water, irrigation, storm drain, and other utility lines and crossings.

8. Generally show all vertical data in the profile view and all horizontal data in the plan view. It is not desirable to repeat the vertical data in the plan view unless it does not show in a profile.

9. Each manhole shall be uniquely numbered and shall be stationed off of a referenced centerline. Indicate rim and invert elevations in and out at all manholes. Indicate the length of each side sewer stub, the centerline stationing for each side sewer, and the size.

STORMWATER SYSTEM PLAN REQUIREMENTS

See CHAPTER 6 for specific design requirements.

1. Show all existing features if known and all proposed storm sewer (drain) system features, including but not limited to:

a. Storm drain mains and lines;
b. Catch basins;
c. Inlets;
d. Drywells;
e. Infiltration trenches;
f. Retention systems;
g. Biofiltration swales;
h. Culverts;
i. Streams;
j. Ditches;
k. Natural drainage swales;
l. Headwalls;
m. Oil/water separator assembly;

n. Other requirements of the Department of Ecology Stormwater Management Manual for Eastern Washington.

2. Indicate all grate, rim, and invert elevations in the profile view.

3. Provide stormwater runoff and drainage facilities sizing calculations as described in CHAPTER 6.

4. Indicate all easements required for the storm drainage system.

5. The plan shall clearly indicate the location of the storm drainage items stationed from a referenced centerline.

6. Show all horizontal measurements and control in the plan view.

7. Show slope, length, size, and pipe material for all storm drain mains and lines.

8. All catch basins and inlets shall be uniquely numbered and shall be clearly labeled. Stationing and offsets shall be indicated from referenced centerline. Show all proposed storm drain features within the right of way in a profile.

STREET PLAN REQUIREMENTS

See CHAPTER 7 for specific design requirements.

1. Provide a Plan and Profile of all new public roadways or extensions of existing roadways. Provide topography within the R/W including utilities. Indicate all horizontal and vertical curve data, percent of grade, bearings, centerline stationing every 50 feet, finish grade elevations, and existing ground line. The profile of the existing centerline ground should extend a minimum of 100 feet before the beginning and at the end of the proposed improvements to show the gradient blend.

2. Provide a cross section or typical section of all rights of way indicating right-of-way width, centerline, pavement width, super-elevation or crown, sidewalk, street lights, curb and gutter, pavement, and base thickness of proposed section.

3. Show all existing and proposed roadway improvements, including but not limited to:

   a. Pavement and edge of pavement;
   b. Concrete curb and gutter;
   c. Sidewalk(s);
   d. Utilities (manholes, utility poles, pedestals, valves, water meters, etc.);
   e. Sidewalk ramps;
   f. Signs and Barricades;
   g. Driveways;
   h. Rockery or retaining walls;
   i. Mailboxes;
   j. Monuments;
   k. Streetlights, conduit junction boxes, and service cabinet;
   l. Compliance with ADA requirements.

4. Align the profile view with the plan view, if practical. Clearly indicate the horizontal and the vertical scale.

5. Show all Right-of-Way (R/W) lines, centerlines, and roadway widths for all rights of way.

6. Clearly differentiate between areas of existing pavement, areas of new pavement, and areas to be overlaid.

7. Clearly label all profiles with respective street names and plan sheet reference numbers if drawn on separate sheets.

8. For developments where road work is required on an existing street, development plans are required to include cross section of the existing street and spot elevations at proposed intersections and appurtenances to the project.

CHAPTER 3 - GENERAL REQUIREMENTS FOR ALL PROJECTS

FORWARD

The City of Grandview has adopted the latest edition of the *Standard Specifications for Road, Bridge, and Municipal Construction* prepared by the Washington State Department of Transportation (WSDOT), and the American Public Works Association (APWA) General Special Provisions (GSP's) for Division One General Requirements as the standard specifications governing all design and construction of public works improvements by the City and by private developers.

All references hereinafter made to the "Standard Specifications" shall refer to the latest edition of the Standard Specifications described above. Except as may be amended, modified, or supplemented hereinafter, each section of the Standard Specifications shall be considered as much a part of these requirements as if they were actually set forth herein.

The Standard Specifications, General and Project Special Provisions, and City Standard Details contained in these Design and Construction Standards shall apply in their entirety to all City of Grandview public works projects. These Design and Construction Standards have been prepared to form a compiled document intended to assist and inform developers, consultants, and contractors of the construction requirements to be used on proposed public works improvements.

The Standard Specifications, General and Project Special Provisions, and City Standard Details shall periodically be amended, revised and updated. It shall be the responsibility of each user of this information to verify that he has the latest revisions prior to submitting any work covered by these specifications and details.

Developers and contractors are encouraged to contact the City of Grandview Public Works Department to obtain a copy of these standards.

GENERAL

All work shall be done in accordance with the approved Plans, the latest edition of the *Standard Specifications for Road, Bridge, and Municipal Construction* prepared by the Washington State Department of Transportation, amendments to the Standard Specifications, referenced codes and organizations, and these Special Provisions.

The American Public Works Association (APWA) General Special Provisions (G.S.P.'s) to Division One of the WSDOT Standard Specifications shall amend Division One of the *Standard Specifications for Road, Bridge, and Municipal Construction.* These GSP's are available at www.wsdot.wa.gov/partners/apwa/.

All materials incorporated into a proposed public works improvements project shall meet the requirements of Division 9 of the Standard Specifications or City of Grandview Design and Construction Standards as shown in the Standard Details and Special Provisions.

Any Public Works facility improvements or components that are not specifically addressed in these Design and Construction Standards shall be designed by a professional engineer and provided to the City for review by the City Engineer and approval.

1-01 DEFINITIONS AND TERMS

1-01.3 Definitions

The terms defined in Section 1-01.3 of the Standard Specifications shall be further described by the following:

Consultant:	Means an engineer licensed in the State of Washington, employed by the Developer to design the improvement and prepare plans and specifications, perform construction staking, or similar services.
Construction Documents:	Means the project plans, specifications, and special provisions prepared by the Developer's Consultant for the public works improvements contemplated and approved by the City.
City:	Means the City of Grandview, a municipal corporation, as represented by its authorized officials, employees or agents.
Contractor:	Means the person or firm employed by the Developer or under Contract with the City to do the construction of the public works improvements.
Developer:	Means the person or firm constructing the new development and engaging the services of and employing consultants, and/or contractors and paying for the design and construction of the public works improvements to be transferred to the City.
Drawings:	Means the construction plans prepared by the Developer's Consultant for the public works improvements contemplated. The terms "Construction Documents," "Contract Documents," "Plans," "Engineer's Plans," "Engineer's Drawings," "Working Drawings," and "Project Manual" are synonymous.
Engineer:	Means the appointed City Engineer for the City of Grandview or his/her duly authorized agent or representative.
Owner:	Means the City of Grandview acting through its legally established officials, boards, commissions, etc., as represented by its authorized officers, employees, or agents.
Public Works Director:	Means the appointed official for the City, responsible for managing the Department of Public Works.
Standard Details:	Means specific drawings adopted by the City of Grandview and revised from time to time which show frequently recurring components of work which have been standardized for use.
Standard Specifications:	The latest edition of *Standard Specifications for Road, Bridge, and Municipal Construction* prepared by the Washington State Department of Transportation, and amendments, and the APWA GSP's for Division One that are, by this reference, made part of the Contract Documents. Except as may be amended, modified, or supplemented hereinafter, each section of the Standard

Specifications shall be considered as much a part of these Construction Documents as if they were actually set forth herein.

Special Provisions: The Special Provisions supplement or modify the Standard Specifications and supersede any conflicting provisions of the *Standard Specifications for Road, Bridge, and Municipal Construction* and the appended amendments to the Standard Specifications and are made a part of a Construction Document.

Should any conflicts be encountered, the following inter-relationships shall govern: The Special Provisions shall supersede the APWA GSP's, which shall supersede the WSDOT Amendments, which shall supersede the Standard Specifications.

1-03 AWARD AND EXECUTION OF CONTRACT

1-03.4 Contract Bond

Supplement this section with the following:

The Developer/Contractor shall guarantee the material provided and workmanship performed under the Contract for a period of one year from and after the final acceptance thereof by the Developer and the City of Grandview. The Developer guarantee shall be confirmed via a subdivision or performance bond issued by a surety company acceptable to the City.

1-04 SCOPE OF THE WORK

1-04.4 Changes

Supplement this section with the following:

No changes in the work covered by the approved Construction Documents shall be made without having prior written approval of the Developer and the City.

1-04.11 Final Cleanup

Delete this section and replace it with the following:

The Contractor shall perform final cleanup as provided in this section to the Developer's and City's satisfaction. The date of completion will not be established until this is done. The material sites and all ground the Contractor occupied to do the work shall be left neat and presentable. The Contractor shall:

1. Remove all rubbish, surplus materials, discarded materials, falsework, temporary structures, equipment, and debris, and

2. Deposit in embankments, or remove from the project, all unneeded, oversized rock left from grading, surfacing, or paving.

Partial cleanup shall be done by the Contractor when he feels it is necessary or when, in the opinion of the City or Developer, partial clean-up should be done prior to either major cleanup or final inspection.

1-04.12 Waste Site (New Section)

The following new section shall be added to the Standard Specifications:

Where there is additional waste excavation in excess of that needed for the project and in excess of that needed for compliance with requests of the Developer or City, the Contractor shall secure and operate his own waste site at his own expense. The Contractor shall also be required to secure and operate his own waste site at his own expense for the disposal of all unsuitable material, asphalt, concrete, debris, waste material, and any other objectionable material which is directed to waste.

The Contractor shall comply with the State of Washington's regulations regarding disposal of waste material as outlined in WAC 173-304, Subchapter 461.

1-05 CONTROL OF WORK

1-05.1 Authority of the Engineer

Supplement this section with the following:

Unless otherwise expressly provided in the approved Construction Drawings, Specifications and Addenda, the means and methods of construction shall be such as the Contractor may choose; subject, however, to the Consultant and the City's right to reject the means and methods proposed by the Contractor which (1) will constitute or create a hazard to the work, or to persons or property; or (2) will not produce finished work in accordance with the terms of the approved Construction Documents. Approval of the Contractor's means and methods of construction or his failure to exercise his right to reject such means or methods shall not relieve the Contractor of the obligation to accomplish the result intended by the Construction Documents; nor shall the exercise of such right to reject create a cause for action for damages.

1-05.3(1) Project Record Drawings (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor shall maintain a neatly marked, full-size set of record drawings showing the final location and layout of all new construction. Drawings shall be kept current weekly, with all field instruction, change orders, and construction adjustment.

Drawings shall be subject to the inspection of the Developer and the City at all times. Prior to acceptance of the work, the Contractor shall deliver to the Developer one set of neatly marked as-built drawings showing the information required above. The Developer shall prepare and deliver to the City of Grandview the neatly marked Record Drawings in accordance with Section 9 of CHAPTER 1.

1-05.5 Construction Staking (New Section)

The following new section shall be added to the Standard Specifications:

The Consultant retained by the Developer will establish the line and grade of proposed construction by offset stakes. The Consultant will establish the centerline for minor structures and establish bench marks at convenient locations for use by the Contractor.

The Contractor shall establish grades from the Consultant's stakes at suitable intervals in accordance with good practice and acceptable to the City. Where new construction adjoins existing construction, the Contractor shall make such adjustments in grade as are necessary.

1-05.6(1) Testing (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor/Developer shall be responsible for scheduling and paying for all material and compaction testing required by these Design and Construction Standards for new public works Improvements. All testing services shall be performed by an independent, certified testing firm and/or laboratory meeting the approval of the City. The Contractor shall submit information relating to the qualifications of the proposed testing firm to the City for review and approval prior to the preconstruction conference. The testing service shall provide copies of all test results to the City immediately after completion. The testing frequencies listed below may be modified to assure compliance with the Specifications.

Trench Backfill

Copies of moisture-density curves for each type of material encountered and copies of all test results shall be provided to the City as construction progresses.

Compaction tests shall be taken at a frequency and at depths sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for each 100 linear feet of mainline pipeline trench and one (1) test for each street crossing. At alternating 100-foot locations along the main trench line, tests shall be taken at 1-foot, 2-foot, and 3-foot depths below finish grade.

The City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required trench backfill densities.

All trenches shall be backfilled and compacted to at least 95 percent of maximum density as determined by ASTM D 698 (Standard Proctor).

Roadway Subgrade (Embankment and Excavation Sections)

Copies of the moisture density curves for each type of material encountered and copies of all test results shall be provided to the City as construction progresses.

Compaction tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of subgrade.

The City may request additional tests be performed at the Contractor's expense, if test results do not meet the required subgrade densities. Subgrade compaction shall be as specified for Roadway Embankment in Section 2-03.3(14)D.

Ballast and Crushed Surfacing

Copies of the moisture density curves and gradation for each type of material incorporated into the project and copies of all test results shall be provided to the City as construction progresses.

Compaction tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of surface area for each lift of ballast or crushed surfacing.

The City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required subgrade densities.

Compaction of ballast and crushed surfacing shall be as specified in Section 2-03.3(14).

Asphalt Paving

Copies of the reference maximum density test for each class of Hot Mix Asphalt pavement and copies of all test results shall be provided to the City as construction progresses.

Density tests shall be taken at a frequency sufficient to document that the required density has been achieved. At a minimum, one (1) compaction test shall be taken for every 5,000 square feet of surface area for each lift of asphalt concrete pavement.

The City may request additional tests be performed at the Contractor's/Developer's expense, if test results do not meet the required subgrade densities.

Compaction of Hot Mix Asphalt pavement shall be as specified in Section 5-04.3(10)B.

Cement Concrete Curb, Gutter, and Sidewalk

A copy of the cement concrete design mix or certification from the concrete supplier that the concrete provided has been prepared to the strength requirement as specified elsewhere in these specifications.

Concrete strength cylinders shall be taken and tested for each truck load of concrete delivered to the job. All testing procedures shall be conducted in accordance with applicable Sections of Division 6-02 of the Standard Specifications.

Copies of all test results shall be provided to the City as construction progresses.

1-05.8 Means and Methods (New Section)

The following new section shall be added to the Standard Specifications:

Unless otherwise expressly provided in the Contract Drawings, Specifications and Addenda, the means and methods of construction shall be such as the Contractor may choose; subject, however, to the Consultant's or City's right to reject means and methods proposed by the Contractor which (1) will constitute or create a hazard to the work, or to persons or property; or (2) will not produce finished work in accordance with the terms of the Contract. The Consultant's or City's approval of the Contractor's means and methods of construction or his failure to exercise his right to reject such means or methods shall not relieve the Contractor of the obligation to accomplish the result intended by the Contract; nor shall the exercise of such right to reject create a cause for action for damages.

1-05.10 Guarantees

Delete this section and replace it with the following:

If, within one year (1) after the date of Final Acceptance of the Work, defective and unauthorized materials or work is discovered, the Contractor shall promptly, upon written request, return and in accordance with the instructions either correct such work, or if such work has been rejected, remove it from the Project Site and replace it with non-defective and authorized work, all without cost to the City. If the Contractor does not promptly comply with the written request to correct defective and unauthorized work, or if an emergency exists, the City reserves the right to have defective and unauthorized work corrected or rejected, removed, and replaced pursuant to the provisions of Section 1-05.7 of the Standard Specifications.

The Contractor agrees the above one-year limitation shall not exclude nor diminish any rights under any law to obtain damages and recover costs resulting from defective and unauthorized work discovered after one year.

1-05.16 Water and Power (New Section)

The following new section shall be added to the Standard Specifications:

Water Supply: Water for use on the projects may be obtained/purchased from the City of Grandview and the Contractor shall arrange for and convey the water from the nearest convenient hydrant or other source at his own expense. The hydrants shall be used in accordance with the City of Grandview Water Department regulations.

The City reserves the right to deny the use of fire hydrants where deemed inappropriate by the City.

Power Supply: The Developer shall make necessary arrangements, and shall bear the costs for power necessary for the performance of the work.

1-07 LEGAL RELATION AND RESPONSIBILITIES TO THE PUBLIC

1-07.1 Laws to be Observed

Amend the second sentence of the first paragraph to read:

The Contractor/Developer shall indemnify and save harmless the City of Grandview (including any agents, officers, employees, and representatives) against any claims that may arise because the Contractor (or any employee of the Contractor or subcontractor or materialman) violated a legal requirement.

1-07.5(3) State Department of Ecology

Add the following:

9. Comply with the requirements and special general conditions of the *Construction Stormwater General Permit* issued by the Washington State Department of Ecology to the Developer/Contractor for this project.

1-07.5(4) Air Quality

Supplement this section with the following:

The Contractor shall comply with the environmental provisions of local air pollution authorities, Yakima County Clean Air Authority.

A method of dust control during construction shall be submitted to, and approved by, the Yakima County Clean Air Authority. A written copy of their approval shall be submitted to the Public Works Director prior to commencement of construction. The Contractor/Developer shall designate a project coordinator for contact during construction regarding alleged air quality violations and other complaints.

1-07.13 Contractor's Responsibility for Work

1-07.13(1) General

Supplement this section with the following:

The Contractor is responsible for constructing and completing all work included in the approved Construction Documents and any other work directed by the Developer in a professional manner with first-class workmanship.

The Contractor shall keep the City of Grandview, the Developer, and the Consultant informed in writing of the address to which official correspondence is to be directed, the address and phone number of the person in charge of his field personnel, and the address and telephone number of the Contractor's representative who will be responsible and available outside of normal working hours for emergency repairs and the maintenance of traffic control and safety devices.

The Developer shall be responsible for the satisfactory operation and condition of all public improvements for a period of one (1) year following final inspection and acceptance in accordance with the Grandview Municipal Code.

1-07.17 Utilities and Similar Facilities

Supplement this section with the following:

It shall be the Contractor's responsibility to investigate and verify the presence and location of all utilities prior to construction.

The Contractor/Developer shall call for field location, not less than two nor more than ten business days before the scheduled date for commencement of excavation which may affect underground utility facilities, unless otherwise agreed upon by the parties involved. A business day is defined as any day other than Saturday, Sunday, or a legal local, state, or federal holiday. **The phone number for the Northwest Utility Notification Center for Grandview is 1-800-424-5555.** If no one-number locator service is available, notice shall be provided individually by the Contractor to those owners known to or suspected of having underground facilities within the area of proposed excavation.

The Contractor/Developer is alerted to the existence of Chapter 19.122 RCW, a law relating to underground utilities. Any cost to the Contractor/Developer incurred as a result of this law shall be at the Contractor's/Developer's expense.

No excavation shall begin until all known facilities, in the vicinity of the excavation area, have been located and marked.

1-07.18 Public Liability and Property Damage Insurance

Supplement this section with the following:

The Contractor shall obtain and maintain in full force and effect during the duration of this Contract public liability and property damage insurance in accordance with this section and as modified herein.

Prior to start of construction, the Contractor/Developer shall furnish the City of Grandview a Certificate of Insurance and the additional insured endorsements as evidence of compliance with these requirements. This certificate shall name **the City of Grandview, its employees, agents, elected and appointed officials, engineering consultant, and all subcontractors** as "additional insureds" and shall stipulate that the policies named thereon cannot be canceled unless at least forty-five (45) days written notice has been given to the City of Grandview. The certificate shall not contain the following or similar wording regarding cancellation notification: **"Failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents, or representatives."**

1-07.23 Public Convenience and Safety

Supplement this section with the following:

All signs, barricades, traffic control devices, and labor for traffic control required by construction activities for the control of traffic shall be supplied, placed, and maintained by the Contractor. This shall apply to detours and traffic control both within and outside the limits of the project.

All work shall be done under a program which shall have the approval of the City of Grandview and create a minimum of interruption or inconvenience to pedestrian and vehicular traffic. All arrangements to care for such traffic will be the Contractor's responsibility and shall be made at his expense. All work shall be carried out with due regard for public safety. Open trenches shall be provided with proper barricades and at night they shall be distinctly indicated by adequately placed lights. At entrances to business properties and other private roads, driveways, bridges, or other such means as to provide access shall be provided by the Contractor. The Contractor shall maintain vehicular and pedestrian access to businesses at all times that businesses are open for business.

Upon failure of the Contractor to provide immediately and maintain adequate suitable barricades, lights and detour signs, when ordered to do so, the Owner shall be at liberty, without further notice to the Contractor or the Surety, to provide the same and request payment for providing proper barricades, lights, and signs, and the Owner assumes no liability connected therewith.

Any traffic restriction must have prior approval of the City of Grandview. Appropriate traffic control measures and signing are required during such temporary road closures.

It shall be the responsibility of the Contractor to secure the approval of and notify the Developer, City of Grandview, and the Police and Fire Departments at least 24 hours prior to closing any street, in addition to correlating the proposed closures with the City of

Grandview to ensure proper detouring of traffic. When the street is re-opened, it shall again be the responsibility of the Contractor to notify the above named departments and persons.

1-07.28 Safety Standards (New Section)

The following new section shall be added to the Standard Specifications:

All work shall be performed in accordance with all applicable local, state, and federal health and safety codes, standards, regulations, and/or accepted industry standards. It shall be the responsibility of the Contractor to ensure that his work force and the public are adequately protected against any hazards.

The City of Grandview or Developer shall have the authority at all times to issue a stop work order at no penalty if, in their opinion, working conditions present an undue hazard to the public, property, or the work force. Such authority shall not, however, relieve the Contractor of responsibility for the maintenance of safe working conditions or assess any responsibility to the City or Developer for the identification of any or all unsafe conditions.

1-07.29 Notifying Property Owners (New Section)

The following new section shall be added to the Standard Specifications:

When construction activities will affect ingress and egress to a property along the project alignment, the Contractor shall be responsible for notifying the occupant/occupants of the property 24 hours prior to the construction activity beginning. If personal contact with the occupant is not possible, the Contractor shall leave written notification.

1-08 PROSECUTION AND PROGRESS

1-08.3 Progress Schedule

Supplement this section with the following:

Prior to the commencement of any work, a preconstruction conference shall be held. The Contractor or Developer shall contact the City of Grandview and set a date and time for the meeting. It shall be the responsibility of the Contractor/Developer to notify and invite all parties having an interest in the project to the meeting, including the major subcontractors, Fire District and Irrigation District, and private utilities.

At this conference all points of the approved Plans and Specifications will be open to discussion including scope, order and coordination of work, equipment lead time required, means and methods of construction, inspection and reporting procedures, etc. The Contractor should satisfy himself that all provisions and intentions of the work are fully understood.

The Contractor shall prepare and submit to the City and Developer at the Preconstruction Conference a Construction Progress and Completion Schedule using a bar graph format. Items in the Schedule shall be arranged in the order and sequence in which they will be performed. The schedule shall be drawn to a time scale, shown along the base of the diagram, using an appropriate measurement per day with weekends and holidays indicated. The Construction Progress Schedule shall be continuously updated and, if necessary, redrawn upon the first working day of each month or upon issuance of any Change Order which substantially affects the scheduling. Copies (2 prints or 1 reproducible) of newly

updated Schedules shall be forwarded to the City, as directed, immediately upon preparation.

1-08.3(2) Contractor Responsibility (New Section)

The following new section shall be added to the Standard Specifications:

The Contractor is responsible for constructing and completing all work included in the Contract Documents and any other work directed by the Developer in a professional manner with first-class workmanship.

The Contractor shall keep the City of Grandview, the Developer, and the Consultant informed in writing of the address to which official correspondence is to be directed, the address and phone number of the person in charge of his field personnel, and the address and telephone number of the Contractor's representative who will be responsible and available outside of normal working hours for emergency repairs and the maintenance of traffic control and safety devices.

1-10 TEMPORARY TRAFFIC CONTROL

Supplement this section with the following:

The provisions of the latest edition of the *Manual on Uniform Traffic Control Devices* (MUTCD) for Streets and Highways and amendments thereto published by the U.S. Department of Transportation, Federal Highway Administration, and WSDOT by this reference are made a part of these Documents.

1-10.2(2) Traffic Control Plans

Delete the entire section and replace with the following:

The Contractor shall prepare a signing plan showing the necessary Class A and B construction signing, barricades, and traffic control devices required for the project and submit it to the Consultant and City for review no later than the preconstruction conference date. When the Class B signing for a particular area will be provided as detailed on one or more of the figures included in the MUTCD without modification, the Contractor may reference the applicable MUTCD figure at the appropriate location on the Plan. When this procedure is used, variable distances such as minimum length of taper must be specified by the Contractor.

The signing plan prepared by the Contractor shall provide for adequate warning within the limits of the project and on all streets, alleys, and driveways entering the project so that approaching traffic may turn left or right onto existing undisturbed streets before reaching the project. The Plan shall be prepared to create a minimum of inconvenience for pedestrian and vehicle traffic.

All modifications to the accepted signing plans shall be reviewed by the City.

1-10.3(3)A Construction Signs

The first sentence of the first paragraph is revised to read:

> All signs, barricades, flashers, cones, traffic safety drums, barricades, and other traffic control devices required by the approved traffic control plan(s), as well as any other appropriate signs prescribed by the City or County, shall be furnished and maintained by the Contractor.
>
> Open trenches shall be provided with proper barricades and at night they shall be distinctly indicated by adequately spaced lights.

CHAPTER 4 - WATER SYSTEM IMPROVEMENTS

GENERAL REQUIREMENTS FOR WATER SYSTEM IMPROVEMENTS

All extensions and additions to the City of Grandview's domestic water system shall conform to the Design and Construction Standards of the City of Grandview and the Washington State Department of Health (DOH) as follows:

All new lots and developments shall be served by a public domestic water supply line to be maintained by the City of Grandview and located adjacent to the lot or development site. The water supply line shall be capable of providing sufficient flow and pressure to satisfy the fire flow and domestic service requirements of the proposed lots and development requirements.

Water lines shall be extended by the Developer to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner. In some cases, it will require dedication of an easement and a line extension across the property or extension across two or more sides of the developing property. Extensions will be consistent with and implement the City's adopted Water Comprehensive Plan.

Cover over new watermains shall be a minimum of 48" and a maximum of 72". All new public domestic water mains shall be a minimum diameter of 8 inches. Fire hydrant runs less than 50 feet from the water main to the fire hydrant shall be a minimum of 6 inches.

Larger public water mains may be required depending upon fire flow requirements as determined by the City of Grandview's Public Works Director, Fire Chief, or City Engineer.

Water main oversizing, above that required for the particular development being submitted, may be required by the City of Grandview to be installed for future extension. The cost of the materials only for the oversizing shall be reimbursed to the Developer by the City. The Developer shall submit actual material invoices showing the actual cost of the materials furnished and the cost of the same materials of the size required for the development.

All domestic water mains shall be looped, where possible. Temporary dead-end mains over 300 feet in length will only be allowed where future water main looping via public right of way will be assured. No permanent dead-end water mains will be allowed to be part of the City of Grandview's public water system.

Permanent dead-end water mains may become private water mains owned and maintained by the Developer. All dead-end water mains shall be isolated from the public water main with a reduced pressure double check valve assembly and vault furnished and installed by the Developer to City of Grandview standards for cross-connection control.

Maximum valve spacing in public water mains will be 1,000 linear feet. Valves will be furnished and installed on all legs of new water main intersections. Valve operating nut extensions approved by the City will be required on valves where the operating nut is deeper than 36 inches below finished grade.

All new water meters shall be a minimum of 1-inch and shall be furnished and installed by the City of Grandview, at the Developer's expense. The City will furnish and install all water service components from the water main to the property line including service saddle,

corporation stop, service tap, service pipe, meter stop, yoke assembly, and meter box, all at the Developer's expense. Only one meter shall be served from each main tap.

All live taps of water mains shall be performed by the City (or City's representative with Public Works Director's approval) using a full circle stainless steel tapping sleeve with gate valve and paid for by the Developer. No cut-in tees will be allowed.

Minimum 2-inch air and vacuum release valves shall be furnished and installed at high points in the system.

Maximum spacing of fire hydrants shall be 350 feet. Additional hydrants may be required to protect structures as determined by the Fire Chief and Public Works Director. Additional fire hydrants required on a site may require a looped, on-site fire hydrant main. Easements will be provided for all on-site, public, looped water mains, in accordance with CHAPTER 1, Section 11.

Water and sewer mains shall be separated in accordance with Section C1-9.1 of the *Criteria for Sewage Works Design, August 2008,* by the Washington State Department of Ecology.

The design of water mains and appurtenances is subject to review and approval by the City of Grandview Public Works Director. The Public Works Director may, at his discretion, adjust these Design and Construction Standards as necessary to facilitate installation of water lines and appurtenances for the health, safety, and protection of the general public.

All double detector check valve assemblies shall conform to City of Grandview standards. Initial and annual testing will be required.

SPECIAL PROVISIONS FOR WATER SYSTEMS

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to the construction of public works water system improvements within the City of Grandview.

7-09 WATER MAINS

7-09.2 Materials

Pipe for main line approved for use shall be as follows:

Pipe for Main Line:

Ductile Iron Pipe
Polyvinyl Chloride (PVC) Pressure Pipe

Supplement this section with the following:

Ductile Iron Pipe: Ductile iron pipe shall conform to the requirements of Section 9-30.1(1) of the Standard Specifications, except that it shall be Standard Thickness Class 50. Joints shall be rubber gasket, push-on type (Tyton Joint). Fittings shall be mechanical joint or flanged, as shown on the Plans, and shall conform to Section 9-30.2(1) of the Standard Specifications.

Polyvinyl Chloride (PVC) Pressure Pipe: PVC pipe shall conform to the requirements of Section 9-30.1(5)A. Fittings shall be the same as specified for Ductile Iron pipe. PVC pipe must be provided with detectable marking tape, see Section 7-11.3(10).

Fittings for Main Lines:

Connection Couplings: Couplings for Ductile Iron or PVC pipe, either transition or straight couplings, shall be compression type flexible coupiings conforming to Section 9-30.2(7) of the Standard Specifications.

Aggregates:

Gravel Backfill for Pipe Zone: Imported pipe zone material for flexible pipes shall be Crushed Surfacing Top Course meeting the requirements of section 9-03.9(3), and shall be placed and compacted in layers as designated by the City. Pipe zone material for rigid pipes shall be Crushed Surfacing Base Course meeting the requirements of Section 9-03.9(3).

Trench Backfill: All longitudinal water main trenches (parallel to curb) shall be backfilled full depth above the pipe zone with native material (free of organic material, wood, rocks, or pavement chunks larger than 6-inches in maximum dimension), unless otherwise directed by the City of Grandview. Street crossing trenches and other locations as directed by the City of Grandview shall be backfilled full depth with imported select backfill. Imported select backfill shall be crushed surfacing base course, placed and compacted in layers.

7-09.3 Construction Requirements

7-09.3(5) Grade and Alignment

Replace the first sentence of the third paragraph with the following:

The depth of trenching for water mains shall be such to provide a minimum cover of 4 feet and a maximum cover of 6 feet, unless otherwise approved by the Public Works Director.

7-09.3(9) Bedding the Pipe

Supplement this section with the following:

All construction work shall be inspected by the City or its representative before pipe installation and backfilling. Imported pipe zone bedding/backfill for pipes shall be in accordance with Section 7-09.2 above, placed and compacted per the Standard Specifications. Bedding shall be placed under all pipe.

7-09.3(10) Backfilling Trenches

Supplement this section with the following:

Street crossing trenches, and other locations as directed, shall have the trench backfilled full depth with Imported Select Backfill. The Public Works Director may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in CHAPTER 7, Section 8-30 of these Special Provisions.

7-09.3(11) Compaction of Backfill

Delete the first paragraph and supplement this section with the following:

Mechanical compaction shall be required for all trenches. The Contractor is hereby cautioned that time extensions shall not be granted due to unstable trench backfill conditions caused by excessive watering. The Contractor shall be responsible for correcting such conditions caused by his own construction activities.

The density of the compacted material shall be at least 95% of the maximum density as determined by ASTM D 698 Tests (Standard Proctor). The Contractor shall notify the City when they are ready for in-place density tests of the trench line. Density tests shall be taken at various depths in the trench. The Contractor shall provide a backhoe and operator for the excavation and backfill of test holes. All costs associated with testing shall be the responsibility of the Contractor. Placement of courses of aggregate shall not proceed until density requirements have been met.

The first 500 feet of trench backfill operations shall be considered a test section for the Contractor to demonstrate his backfilling and compaction techniques. The Contractor shall notify the City at least 3 working days prior to beginning trench excavation and backfill operations and the Contractor will arrange for in-place density tests to be taken on the completed test section in accordance with the above requirements. No further trenching will be allowed until the specified density is achieved in the test section. Passing in-place density tests in the test section will not relieve the Contractor from achieving the specified densities throughout the project.

7-09.3(12)A Locating Wire (New Section)

The following new section shall be added to the Standard Specifications:

A continuous solid copper locating wire shall be placed along the top of all water pipe. This wire shall be secured to the top of the pipe at maximum 10-foot intervals using 6-inch strips of 2-inch wide duct tape. All splices shall be tied, electrically continuous, and made waterproof. Access to terminal ends of the locating wire shall be made at locating wire boxes, per the details shown on the Drawings. The result of this installation shall be a continuous wire circuit electrically isolated from ground. The Contractor shall be responsible for testing continuity and for testing isolation from ground in the wire after all work has been completed on the test section. The Contractor is advised to do intermediate testing on his own after backfilling operations and prior to surface restoration work to be sure continuity is maintained. If there is a break or defect in the wire, it shall be the Contractor's responsibility to locate and repair the defect. The continuity of the location wire shall be tested from one test load point to the next by use of a temporary wire laid between test points in-line with an ohmmeter. Resistance shall be measured with an approved ohmmeter that has been properly calibrated. The continuity of a test section will be accepted if the resistance of the test section does not exceed 5 ohms per 500 feet of location wire being tested. Isolation from ground shall be measured with a megohmmeter and shall be a minimum of 20 megohms for any section of location wire tested. The City shall witness the acceptance test.

7-09.3(19)A Connections to Existing Mains

Supplement this section with the following:

New water mains shall be tested, flushed, and disinfected per applicable DOH requirements with passing results, prior to making connection to existing main and being placed into operation.

No existing line valves shall be closed without permission by the City of Grandview. In no case shall any existing water main valve be closed for a period of greater than eight (8) hours.

7-09.3(23) Hydrostatic Pressure Test

Replace the first sentence with the following:

All water mains and appurtenances shall be tested under a hydrostatic pressure of 180 psi for a fifteen (15) minute period.

7-12 VALVES FOR WATER MAINS

7-12.2 Materials

Supplement this section with the following:

Gate Valves: All valves sizes 2-inch through 10-inch shall be gate valves manufactured in the U.S. and shall conform to the latest revision of AWWA Resilient Seated Gate Valves Standard C509 and AWWA C104.

All gate valves shall have non-rising stems, open counterclockwise, and shall be provided with a 2-inch square AWWA operating nut. Gate valves 4-inch and larger shall have flanged and/or mechanical joint connections, as shown on the Plans. Stuffing box shall be O-ring type.

Butterfly Valves: All valves sizes 12 inches and larger shall be butterfly valves manufactured in the U.S. and suitable for direct burial and shall be rubber seated and conform to the latest revision of AWWA Standard C504 Class 150B and C104.

Valve operators shall be worm gear type, sealed, gasketed, and lubricated for underground service. All valves shall open counterclockwise and shall be provided with a 2-inch square AWWA operating nut.

Valves shall have mechanical joint and/or flanged connections as shown on the Plans and shall be of the same size as the line on which they are located. Valve shafts shall be a one-piece unit extending full size through the valve disc and valve bearings, with minimum shaft diameter as specified in AWWA C 504 Class 150B. Valve operators shall be worm gear type, sealed, gasketed, and lubricated for underground service. All valves shall open counter-clockwise and shall be provided with a 2-inch operating nut, unless otherwise specified.

Tapping Sleeve and Valve Assemblies: Tapping sleeves shall be full circle, Romac Stainless Steel Tapping Sleeve (SST) with Ductile Iron Flanged Outlet, or approved equal, conforming to the latest AWWA Standard C223.

Valve Boxes shall be two-piece adjustable. The top section shall be similar to Olympic Foundry Model 940-B, or equal, 18-inches high. The bottom section shall be a Olympic Foundry Model R-36, or equal, 36-inches high. Extension sections shall be Olympic Foundry Model 044, or equal, 12-inches high.

7-12.3 Construction Requirements

Supplement this section with the following:

Valves: Upon completion of all work in connection with this Contract, the Developer/Contractor shall contact the City of Grandview Public Works for opening water valves. Valves shall only be operated by City Public Works staff.

Valve Boxes: Valve boxes should be set to position during backfilling operations so they will be in a vertically centered alignment to the valve operating stem. The top of the box will be at final grade.

The Contractor shall adjust all water valve boxes to the final grade of the surrounding area including new concrete sidewalk, asphalt paving, gravel surfacing, or topsoil surfacing, in accordance with the details shown on the Drawings.

The Contractor shall keep the valve boxes free from debris caused by the construction activities. All valve boxes will be inspected during final walk-thru to verify that the valve box is plumb and that the valve wrench can be placed on the operating nut.

7-14 HYDRANTS

7-14.2 Materials

Supplement this section with the following:

The City of Grandview accepts fire hydrants of the following manufacturers, providing the hydrants conform to the City's technical specifications for fire hydrants:

Mueller Super Centurion A-423
M&H 929 Reliant

All hydrants shall have a Main Valve Opening (MVO) of 5-1/4" and one port with a 5" Storz Quick Coupling and two (2) 2-½" diameter ports. Threads on all ports shall be National Standard Thread.

Fire hydrants shall be painted with two coats of high visibility yellow paint.

NON-FREEZE YARD HYDRANT

Non-freeze yard hydrants shall be of the type shown on the Plans, cast iron construction, brass hardware, threaded hose connection, with seat that can be replaced without removing the hydrant from the ground. Yard Hydrants shall be Zurn Z-1395, or equal. Provide 3/4-inch hose connection and 3-foot depth of bury.

7-14.3(1) Setting Hydrants

Delete the first and second paragraphs and replace with the following:

The hydrant shoe shall be set on a concrete block base 12" x 12" x 6" thick, which has been placed on undisturbed earth. Around the base of the hydrant, the Contractor shall place 0.5 cubic yards of washed drain rock ranging in size from 3/4" to 1-1/2", to allow free drainage of the hydrant. The drain rock shall be completely covered with construction geotextile fabric as directed by the City.

The Contractor shall be responsible for verifying the hydrant flange elevations and shall provide additional depth-of-bury hydrants or hydrant extensions to achieve a flange elevation of 3" above the back of curb, sidewalk, or finished grade, as shown on the City's Standard Detail.

Fire hydrants shall be painted with two coats of high visibility yellow paint.

7-14.3(2) Hydrant Connections

Replace this section with the following:

Hydrant runs of less than 50 feet shall be connected to the main with 6-inch minimum diameter water main. Each hydrant lateral shall include an auxiliary gate valve and valve box.

7-14.3(2)A Hydrant Restraints

Replace this section with the following:

All hydrants shall be connected to the water main as shown on the City's Standard Detail.

7-14.3(2)C Hydrant Guard Posts

Replace this section with the following:

The Public Works Director may determine that four (4) 6-inch diameter Sch. 40 steel guard posts shall be installed at a hydrant location. Hydrant guard posts shall be painted the same color as the hydrants.

7-15 SERVICE CONNECTIONS

7-15.1 Description

Replace this section with the following:

This work consists of the relocation of existing water meters and water meter boxes, where necessary, and the installation of new saddles, corporation stops, service pipe, water meter box, meter setter, and meter stops as shown on the Plans. The City will furnish and install all water service components from the water main to the property line including service saddle, corporation stop, service tap, service pipe, meter stop, yoke assembly, and meter box, all at the Developer's expense.

7-15.2 Materials

Supplement this section with the following:

Saddles: New service saddles shall be Romac Style 202NS.

Corporation Stops: New corporation stops shall be Ford type 1100, for service line size.

Service Pipe: New service pipe shall be CTS Cross-linked Polyethylene (PEX) tubing meeting the requirements of ASTM F876/F877 and ANSI/NSF Standard 14/61 or approved equal.

Meter Stop: New meter stop shall be Ford AV94 angle yoke key valve.

Yoke Assembly: Yoke bar shall be Ford Model 500 Series with wrench type connection. Yoke ell shall be Ford L91 for service line size. Yoke expansion connection shall be Ford EC for service line size.

Double Check Valve: New double check valve assembly for 2-inch service shall be Watts 007 or approved equal.

Meter Boxes: New meter boxes shall be Carson HW Model MSBCF-1324-18 (for ¾" and 1" meters) and MSBCF-1730-18 (for 2" and larger meters), ductile iron cover (for vehicular traffic areas) and heavy duty plastic covers (for non-vehicular areas) with reader doors.

Pipe Bedding and Backfill: Pipe bedding and select backfill shall be utilized for trench backfill as directed by the City in accordance with Section 7-09.2 of the Special Provisions.

7-15.3 Construction Requirements

Supplement this section with the following:

The Contractor shall set the water meter box to the finished grade of the area. The Contractor will be required to reset the meter box if it is not at finished grade at the completion of the project. The completed water service shall be tested at system operating pressure by the Contractor and must show no signs of leakage.

Future water services shall be marked with an 18" long section of #4 rebar buried vertically with the top of the rebar set 6" below the finish surface, and a 6-foot 2"x4" post.

CHAPTER 5 - SANITARY SEWER SYSTEM IMPROVEMENTS

GENERAL REQUIREMENTS FOR SANITARY SEWER SYSTEM IMPROVEMENTS

All extensions and additions to the City's sanitary sewer system shall conform to the Design and Construction Standards of the City of Grandview, the Washington State Department of Ecology, and be designed by a licensed professional Engineer as follows:

All new lots and developments shall be served by a public sanitary sewer line adjacent to the lot or development site.

Sewer lines shall be extended by the Developer to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner. In some cases, it will require dedication of an easement and a line extension across the property or extension across two or more sides of the developing property. Extensions will be consistent with and implement the City's adopted General Sewer Plan.

Sewer lines shall be located in streets to serve abutting properties. When necessary, sewer lines may be located within public easements. Lines located in streets will be offset from the street centerline and not located within a vehicle wheel path. Sewer lines located in easements shall generally be located in the center of the easement, but may, with the approval of the Public Works Director, be offset to accommodate the installation of other utilities or to satisfy special circumstances.

The minimum size for public sewer lines is eight (8) inches in diameter. The developer's sewer system must provide capacity for the proposed development, but must also provide capacity for future extensions.

Sewer lines shall be terminated with a manhole. In special circumstances, a flush-end (cleanout) may be installed on the end of a sewer main extension, provided the end is no further than 150 feet from the last manhole and the sewer main line and grade will permit further extension.

Manholes shall be installed at intervals of no greater than 350 feet and at all vertical and horizontal angle points in the sewer main.

Each building containing sanitary sewer facilities shall be served by a separate private side sewer line. Branched side sewers serving multiple buildings and properties shall not be permitted. Side sewers serving multi-unit buildings are permitted.

Side sewers shall be installed in accordance with the Uniform Plumbing Code (UPC) and subject to review and approval by the City of Grandview Building Inspector. Water and sewer lines shall not be laid in the same trench, except as provided in Section 1008 of the UPC and with written approval of the City of Grandview Building Inspector.

Sewer lines shall be designed for gravity flow operation. Lift stations and force mains shall be limited to those locations and circumstances where they are consistent with the Comprehensive Sewer Plan and are the only viable solution to serve the proposed development and other properties in the vicinity. Lift stations and force mains shall be designed by a Professional Civil Engineer licensed in the State of Washington in accordance with the direction and requirements given by the City Engineer.

The design of sewer lines and appurtenances is subject to review and approval by the City of Grandview Public Works Director. The Public Works Director may, at his discretion, adjust these Design and Construction Standards as necessary to facilitate installation of sewer lines and appurtenances for the health, safety, and protection of the general public.

SPECIAL PROVISIONS FOR SANITARY SEWER SYSTEM IMPROVEMENTS

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to the construction of public works sewer system improvements within the City of Grandview.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.2 Materials

Supplement this section with the following:

Sanitary sewer manholes shall be gasketed and constructed of 48-inch or larger diameter reinforced precast concrete manhole sections in conformance with the requirements of this Section. The base and first barrel section shall be precast monolithically with preformed channels.

Joints in the manhole sections shall be watertight and shall be a rubber ring compression joint complying with ASTM C443, a flexible, plastic gasket, or approved equal.

Manhole frames and covers shall be cast iron with a combined weight of not less than 400 pounds and have a clear opening of 24 inches. The frames and covers shall be the manufacturer's stock pattern capable of withstanding, with appropriate margin of safety, an H20 loading. Covers shall have a 1-inch hole only, unless otherwise noted, and the top shall be flat with a non-skid pattern and marked "SEWER." The contact surfaces of the frames and covers shall be machine finished to a common plane or have other adequate provision to prevent rocking.

7-05.3 Construction Requirements

Supplement this section with the following:

The design and construction of all manholes shall provide for a 0.10 foot vertical drop through the manhole.

Manhole coupling adaptors may be precast in the manhole to accept PVC pipe, provided diameters match. No field grouting of pipe into manholes will be allowed. Pipe connections at manholes must be gasketed and must be flexible. "A-Lok" gasket system or approved equal may be used as an alternate to the manhole coupling adapter.

7-05.3(1) Adjusting Manholes and Catch Basins to Grade

Delete and replace with the following:

Manholes, valve boxes, catch basins, and similar utility appurtenances and structures shall not be adjusted until the pavement is completed, **at which time the center of each structure shall be relocated from references previously established by the Contractor.**

The asphalt concrete pavement shall be cut and removed to a neat circle, the diameter of which shall be equal to the outside diameter of frame plus two (2) feet. The frame shall be placed on cement concrete blocks or adjustment rings and brought up to the desired grade. The base materials shall be removed and Class 3000 cement concrete shall be placed within the entire volume of the excavation up to, but not to exceed, 2 inches below the finished pavement surface.

On the following day, a tack coat of asphalt shall be applied to the concrete, the edges of the asphalt concrete pavement, and the outer edge of the casting. HMA Cl. 3/8-Inch asphalt concrete shall then be placed and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density, and uniformity of grade. The joint between the patch and the existing pavement shall then be sealed with emulsified asphalt and shall be immediately covered with dry paving sand before the tack has broken.

Utility appurtenances outside paved areas shall be adjusted to match the finish grade of the area surrounding the structure. The utility cover shall be cleaned of all concrete prior to acceptance.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.1 General

Supplement this section with the following:

All construction work shall be inspected by the City of Grandview prior to backfilling. At least 48 hours notice shall be given to the City Public Works Department prior to backfilling.

The Contractor shall notify the Utility Notification Center (One Call Center) at least 48 hours prior to start of excavation so that underground utilities may be marked. Telephone number is 1-800-424-5555.

7-08.3(1)C Bedding the Pipe

Supplement this section with the following:

The imported pipe bedding and select backfill to be utilized for the trench backfill shall be crushed gravel, placed and compacted in layers as designated by the Director of Public Works. Crushed gravel shall conform to Section 9-03.9(3) Crushed Surfacing Top Course.

7-08.3(2)B Pipe Laying - General

Supplement this section with the following:

6-inch wide magnetic detectable marking tape as detailed in the Standard Detail SS-5 shall be installed over all sewer pipe lines. The tape shall be placed approximately three feet above the top of the pipe and shall extend its full length. The horizontal location of the tape shall vary no more than one foot from the centerline alignment of the pipe. Detectable marker tape shall meet the requirements of Section 9-15.18 of the Standard Specifications.

7-08.3(3) Backfilling

Supplement this section with the following:

Street crossing trenches and other locations, where directed, shall be backfilled for the full depth of the trench with Imported Select Backfill conforming to Section 9-03.9(3) Crushed Surfacing Base Course. The Public Works Director may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in CHAPTER 7, Section 8-30 of these Special Provisions.

Mechanical compaction shall be required for all trenches. The density of the compacted materials shall be at least 95% of the maximum density as determined by ASTM D 698 Test (Standard Proctor). The Contractor shall be responsible for scheduling, conducting, and paying for all testing required.

7-17 SANITARY SEWERS

7-17.1 Description

Supplement this section with the following:

The term "sewer(s)" and "sanitary sewer(s)" shall mean the same.

7-17.2 Materials

Pipe approved for use shall be as follows:

PVC Sanitary Sewer Pipe (Gravity): Polyvinyl Chloride Pipe with flexible gasketed joints shall conform to the requirements of Section 9-05.12(1) of the Standard Specifications (ASTM D3034, DR 35 for pipe sizes up to 15 inches in diameter). When restrained pipe is required, Ford 1300 mechanical pipe restraints or equal shall be used.

PVC fittings for PVC sewer pipe such as tees, wyes, elbows, plugs, caps, etc., shall be flexible gasket joint fittings acceptable for use and connection to PVC sewer pipe.

Detectable Marker Tape: Marker tape shall be a detectable type and shall be marked "SEWER," and shall conform to Section 9-15.18 of the Standard Specifications.

7-17.3 Construction Requirements

7-17.3(2)A General

Delete the first paragraph and replace it with the following:

All sewer pipes and appurtenances shall be cleaned and tested after backfilling. Both infiltration and exfiltration testing of the gravity sewer pipeline will be required. Deflection testing of the pipeline will also be required, 15 days after completion of backfill and compaction. All testing shall be witnessed by the City.

7-17.3(2)H Television Inspection

Delete the first paragraph and replace it with the following:

All new sewer lines shall be inspected by the Contractor by use of television (TV) camera before final acceptance. The City will provide TV inspection service at Developer's expense.

The television inspection shall be recorded on a DVD and include logs and a verbal narrative indicating construction deficiencies, side sewer locations and other notable items. Each DVD shall be permanently labeled with the Project Title, Contractor/Developer name, date of inspection, location and size of pipe, and video number. A written log shall also be provided for each segment of pipe that correlates to the respective video.

The Contractor shall submit one copy of the television inspection DVD and written logs to the City for review and approval within one week of completing the inspection.

7-18 SIDE SEWERS

7-18.3 Construction Requirements

7-18.3(1) General

Supplement this section with the following:

Side sewers shall be constructed with a minimum of 30 inches of cover. This provision may be waived by the Public Works Director under special circumstances; however, under no circumstances shall the side sewer be laid with less than 18 inches of cover.

Side sewers shall be a minimum of four (4) inches in diameter. Larger sizes, if required, will be approved by the Public Works Director on a case-by-case basis.

CHAPTER 6 - STORMWATER IMPROVEMENTS

GENERAL REQUIREMENTS FOR STORMWATER IMPROVEMENTS

All extensions and improvements to the City of Grandview's storm sewer (storm drain) system shall conform to the following design standards and requirements of the City. Private systems, where required by applicable provisions of the Grandview Municipal Code, shall also comply with these requirements.

Storm runoff occurring on all new lots and developments (private property) shall be retained and disposed of on-site. No storm runoff will be allowed to enter public property or the public storm drainage system. The property owner shall maintain all stormwater BMPs that are installed on private property.

Storm runoff for new public streets shall be designed and constructed as required to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner.

All storm sewer designs for new public streets shall be based upon an engineering analysis that takes into account total drainage areas, runoff rates, pipe and inlet capacities, treatment capacity, and any other factors pertinent to the design.

All new storm drainage facilities, public or private, shall be designed by a Professional Engineer licensed in the State of Washington. Complete stormwater runoff and drainage facilities sizing calculations shall be submitted to the City of Grandview for review and comment.

All storm drainage improvements shall be planned, designed, permitted, constructed and maintained in accordance with the requirements of the latest edition of the Washington Department of Ecology (WDOE) *Stormwater Management Manual for Eastern Washington* (SWMMEW).

All subsurface infiltration facilities used for the treatment and disposal of stormwater shall meet the requirements of and be registered with the WDOE Underground Injection Control (UIC) program. The registration process shall be completed prior to project acceptance.

Inlet spacing shall be designed in accordance with the WSDOT Hydraulics Manual, Chapter 5. Generally, inlet spacing shall not exceed 300 feet. There shall be a manhole or Type II catch basin installed at the intersection of two collector storm sewers. A collector storm sewer is a sewer servicing more than one catch basin.

Small private developments may be designed to accommodate 1.5 inches of precipitation (10-year, 24-hour storm) over the on-site impervious surfaces. Small developments are defined to be 5,000 square feet or less of impervious surface area. Impervious surfaces must be clearly noted and shown on the project site plan.

DESIGN CRITERIA

The SWMMEW allows different methodologies to apply design storms to stormwater facility design. For purposes of consistency, specific design storm amounts of precipitation are provided below and summarized in Table 6-1. Precipitation amounts are taken from the figures and calculation methods provided in the SWMMEW. Once the rainfall amount is known, hydrographic methods are used to determine the rate and volume of runoff from the selected design storm, and to mathematically route a storm through proposed facilities. Hydrographic methods are discussed below along with their application to different design conditions in Grandview.

DESIGN STORMS

Design storms are used to establish the amount of precipitation to be used in calculating the runoff from a parcel or basin. Based on rainfall records and methods outlined in the SWMMEW, the storm events described below are applicable to Grandview. Note that all 24-hour storm precipitation amounts have been adjusted by a factor of 1.0 for use in the long-duration storm for Eastern Washington Region 2.

Water Quality 3-Hour Storm – 0.26 inches of precipitation. This short-duration water quality storm event is intended to provide treatment for the "first flush" events and is representative of a summer thundershower. The "first flush" can be thought of as the first amount of water that enters the system during a storm, which typically contains the highest concentration of pollutants such as roadway grit, dust and oils.

Water Quality 24-Hour Storm – 0.53 inches of precipitation. This desired long-duration water quality storm event is intended to provide treatment for the "first flush" events. All stormwater treatment BMPs should be designed to treat runoff from this 24-hour water quality storm.

2-Year, 24-Hour Storm – 0.8 inches of precipitation. This long-duration storm has a two-year return frequency, or a 50 percent chance of occurring in any one year. Designing to the 2-year storm is considered necessary for control of nuisance water. The 2-year storm also has other applications for the design of stormwater detention and water quality treatment facilities.

10-Year, 24-Hour Storm – 1.3 inches of precipitation. This long-duration storm has a 10-year return frequency, or a 10 percent chance of occurring in any one year. Historically, storm drain facilities were designed to carry flows from this storm, but it was found that in Eastern Washington, stormwater facilities were better protected if they were designed to carry flows from the summer thunderstorm, which has greater rainfall intensity over a shorter period of time.

25-Year, 3-Hour Storm – 0.92 inches of precipitation. This short-duration storm has a 25-year return frequency, or a 4 percent chance of occurring in any one year. This unique storm is representative of the summer thunderstorm where a significant amount of rainfall occurs over a 3-hour period, and should be used for design of flow control facilities.

25-year, 24-Hour Storm – 1.6 inches of precipitation. This long-duration storm has a 25-year return frequency, or a 4 percent chance of occurring in any one year. Volume-based BMPs should be designed for this 24-hour, long-duration storm. The intensity of this storm is lower since the rainfall occurs more slowly over an extended time within the 24-hour period. Therefore, the runoff rate is lower, but the volume is greater than the 3-hour storm.

50-Year, 24-hour, Storm – 1.8 inches of precipitation. This long-duration storm has a 50-year return frequency, or a 2 percent chance of occurring in any one year. Minor ponding is acceptable during this event, as long as the streets remain passable, and buildings are not flooded.

100-Year, 24-Hour Storm – 2.0 inches of precipitation. This long-duration storm has a 100-year return frequency, or a 1 percent chance of occurring in any one year. Major structures and critical facilities should be protected from damage by flows from this storm.

TABLE 6-1 PRECIPITATION EVENT INFORMATION	
Storm Event	**Precipitation (Inches)**
6-Month, 3-Hour Storm Event	0.26
6-Month, 24-Hour Storm Event	0.53
2-Year, 24-Hour Storm Event	0.8
10-Year, 24-hour Storm Event	1.3
25-Year, 3-Hour Storm Event	0.92
25-Year, 24-Hour Storm Event	1.6
50-Year, 24-Hour Storm Event	1.8
100-Year, 24-Hour Storm Event	2.0
Source: *Stormwater Management Manual for Eastern Washington*, WDOE, Sep. 2004 Note: 24-hour precipitation amounts have been adjusted for use in the long-duration regional storm distribution.	

HYDROLOGIC ANALYSIS

Hydrologic analysis determines the amount of runoff from a given storm for a given drainage area. Though hydrologic studies are backed with considerable science, there is still a certain amount of art in their application. Available methods range from the simple calculations of the Rational Method to complex computer models, requiring significant data input and knowledge of hydrologic effects.

The following hydrographic methods are considered acceptable for the watersheds within Grandview and its urban growth area.

- The Santa Barbara Urban Hydrograph (SBUH) method may be used for all analyses regardless of the size of the drainage area. Input parameters shall be as described by WDOE or WSDOT for the design storms described above. Other computer models may also be used with prior approval by the City.

- For drainage areas less than or equal to 20 acres, the rational formula and modified rational method, as described in older WSDOT and Soil Conservation Service publications, may be used for flow-rate-based applications. Inputs shall be as described in those publications, or other engineering texts. The SCS Unit Hydrograph Method may also be used.

- For drainage areas greater than 20 acres, and when it is necessary to route flows through detention facilities, the SCS Unit Hydrograph Method may be used. Inputs shall be as described in WSDOT and Soil Conservation Service publications, or other engineering texts.

The SBUH method uses a hyetograph to depict the intensity (amount) of rainfall versus time. A hyetograph may also be required for routing design storms through some BMPs. Design storm hyetographs applicable to Grandview stormwater facilities are as follows:

- Water Quality Volume-Based Treatment BMPs – 24-hour SCS Type 1A storm with a 6-month return frequency.
- Water Quality Flow-Rate-Based Treatment BMPs – 24-hour SCS Type II storm with a 6-month return frequency.
- Volume-Based BMPs – 24-hour SCS Type 1A Storm with a 25-year return frequency.
- Flow-Rate-Based BMPs – 3-hour short-duration storm with a 25-year return frequency as described in the SWMMEW.
- Critical facilities required to carry 50- and 100-year storms – 24-hour SCS Type II storm.

TREATMENT BMP SIZING

The City of Grandview is located in the WDOE Region 2 of Eastern Washington. Therefore, all calculations shall be based on Region 2 methods recommended in the WDOE's SWMMEW for the sizing of stormwater BMPs. The following are design guidelines for volume-based treatment BMPs and flow-rate-based treatment BMPs.

Volume-based treatment BMPs are sized the same whether they are located upstream or downstream of a detention facility. The volume of runoff predicted for the proposed developed condition of a site will be calculated using the 24-hour SCS Type 1A storm with a 6-month return frequency (the 0.53-inch water quality design storm). The BMP will be sized to treat this amount of water, and will also be sized to pass the 25-year short-duration storm, either through or around the BMP, without damaging the BMP or dislodging pollutants from within it.

Flow-rate-based treatment BMPs are sized differently depending on whether they are located upstream or downstream from a detention facility. If the BMP is located upstream of a detention facility, or if there is no detention facility, the runoff flow rate predicted for the proposed developed condition of a site will be calculated using the 24-hour SCS Type II storm with a 6-month return frequency (the 0.53-inch water quality design storm). See Chapter 7 of the SWMMEW for design parameters. If the BMP is located downstream of a detention facility, it must be sized for the full 2-year release rate of the detention facility.

FLOW CONTROL

The criteria listed below shall apply to control of stormwater runoff flow and the designated design storms shall apply:

- Storm sewer facilities and pipelines shall be designed to carry at minimum the 25-year short-duration design storm described in the SWMMEW (0.92 inches of precipitation). Depending on the size of the basin, time of concentration and infiltration rates, some infiltration facilities will also need to be checked using the 25-year, 24-hour storm (1.6 inches of precipitation, SCS Type 1A). At the City's discretion, if the facilities are critical to public health and safety, or significant property damage could occur, they shall be designed to successfully pass the 50-year or 100-year storm.
- Retention and detention basins shall be designed based on the 25-year, 24-hour long-duration storm (1.6 inches of precipitation, SCS Type 1A). A secondary outlet or emergency spillway shall be provided to pass the 100-year storm (2.0 inches of precipitation, SCS Type II) without damage to the facility.

STREET DRAINAGE

Streets represent a large portion of the impervious area within a community. They can be used to convey a significant amount of stormwater; however, they must remain passable during storm events. To that end, streets may be used to convey local runoff to inlets, but stormwater must be removed at specific intervals in order to prevent excessive flooding. Guidance for flow carried within the street is presented below for the design storm (25-year) in Table 6-2, and the major storm (100-year) in Table 6-3. At intersections, the flow carried in one street may flow across the other street. Allowable cross street flow is listed in Table 6-4 for both the design storm and the major storm.

TABLE 6-2 25-YEAR STORMWATER RUNOFF ALLOWABLE STREET USE

Street Classification	Maximum Pavement Encroachment
Residential	No curb overtopping. Flow may spread to crown of street.
Collector, Minor, and Principal Arterials	No curb overtopping. Flow spread must leave at least one lane in each direction free of water.
Freeway	No encroachment is allowed on any traffic lanes.

TABLE 6-3 100-YEAR STORMWATER RUNOFF ALLOWABLE STREET INUNDATION

Street Classification	Maximum Pavement Encroachment
Residential	Residential dwellings and public, commercial, and industrial buildings shall not be inundated at the lowest finished floor elevation unless buildings are flood-proofed. The depth of water at the gutter flowline shall not exceed 12 inches.
Collector, Minor, and Principal Arterials	Residential dwellings and public, commercial, and industrial buildings shall not be inundated at the lowest finished floor elevation unless buildings are flood-proofed. The depth of water at the street crown shall not exceed 6 inches in order to allow operation of emergency vehicles. The depth of water at the gutter flowline shall not exceed 12 inches.
Freeway	No inundation is allowed.

TABLE 6-4 STORMWATER RUNOFF ALLOWABLE CROSS STREET FLOW

Street Classification	25-Year Storm Runoff	100-Year Storm Runoff
Residential	6 inches in depth at gutter flowline, or up to crown of roadway, whichever is less	12 inches in depth at gutter flowline
Collector, Minor, and Principal Arterials	None	6 inches or less over crown
Freeway	None	None

In addition to the criteria for street carrying capacity, the following design criteria shall also apply to street drainage:

- The following design storms shall apply:
  - Flow in gutters and ditches shall be evaluated based on the 25-year design storm.
  - Storm drain laterals shall carry the 25-year design storm, or be a minimum of 8-inches in diameter.
  - Storm drain inlets on a slope shall handle the 25-year storm.
  - Storm drain inlets in sag (low-point) shall handle the 50-year storm. (WSDOT design criteria. May be waived at City's discretion.)

- Stormwater runoff for new public streets shall be designed and constructed as required to the point where the adjoining property owner's responsibility for further extension begins. This typically requires an extension across the entire frontage of the property to the property line of the adjoining owner.

- All storm sewer designs for new public streets shall be based upon an engineering analysis which takes into account total drainage areas, runoff rates, pipe and inlet capacities, and any other factors pertinent to the design.

- All stormwater BMPs installed by the City in the public domain shall be maintained by the City, or by a subcontracted party.

- Inlet spacing shall be designed in accordance with the WSDOT Hydraulics Manual, Chapter 5. Generally, inlet spacing shall not exceed 300 feet. There shall be a manhole or Type II catch basin installed at the intersection of two collector storm sewers. A collector storm sewer is a sewer servicing more than one catch basin.

SPECIAL PROVISIONS FOR STORM SEWERS AND DRAINAGE

The following sections of the WSDOT Standard Specifications have been amended or supplemented as described below and apply to the construction of public works storm sewer or drainage improvements within the City of Grandview.

7-02 CULVERTS

7-02.2 Materials

Add the following:

Culvert pipe approved for use on a City project shall be as follows:

Aluminum Culvert Pipe: Aluminum Culvert Pipe shall meet the requirements of Section 9-05.5 of the Standard Specifications.

Steel Culvert Pipe: Steel Culvert Pipe shall meet the requirements of Section 9-05.4 of the Standard Specifications.

Corrugated Polyethylene Culvert Pipe: Corrugated Polyethylene (CPE) pipe, couplings, and fittings shall meet the requirements of Section 9-05.19 of the Standard Specifications.

7-04 STORM SEWERS

7-04.1 Description

Supplement this section with the following:

The term "storm drain(s)" shall mean the same as storm sewer(s).

7-04.2 Materials

Supplement this section with the following:

The storm sewer (drain) pipe approved for use shall be as follows:

15-INCH THROUGH 36-INCH PIPE

Aluminum Storm Sewer Pipe: All Aluminum Storm Sewer pipe shall meet the requirements specified in Section 9-05.11 of the Standard Specifications and shall be 16 gauge with helical corrugations. A protective coating shall not be required. All corrugated metal pipe joints shall be flexible using rubber gasket joints. Gaskets shall be made of 3/8-inch thick by 12-inch minimum width closed cell synthetic sponge rubber, per ASTM D 1056, Grade SCE-43, fabricated in the form of a cylinder with a diameter of approximately 10 percent less than the nominal pipe size. The gasket shall be centered under the band and lapped an equal distance on the ends of the adjoining pipe sections. Coupling bands shall be used and shall conform to the provisions of Section 9-05.11(1) of the Standard Specifications. Coupling bands shall be made by the same manufacturer as the pipe and shall be made of the same base material as the pipe which it connects.

Corrugated Polyethylene Storm Sewer Pipe: Corrugated Polyethylene (CPE) pipe, couplings, and fittings shall meet the requirements of Section 9-05.20 of the Standard Specifications.

8/10/12-INCH STORM DRAIN PIPE

Solid Wall PVC Storm Sewer Pipe
Corrugated Polyethylene Storm Sewer Pipe
High-Density Polyethylene (HDPE) Pipe
Polypropylene Storm Sewer Pipe

Where specified on the Plans, storm drain pipe shall be PVC pressure pipe conforming to the requirements of Section 9-30.1(5)A and Ductile Iron conforming to the requirements of Section 9-30.1(1).

UNDERDRAIN INFILTRATION SYSTEM MATERIALS

Pipe: Perforated Corrugated Polyethylene Underdrain (CPEP) pipe, couplings, and fittings shall comply with all the requirements of Section 9-05.2(8) of the Standard Specifications.

Drain Rock: Drain rock for use as backfill for the perforated underdrain pipe in the infiltration trench system shall be clean coarse aggregate conforming to the

requirements of Gravel Backfill for Drywells, as specified in Section 9-03.12(5) of the Standard Specifications.

Construction Geotextile: Geotextile fabric for underground infiltration systems shall be moderate survivability, Class A as specified in Section 9-33.2(1).

7-04.3(1) Cleaning and Testing

7-04.3(1)A General

Supplement this section with the following:

No infiltration or exfiltration test will be required for storm drain pipe.

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

7-05.2 Materials

Section 7-05.2 of the Standard Specifications shall be revised as follows:

Drain Rock: Backfill for drywells shall be Gravel Backfill for Drywells as specified in Section 9-03.12(5) of the Standard Specifications.

Manhole Metal Castings: All cast iron frames and covers shall be as specified in Section 9-05.15(1) of the Standard Specifications. All cast iron frames and covers to be used on this project shall be of the type, weight, and size approved by the City of Grandview, and shall be furnished by the Contractor. Covers for storm drain shall be stamped "STORM" or "DRAIN."

Precast Concrete Catch Basin: Catch basins shall be WSDOT Type 1, 1L, or 2 and constructed as shown on the City Standard Details.

Catch Basin Metal Castings: All frames and grates shall be capable of withstanding, with a reasonable margin of safety, a concentrated load of 20,000 pounds and shall be as specified in Section 9-05.15(2) of the Standard Specifications and WSDOT Standard Plan B-30.30-01 or B-30.40-01. The grate shall be ductile iron and "bicycle safe." The contact surfaces of the frame and grate shall be machine finished to a common plane and shall be so cast as to prevent rocking.

Construction Geotextile: All geotextile fabric for underground drainage applications shall be Moderate Survivability - Class B as specified in Section 9-33.2(1).

Precast Concrete Pretreatment Manhole: Stormwater pretreatment manholes shall be approved by the Washington State Department of Ecology (Ecology) with a General Use Level Designation (GULD), capable of 50% removal of fine (50 micron mean size) and 80% removal of coarse (125 micron mean size) total suspended solids (TSS) for influent concentrations greater than 100 mg/L, but less than 200 mg/L, as required by DOE.

Pretreatment manholes shall be constructed of pre-cast concrete manhole sections, flat top slab, and adjustment sections (similar to WSDOT Catch Basin Type 2, Standard Plan B-10.20-01), with cast iron covers as described above. The pretreatment insert shall be constructed of fiberglass and/or steel materials that are corrosion resistant. Manhole safety

steps shall be provided as shown on the Plans and the pretreatment insert shall act as a platform for maintenance purposes.

Approved pretreatment manholes include Contech CDS, Stormceptor, Hydro International Downstream Defender, and Aqua-Swirl Concentrator.

The pretreatment manhole shall be capable of handling the specified water quality flows and shall incorporate a bypass within the unit to handle the specified peak flows. The pretreatment manhole shall be capable of incorporating multiple inlets/outlets, with the inlet and outlet pipes at 90 degrees to each other. Access to pretreatment insert ports and openings for maintenance shall be achieved through the cast iron cover(s).

7-05.3(1) Adjusting Manholes and Catch Basins to Grade

Delete and replace with the following:

Manholes, valve boxes, catch basins, and similar utility appurtenances and structures shall not be adjusted until the pavement is completed, at which time the center of each structure shall be relocated from references previously established by the Contractor.

The asphalt concrete pavement shall be cut and removed to a neat circle, the diameter of which shall be equal to the outside diameter of frame plus two (2) feet. The frame shall be placed on cement concrete blocks or adjustment rings and brought up to the desired grade. The base materials shall be removed and Class 3000 cement concrete shall be placed within the entire volume of the excavation up to, but not to exceed, 2 inches below the finished pavement surface.

On the following day, a tack coat of asphalt shall be applied to the concrete, the edges of the asphalt concrete pavement, and the outer edge of the casting. HMA Cl. 3/8-Inch asphalt concrete shall then be placed and compacted with hand tampers and a patching roller.

The completed patch shall match the existing paved surface for texture, density, and uniformity of grade. The joint between the patch and the existing pavement shall then be sealed with emulsified asphalt and shall be immediately covered with dry paving sand before the tack has broken.

7-08 GENERAL PIPE INSTALLATION REQUIREMENTS

7-08.1 General

Add the following:

All construction work shall be inspected by the City of Grandview prior to backfilling. At least 48 hours notice shall be given to the City Public Works Department prior to backfilling.

The Contractor shall notify the Utility Notification Center (One Call Center) at least 48 hours prior to start of excavation so that underground utilities may be marked. Telephone number is 1-800-424-5555.

7-08.3(1)C Bedding the Pipe

Add the following:

The imported pipe bedding and select backfill to be utilized for the trench backfill shall be crushed gravel, placed and compacted in layers as designated by the Director of Public Works. Crushed gravel shall conform to Section 9-03.9(3) Crushed Surfacing Top Course.

7-08.3(3) Backfilling

Add the following:

Street crossing trenches and other locations, where directed, shall be backfilled for the full depth of the trench with Imported Select Backfill conforming to Section 9-03.9(3) Crushed Surfacing Base Course. The Public Works Director may require the use of Controlled Density Fill (CDF) for trench backfill in certain circumstances. The requirements for CDF are set forth in CHAPTER 7, Section 8-30 of these Special Provisions.

Mechanical compaction shall be required for all trenches. The density of the compacted materials shall be at least 95% of the maximum density as determined by ASTM D 698 Test (Standard Proctor). The Contractor shall be responsible for scheduling, conducting, and paying for all testing required.

CHAPTER 7 - STREET IMPROVEMENTS

GENERAL REQUIREMENTS FOR STREETS

All new street design and construction must conform to these Design and Construction Standards of the City of Grandview, the Grandview Municipal Code, and the latest edition of the Standard Specifications.

TRAFFIC STUDIES

In order to provide sufficient information to assess a development's impact on the transportation system and level of service, the Public Works Director may require a traffic study to be completed by the Developer at the Developer's expense. This decision will be based upon the size of the proposed development, existing roadway condition, existing and expected, traffic volumes, accident history, expressed community concern, and other factors relating to transportation. Traffic studies shall be conducted under the direction of a traffic engineer or civil engineer licensed in the State of Washington and possessing special training and experience in traffic engineering. The level of detail and scope of the traffic study may vary with the size, complexity, and location of the proposed development. A traffic study shall, at a minimum, be a thorough review of the immediate and long-range effects of the proposed development on the City's transportation system. Guidelines for the traffic study shall be reviewed by the Public Works Director on a project basis. However, the ADT for the development shall be estimated using the trip generators found in the latest edition of the Trip Generation Manual published by ITE.

At a minimum, the Developer shall complete and submit to the Public Works Director the *Development Traffic Impact Data Checklist* found in Appendix E.

STREET REQUIREMENTS

Arterial streets serve as the high volume corridors that connect the major traffic generators and shall be designed with a minimum seventy (70) foot-wide Right of Way and forty-four (44) foot-wide roadway surface face of curb to face of curb. Face of curb radius at intersection shall be a minimum of 50 feet and the street centerline radius shall be designed to a minimum 40 mph design speed or as approved by the Public Works Director. Both Arterial and Collector streets shall be designed for a WB-50 vehicle and HS-25 loadings.

Collector streets shall be designed with a minimum sixty (60) foot-wide right of way and a forty (40) foot-wide roadway surface face of curb to face of curb. Face of curb radius at intersection shall be a minimum of forty (40) feet and the street centerline radius shall be designed to a minimum 35 mph design speed or as approved by the Public Works Director.

Local Access (Residential) streets shall be designed with a minimum fifty (50) foot-wide right of way and forty (40) foot-wide roadway surface curb to curb. Face of curb radius at intersection shall be a minimum of twenty-five (25) feet and street centerline radius shall be designed to a minimum of 30 mph design speed or as approved by the Public Works Director.

The maximum length of a cul-de-sac street shall be 600 feet measured along the street centerline from the nearest street intersection to the throat of the cul-de-sac. Where it is not feasible to construct a cul-de-sac turnaround, the City may allow the use of an "L" or "Hammerhead" turnaround upon approval by the Public Works Director. The minimum cul-de-sac right-of-way is a radius of 60 feet and a curb radius of 50 feet.

A subdivision of 15 or more lots shall have two or more access points. Street intersection angles shall not be less than 80 degrees. Offset street intersections shall not be less than 200 feet for arterial and collector streets and 100 feet for local access streets. Street grades shall be kept to a minimum and no street grade shall be less than three tenths (0.30) percent or greater than twelve (12) percent. Vertical curves shall be designed when the grade difference is greater than two (2) percent.

Sidewalks shall be installed on both sides of Arterial and Collector streets, and one side of Local Access streets. Sidewalks shall be constructed when homes/businesses are constructed and shall be completed prior to occupancy.

Cement concrete barrier curb and gutter and sidewalk(s) shall be installed along all new streets unless otherwise approved by the City of Grandview. Cement concrete rolled curb may be approved for local access streets by the Public Works Director, on a case-by-case basis, except for the corner lot at an intersection, where the curb shall be full height. There shall be a 10-foot long transition from the full height curb to the rolled curb.

Driveways shall be located on the lowest classification of roadway abutting the development. Driveways accessing onto arterial streets are discouraged and shall be limited. Driveway widths and locations are limited to one per lot as approved by the Public Works Director. A "Corner" lot driveway shall be located as far as possible from the street intersection.

A street light shall be installed at each street intersection, at mid-block if the block is longer than 450 feet, and at ends of cul-de-sacs. Street light spacing along arterial and collector streets shall be no more than two hundred and twenty five (225) feet apart. Street lights shall meet the design and placement requirements of these Design and Construction Standards, for approval consideration by the City Public Works Director and local electric utility.

In all new developments, monuments with cover caps and cases shall be installed at the centerline of street intersections and at other locations as directed by the Public Works Director.

Traffic control signs and sign posts shall be provided and installed by the developer in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD) and City Design and Construction Standards.

SPECIAL PROVISIONS FOR STREETS

The following sections of the Standard Specifications have been amended or supplemented as described below.

2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

2-01.1 Description

Supplement this section with the following:

> In no case shall the Contractor be required to clear and grub beyond the right-of-way line, except as specifically directed by the City or noted on the Plans to remove trees, stumps, shrubs, or other items which, by proximity or due to root growth, would constitute a hazard to the public or endanger the facility. All work beyond the right-of-way line shall be coordinated with affected property owner(s) per Section 1-07.24 Rights of Way.

The Contractor shall temporarily remove and later replace to its original condition or relocate nearby as directed, all mail boxes, small trees, shrubs, street signs and posts, culverts, irrigation facilities, concrete or rock walls, or other similar obstructions which lie in or near the line of work and are not intended for removal. Should any damage be incurred, the cost of replacement or repair shall be borne by the Contractor.

2-01.3(5) Fencing (New Section)

Add the following new section:

The Contractor shall be required to carefully remove all existing fencing located within or near the proposed alignments. All fencing materials to be removed and replaced shall be temporarily placed on the adjacent properties or stored as directed by the City. The removal and replacement of all fencing shall be done at the Contractor's expense. Any fencing that is to be reset shall be relocated and reset by the Contractor along the property lines or as directed by the City.

2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

2-02.3 Construction Requirements

2-02.3(2) Removal of Bridges, Box Culverts, and Other Drainage Structures

Supplement this section with the following:

Where structures or installations of concrete, brick, blocks, etc., interfere with the construction, they shall be removed and any pipe openings shall be properly plugged watertight with Class 3000 concrete, or with mortar and masonry, blocks, or brick. The removal and plugging of pipes shall be considered as incidental to the construction and costs thereof and shall be included in other items of work.

Where the structures are removed, the voids shall be backfilled with suitable, job-excavated material and compacted, and such work shall be considered as incidental to the removal work. If the City determines the job-excavated material to be unsuitable for backfill, the Contractor shall place ballast or crushed surfacing material as directed by the City.

2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters

Supplement this section with the following:

Where shown on the Plans or as directed by the City, the Contractor shall be required to remove existing pavement, sidewalks, curbs, etc., which are outside the right-of-way line and are required to be removed for construction of the improvements.

In those areas where asphalt pavement removal is required, the Contractor shall, prior to excavation, score the edge of the asphalt concrete pavement with an approved pavement cutter such as a concrete saw. During the course of the work, the Contractor shall take precautions to preserve the integrity of this neat, clean pavement edge. Should the pavement edge be damaged prior to asphalt concrete paving activities, the Contractor shall be required to trim the edge with an approved pavement cutter as directed by the City immediately prior to paving.

2-03 ROADWAY EXCAVATION AND EMBANKMENT

2-03.1 Description

Supplement this section with the following:

Street excavation shall consist of removing the existing material of whatever nature encountered to the subgrade elevation and shaping the subgrade to conform to the cross-section shown on the Plans or as staked in the field.

Where directed by the Consultant, the Contractor shall excavate beyond the right-of-way in order to adequately slope adjacent properties.

The Contractor shall use caution while performing roadway excavation. Heavy, rubber-tired equipment, particularly front end loaders, shall limit their travel over a single area as much as possible. Trucks shall observe a 10 mph speed limit when traveling over exposed subgrade areas.

The Contracting Agency will reference all known existing monuments or markers relating to subdivisions, plats, roads, street centerline intersections, etc. The Contractor shall take special care to protect these monuments or markers and also the reference points. In the event the Contractor is negligent in preserving such monuments and markers, the points will be reset by a licensed surveyor at the Contractor's expense.

2-03.3 Construction Requirements

2-03.3(3) Excavation Below Subgrade

Supplement this section with the following:

At the direction of the Consultant, areas within the street subgrade which exhibit instability due to high moisture content shall be:

1. Aerated and allowed to dry,

2. Over-excavated and backfilled with ballast, or crushed surfacing base course. The contractor may be instructed to install construction geotextile for soil stabilization in the excavation,

3. Or a combination of any of the above.

2-03.3(7) Disposal of Surplus Materials

2-03.3(7)A General

Supplement this section with the following:

Excavated material shall be bladed or hauled to fill low sections within the project area, except for sod or extraneous material, which shall be hauled to waste. A waste site will <u>not</u> been provided by the City for disposal of <u>unsuitable</u> material, asphalt, concrete, debris, waste material, or any other objectionable material which is directed to waste by the Consultant.

Suitable materials from the excavations shall be used in the embankments. Unsuitable material or soft spots shall be removed from the roadway and replaced with suitable material and compacted as for embankments. Topsoil shall be saved to use for backfill adjacent to the new improvements. If additional topsoil is required, it shall be provided in accordance with Section 8-01 of these Special Provisions.

The Contractor shall comply with the State of Washington's regulations regarding disposal of waste material as outlined in WAC 173-304, Subchapter 461.

2-03.3(14)D Compaction and Moisture Control Tests

Delete this section and replace it with the following:

Compaction shall be 95% of maximum density as determined by ASTM D 698 (Standard Proctor). The Contractor shall notify the City when ready for in-place subgrade density tests. All costs associated with failed tests/testing shall be the responsibility of the Contractor. Placement of courses of aggregate shall not proceed until density requirements are met.

2-07 WATERING

2-07.1 Description

Supplement this section with the following:

The Contractor shall be solely responsible for dust control on the Developer's project and shall protect motoring public, adjacent homes and businesses, orchards, crops, and school yards from damage due to dust, by whatever means necessary. The Contractor shall be responsible for any claims for damages and shall protect the City, Yakima County, and Consultant from any and all such claims.

When directed by the City, the Contractor shall provide water for dust control within two hours of such order and have equipment and manpower available at all times including weekends and holidays to respond to orders for dust control measures.

4-04 BALLAST AND CRUSHED SURFACING

4-04.3 Construction Requirements

4-04.3(5) Shaping and Compaction

Supplement this section with the following:

The Contractor shall notify the City when he is ready for in-place ballast, base course, or top course density tests. All costs associated with failed tests/testing shall be the responsibility of the Contractor. Placement of successive courses of aggregate or asphalt concrete shall not proceed until density requirements are met.

5-04 HOT MIX ASPHALT

5-04.1 Description

Supplement this section with the following:

An asphalt prime coat will not be required, nor will a soil sterilant be required to be applied to the subgrade.

Asphalt concrete surfaces shall be so constructed that the finished pavement will conform to the cross-section, line, and grade as shown on the Plans and in accordance with the referenced Standard Specifications.

5-04.2 Materials

Supplement this section with the following:

The grade of asphalt binder that shall be used for this project is: PG 64-28.

5-04.3 Construction Requirements

5-04.3(2) Hauling Equipment

Supplement this section with the following:

Sufficient numbers of trucks shall be provided by the Contractor to assure a continuous paving operation at proper HMA mix temperatures. Paving operations shall not proceed until hauling equipment sufficient to assure continuous operations is provided.

5-04.3(3) Hot Mix Asphalt Pavers

Supplement this section with the following:

The HMA paver that is utilized on this project shall be capable of spreading and finishing courses of HMA plant mix material in a width from centerline of the roadway to the edge of the roadway or gutter in a single pass (up to 22-foot width).

5-04.3(5)E Pavement Repair

Supplement this section with the following:

After the completion of trench and patch repairs, the Contractor shall seal all joints with CSS-1 and concrete sand.

5-04.3(7) Preparation of Aggregates

5-04.3(7)A1 General

Supplement this section with the following:

The Contractor may submit for acceptance an approved WSDOT mix design for the class of HMA specified in the contract if the mix design has been approved within the previous 12-

month period using aggregate and asphalt binder from the same sources. The Contractor shall provide the mix design to the City at least fifteen (15) working days prior to any paving.

5-04.3(7)A2 Statistical or Nonstatistical Evaluation

Delete this section and replace it with the following:

The Contractor shall be responsible for verification of the mix design.

5-04.3(8)A Acceptance Sampling and Testing – HMA Mixture

5-04.3(8)A1 General

Delete this section and replace it with the following:

Acceptance of HMA shall be as provided under Nonstatistical or Commercial evaluation.

Commercial evaluation will be used for Commercial HMA and for other classes of HMA in the following applications: Sidewalks, road approaches, ditches, slopes, paths, trails, gores and other nonstructural applications as approved by the City. Sampling and testing of HMA accepted by commercial evaluation will be at the option of the City. The proposal quantity of HMA that is accepted by commercial evaluation will be excluded from the quantities used in the determination of Nonstatistical evaluation.

Commercial HMA can be used for patching utility or conduit trenches less than 24 inches in width.

5-04.3(10) Compaction

5-04.3(10)B Control

Delete this section and replace with the following:

HMA used in traffic lanes, including lanes for ramps, truck climbing, weaving, and speed change, and having specified compacted course thickness greater than 0.10 foot, shall be compacted to a specified level relative density. The specified level of relative density shall be a minimum of 91.0 percent of the reference maximum density as determined by WSDOT for AASHTO T 209. The reference maximum density shall be determined as the moving average of the most recent five determinations for the lot of HMA being placed. The specified level of density attained will be determined by five nuclear gauge tests taken in accordance with WAQTC FOP TM8 and WSDOT SOPT 729 on the day the mix is placed (after completion of the finish rolling) at locations determined by the stratified random sampling procedure conforming to WSDOT Test Method 716 within each density lot. The quantity represented by each density lot will be no greater than a single day's production or approximately 400 tons, whichever is less. The City will furnish the Contractor with a copy of the results of all acceptance testing performed in the field within one working day.

In addition to the randomly selected locations for tests of density, the City may also isolate from a normal lot any area that is suspected of being defective in relative density. Such isolated material will not include an original sample location. A minimum of five (5) randomly located density tests will be taken.

Control lots not meeting the minimum density standard shall be removed and replaced with satisfactory material.

HMA constructed under conditions other than those listed above shall be compacted on the basis of a test point evaluation of the compaction train. The test point evaluation shall be performed in accordance with instructions from the City. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

5-04.3(11) Reject Work

Supplement this section with the following:

Delete all references to Combined Pay Factor (CPF). HMA not meeting the quality requirements of the Contract shall be rejected, including use of HMA Cl. 3/8-Inch.

5-04.3(13) Surface Smoothness

Supplement this section with the following:

Where directed by the City, the Contractor shall feather the HMA pavement in a manner to produce a smooth-riding connection to the existing pavement.

5-04.3(14) Planing Bituminous Pavement

The third paragraph of this section is deleted and replaced with the following:

The ground HMA material resulting from the pavement planing operation shall become the property of the City when so desired.

The Contractor shall haul the material to the City Shop located at 603 North Willoughby and stockpile the material at a location as directed by the City.

All other debris resulting from the planing operation shall become the property of the Contractor and be disposed of in accordance with Section 2-03.3(7)C.

5-04.3(17) Paving Under Traffic

Delete the following in the last paragraph:

"except the costs of temporary pavement markings"

5-04.3(19) Sealing of Pavement Surfaces

Revise the first sentence to read:

"The Contractor shall apply a fog seal to all travel lanes and allow it to cure prior to opening the lane to traffic, when the wearing course is placed after October 1 and before April 1."

8-04 CURBS, GUTTERS, AND SPILLWAYS

8-04.3 Construction Requirements

8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways

Supplement this section with the following:

Cement concrete traffic curb and gutter shall be as shown on the City's Standard Plans. Full Height or "Barrier" cement concrete traffic curb and gutter as shown shall be used on the roadway as shown on the Plans. Depressed or "Driveway" cement concrete traffic curb and gutter as shown shall be used at all driveway entrances and sidewalk ramp locations as shown on the Plans and as directed in the field by the City. Cement concrete curb and gutter which does not comply with the City's details shall be removed and replaced at the Contractor's expense.

A template shall be required to be placed at the back of curb for construction of driveway transitions from Barrier to Driveway or Rolled curb and gutter. The template shall extend from the bottom of curb to the top of the curb, and shall have a minimum length of 10 feet, with the 6-foot long transition centered in the template. The Contractor shall also be required to use a template at the back of Driveway/Depressed curb and gutter to ensure a straight and uniform back of curb in conformance with the Standard Plan.

The new concrete curb and gutter shall be cured in accordance with Section 5-05.3(13)A of the Standard Specifications. Application of the curing compound shall be in accordance with the manufacturer's recommendations.

First-class workmanship and finish will be required on all portions of concrete curb and gutter work. Quality of workmanship and finish will be evaluated continuously and will be based solely upon the judgment of the City. The Contractor shall be required to construct a minimum 20 linear foot section of curb and gutter which demonstrates quality which is acceptable by the City. This "model" section will be referenced during construction for comparison to newly poured curb. If at any time it is found that quality is unacceptable, work shall be immediately stopped, and no additional curb and gutter shall be placed. Cement concrete curb and gutter which does not comply with the section details on the Plans, or in the City's opinion does not demonstrate first-class workmanship and finish, shall be removed and replaced at the Contractor's expense. Should the Contractor's equipment or methods be unable to produce curb and gutter meeting the requirements of the Details and Specifications, no further curb and gutter construction will be allowed until corrections have been made to said equipment or methods.

8-06 CEMENT CONCRETE DRIVEWAY ENTRANCES

8-06.3 Construction Requirements

Supplement this section with the following:

The concrete driveway entrance/sidewalk shall be six (6) inches in thickness.

8-14 CEMENT CONCRETE SIDEWALKS

8-14.3 Construction Requirements

8-14.3(3) Placing and Finishing Concrete

Supplement this section with the following:

All sidewalks not located in driveway entrance areas shall be four (4) inches in thickness. All concrete approaches located behind a depressed curb and gutter section or at any driveway location shall be six (6) inches in thickness.

Sidewalks shall be marked across the entire width every five (5) feet and with preformed asphalt impregnated joint fillers 3/8-inch thick every twenty (20) feet. Concrete sidewalk shall be cured in accordance with Section 5-05.3(13)A of the Standard Specifications. Application of the curing compound shall be in accordance with the manufacturer's recommendations. Failure to properly secure or seal the cement concrete sidewalk will require the Contractor to remove and replace the sidewalk section at his expense.

Sidewalk ramps shall be constructed as shown on the Plans in accordance with the Standard Plans or as shown otherwise in the Details.

First-class workmanship and finish will be required on all portions of cement concrete sidewalk work. Quality of workmanship and finish will be evaluated continuously and will be based solely upon the judgment of the City. If at any time it is found that quality is unacceptable, work shall be immediately stopped, and no additional sidewalk shall be placed. Cement concrete sidewalk which does not comply with the section details on the Plans, or in the City's opinion does not demonstrate first-class workmanship and finish, shall be removed and replaced at the Contractor's expense. Should the Contractor's equipment or methods be unable to produce sidewalk meeting the requirements of the Plans and Specifications, no further sidewalk construction will be allowed until corrections have been made to said equipment or methods.

8-21 PERMANENT SIGNING

8-21.2 Materials

Supplement this section with the following:

Reflective background sheeting material shall be Type III for regulatory signs and Type I for all other signs.

Sign posts for permanent traffic control signing shall be 2"x2" 12-gauge perforated steel tubing. Socket sleeves for the sign post shall be 2-1/4"x 2-1/4"x30" 12-gauge perforated steel tubing.

8-21.3 Construction Requirements

Supplement this section with the following:

Socket sleeves for sign posts shall be set in 12" diameter x 12" deep base of class 3000 cement concrete at finish grade so that erected signs will be plumb with roadway. The Contractor shall correct any misaligned socket sleeves at his own expense.

8-22 PAVEMENT MARKING

8-22.1 Description

Supplement this section with the following:

This work includes temporary pavement markings as described in the Plans.

8-30 CONTROLLED DENSITY FILL (NEW SECTION)

The following new section shall be added to the Standard Specifications:

8-30.1 General

Controlled Density Fill (CDF) may be required for street crossings by the Public Works Director. It shall be a mixture of Portland Cement, fly ash, aggregate, water, and admixtures proportioned to provide a non-segregating, self-consolidating, free-flowing material which will result in a hardened, dense, non-settling fill.

8-30.2 Materials

Materials shall meet the requirements of the following Sections of the Standard Specifications:

Portland Cement	9-01 Type II
Fly Ash	Class F or C
Aggregates	9-03.1
Water	9-25
Admixtures	9-23.6

8-30.3 Construction Requirements

8-30.3(1) Construction Materials

The CDF shall be a mixture of Portland Cement, fly ash, aggregate, water, and admixtures which has been batched and mixed in accordance with Section 6-02.3 of the Standard Specifications.

The following table provides a guideline for proportioning the Controlled Density Fill for this project. The final mix provided by the Contractor shall result in a material which is excavatable by machine with a maximum unconfined compressive strength of 300 psi.

Water	50 gals per cubic yard
Cement	50 lbs per cubic yard
Fly Ash	250 lbs per cubic yard
Aggregate	3,200 lbs per cubic yard

The above table provides a guideline for the CDF mixture. The weights shown are only an estimate of the amount to be used per cubic yard of CDF. Actual amounts may vary from those shown as approved by the City or approved mix data from similar projects which provided proper strength, workability, consistency, and density.

8-30.3(7) Placing Controlled Density Fill

The floatable CDF shall be placed in the trench area where directed by the City and brought up uniformly to the top of the pipe zone backfill as shown on the Plans. In the cases where existing concrete slabs have been undermined by excavation, the Contractor shall ensure that the CDF is flowed completely under the slab.

Mixing and placing may be started if weather conditions are favorable, when the temperature is at least 34°F and rising. At the time of placement, CDF must have a temperature of at least 40°F. Mixing and placing shall stop when the temperature is 38°F and falling. Each filling stage shall be as continuous an operation as practicable. CDF shall not be placed on frozen ground.

The trench section to be filled with CDF shall be contained at either end of trench section by bulkhead or earth fill.

APPENDIX A

TRANSFER OF OWNERSHIP FORMS

TRANSFER OF OWNERSHIP OF PUBLIC WORKS IMPROVEMENTS
(Individual)

_____, the Developer or Owner(s), do(es) hereby transfer(s), deliver(s) and relinquish(es) to the City of Grandview, Washington, all right, title and interest in, and ownership of, the following described Public Works Improvement located at:_____

_____

{ Water { Sewer { Stormwater { Streets

_____

_____

_____

_____

_____

_____

The undersigned owner(s) agree(s) and understand(s) that this transfer of ownership of the above described Public Improvement to the City of Grandview is subject to the conditions of the third paragraph of **Section 1-05.12 Final Acceptance** of the latest edition of the Standard Specifications for Road, Bridge, and Municipal Construction, Washington State Department of Transportation modified as follows:

> "Final acceptance shall not constitute acceptance of any unauthorized or defective work or material. The City shall not be barred from requiring the Contractor to remove, replace, repair, or dispose of any unauthorized or defective work or material or from recovering damages for any such work or material for a period of one (1) year."

This Transfer of Ownership shall be effective only upon the City's final approval and acceptance of the Constructed Improvements and the acceptance of the Project Record Drawings.

_____

PROPERTY OWNER/DEVELOPER DATE

ACCEPTED BY THE CITY OF GRANDVIEW

_____

AUTHORIZED OFFICIAL DATE

STATE OF WASHINGTON)
) ss.
Yakima County)

I certify that I know of and have satisfactory evidence that _____ and _____ (is/are) the person(s) who personally appeared before me and that said person(s) acknowledged that (he/she/they) signed this instrument, and acknowledged it to be (his/her/their) free and voluntary act and for the uses and purposes mentioned in the instrument.

Dated: _____

Given under my hand and official seal the day and year last written.

_____

Notary Public in and for the State of Washington residing at _____

My Commission expires _____

TRANSFER OF OWNERSHIP OF PUBLIC WORKS IMPROVEMENT
(Corporate)

_____, the Developer or Owner(s), do(es) hereby transfer(s), deliver(s) and relinquish(es) to the City of Grandview, Washington, all right, title and interest in, and ownership of, the following described Public Works Improvement located at:_____

_____

{ Water { Sewer { Stormwater { Streets

_____

_____

_____

_____

_____

_____

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_____

PROPERTY OWNER/DEVELOPER DATE

ACCEPTED BY THE CITY OF GRANDVIEW

_____

AUTHORIZED OFFICIAL DATE

STATE OF WASHINGTON)
) **ss.**
Yakima County)

I certify that I know or have satisfactory evidence that _____ Is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument, and acknowledged it as the _____ of _____a _____to be the free voluntary act of such party for the uses and purposes mentioned in the instrument.

Dated: _____

Given under my hand and official seal the day and year last written.

_____

Notary Public in and for the State of Washington residing at _____

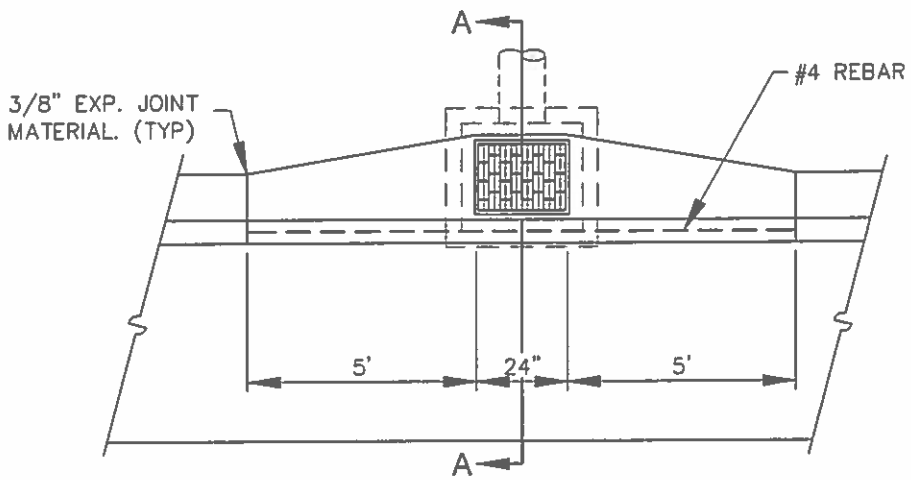
My Commission expires _____

APPENDIX B

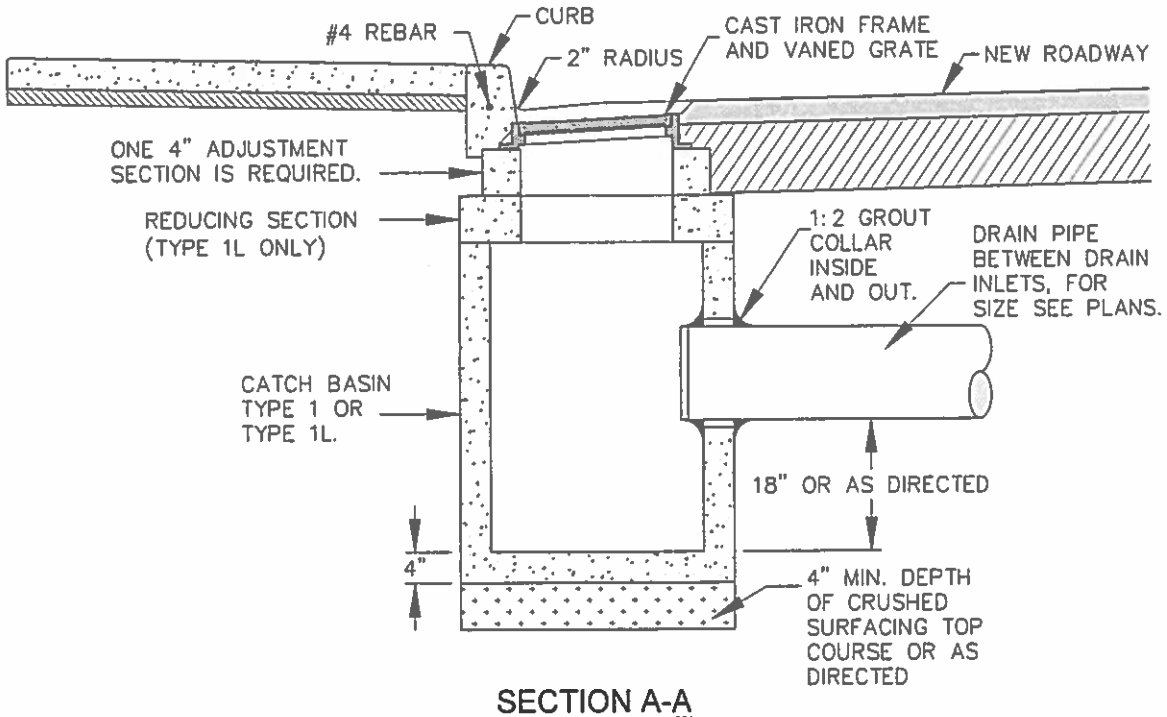
STANDARD DETAILS

GRANDVIEW STANDARD DETAILS

D-1	Catch Basin Type 1/1L
D-2	Catch Basin Type 1/1L with Combination Inlet
D-3	Infiltration System
D-4	Oil/Water Separator
E-1	Conduit Trench
E-2	Conduit Entrance at Junction Box
E-3	Street Light
SS-1	Storm/Sewer Pipe Trench Section
SS-2	Manhole Type 1
SS-3	Manhole Safety Step
SS-4	Drop Connection
SS-5	Manhole Adjustment
SS-6	Sanitary Sewer Cleanout
SS-7	Side Sewer Connection
SS-8	Shallow Manhole Type 3
ST-1	Typical Arterial Roadway Section
ST-2	Typical Collector Roadway Section
ST-3	Typical Local Access Roadway Section
ST-4	Concrete Curb and Gutter
ST-5	Concrete Sidewalk Sections
ST-6	Concrete Sidewalk Ramp
ST-7	Sidewalk Jointing
ST-8	Asphalt Sidewalk Ramp
ST-9	Residential Driveway Approach
ST-10	Commercial Driveway Approach
ST-10A	Commercial Driveway Approach Alternate
ST-11	Trench Surfacing Repair
ST-12	Monument
ST-13	Cul-de-Sac Layout
ST-14	Bollard
W-1	Water Main Trench Section
W-2	Fire Hydrant Assembly
W-3	Water Valve Box
W-4	Air Release Valve
W-5	Blow-Off Assembly
W-6	Concrete Thrust Blocking
W-7	Small Pressure Reducing Valve Assembly
W-8	Irrigation Backflow Preventer
W-9	Hydrant Guard Posts



PLAN



SECTION A-A

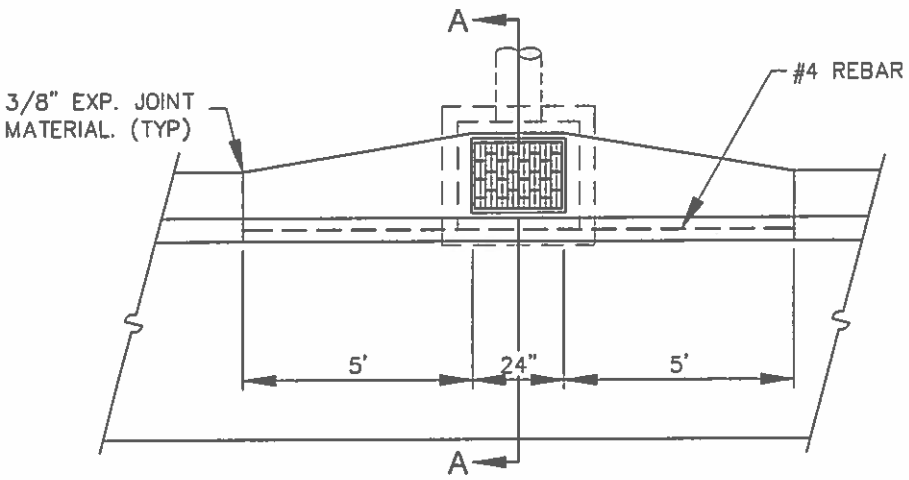
CATCH BASIN TYPE 1/1L

NOT TO SCALE

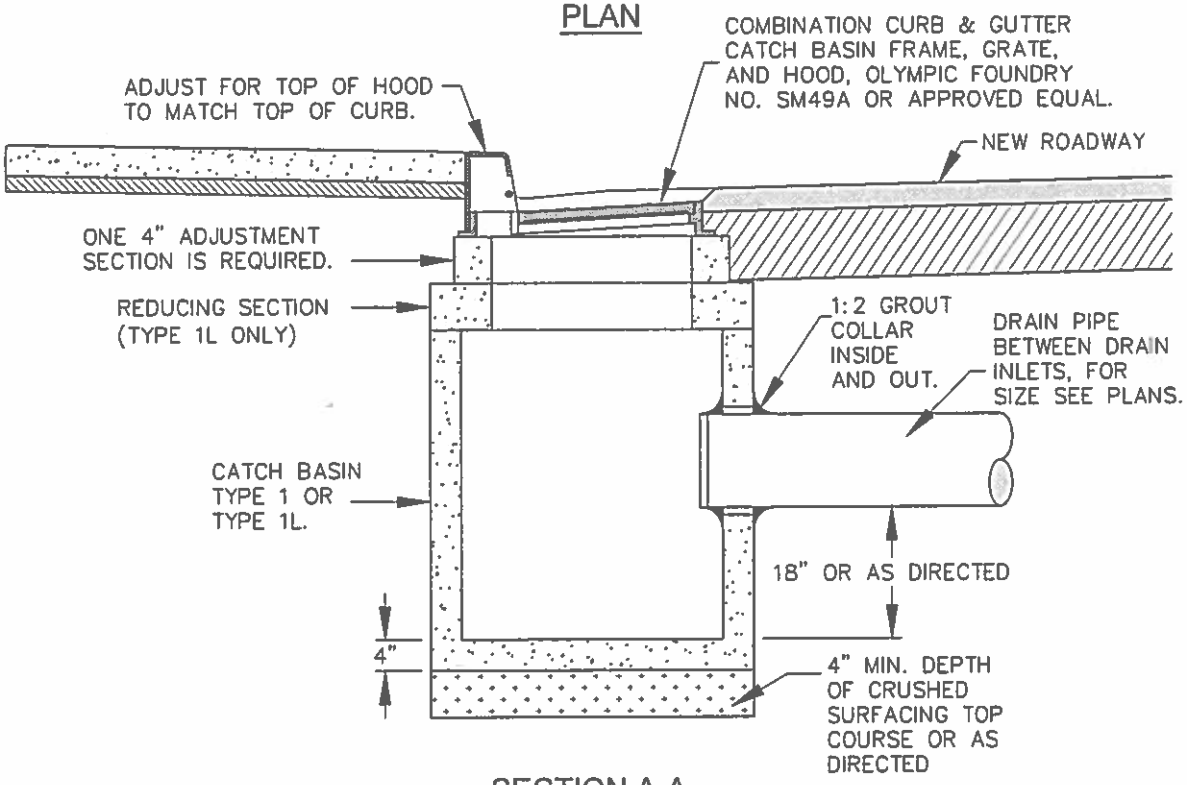
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	CATCH BASIN TYPE 1/1L	D-1



PLAN



SECTION A-A

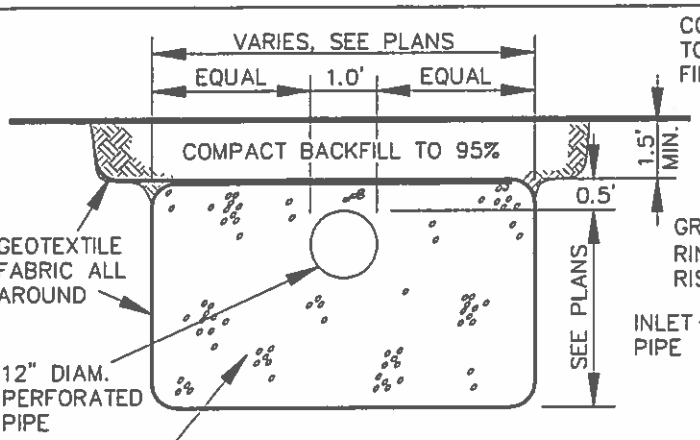
CATCH BASIN TYPE 1/1L WITH COMBINATION INLET

NOT TO SCALE

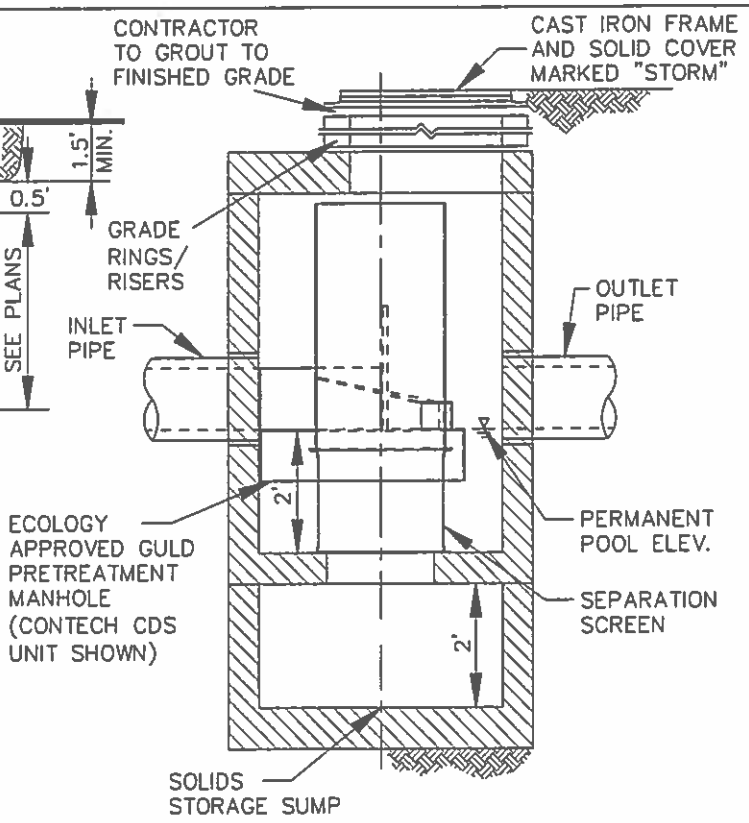
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

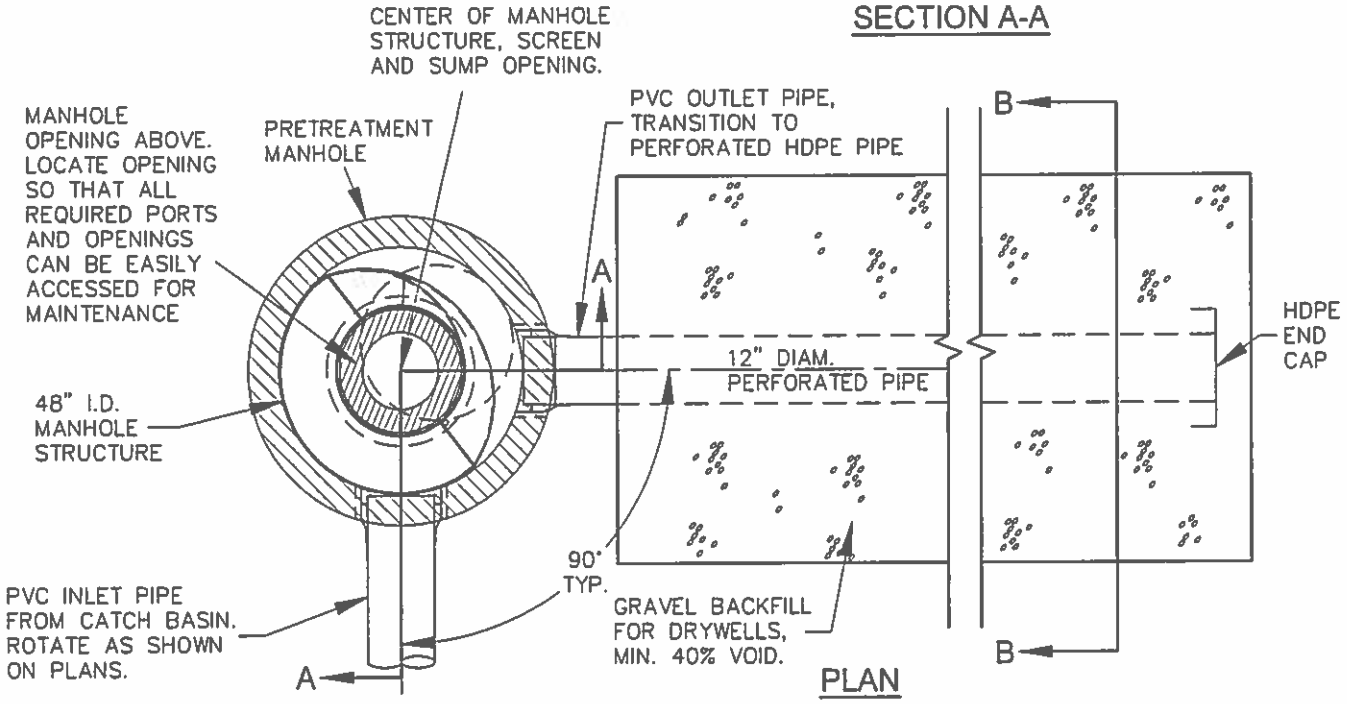
CITY OF GRANDVIEW-STANDARD DETAIL	CATCH BASIN TYPE 1/1L WITH COMBINATION INLET	D-2



SECTION B-B



SECTION A-A



PLAN

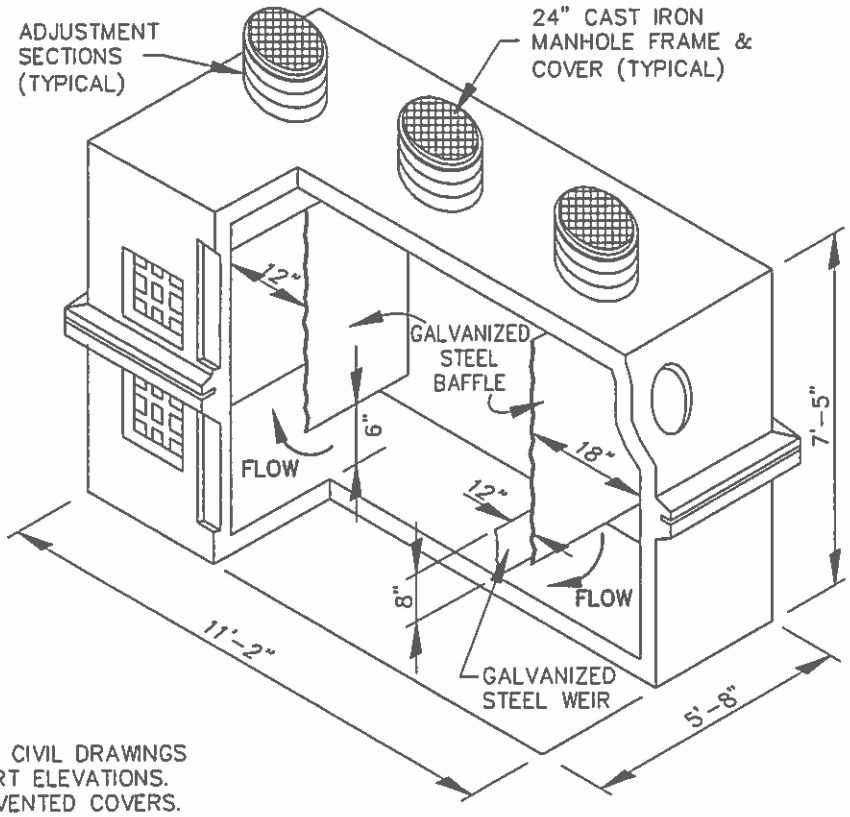
INFILTRATION SYSTEM

NOT TO SCALE

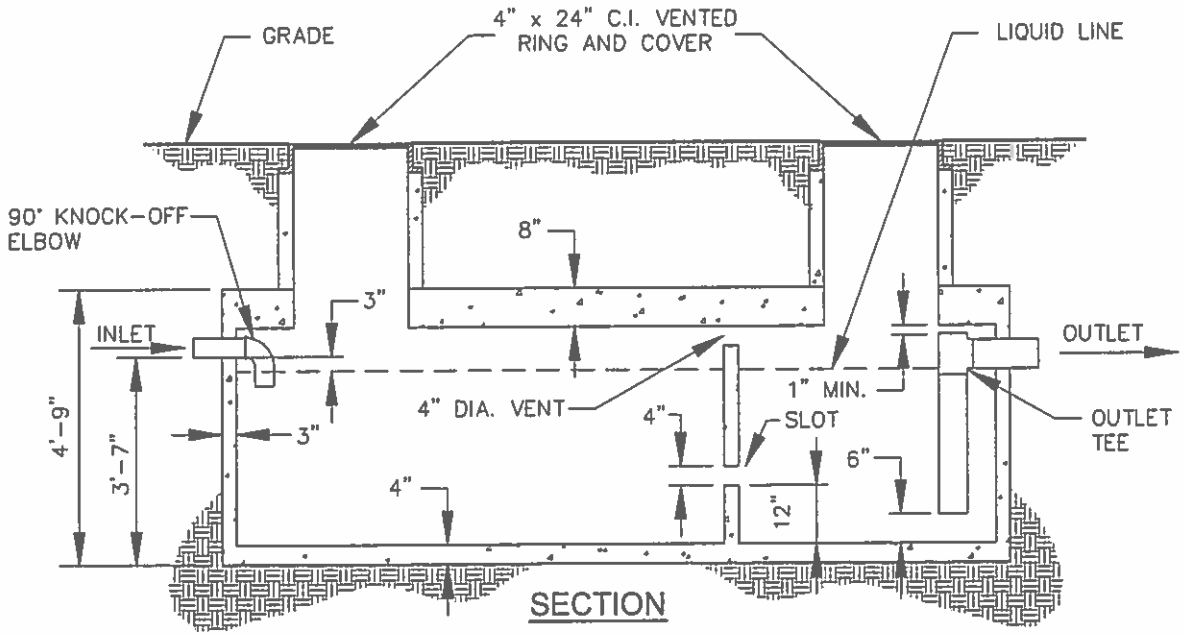
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	INFILTRATION SYSTEM	D-3



NOTES:
1. REFER TO CIVIL DRAWINGS FOR INVERT ELEVATIONS.
2. PROVIDE VENTED COVERS.



SECTION

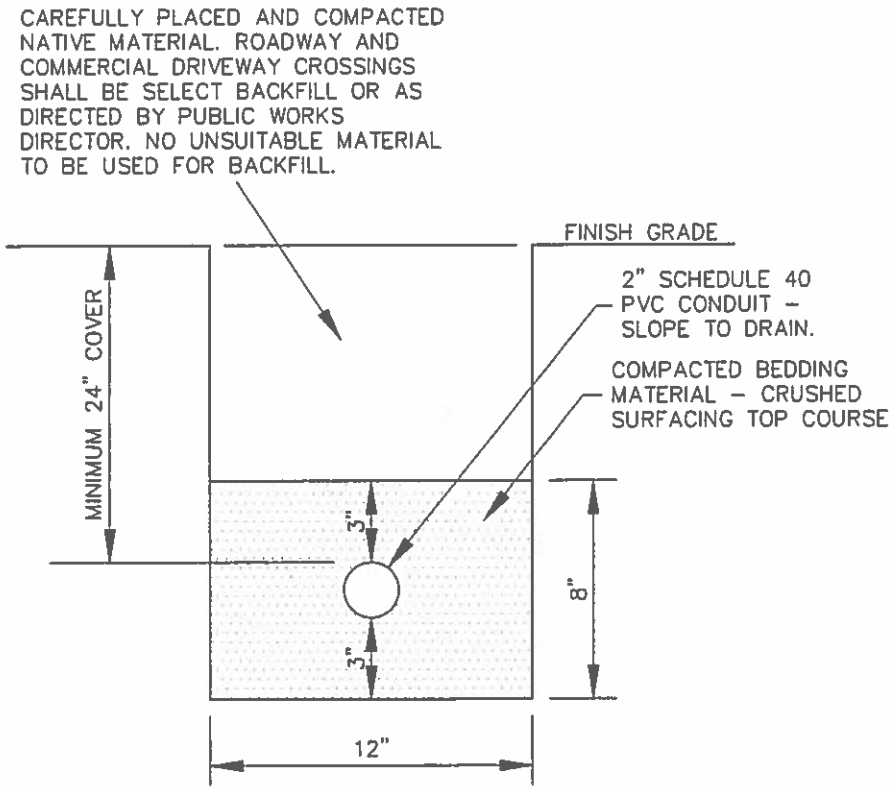
OIL/WATER SEPARATOR

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	OIL/WATER SEPARATOR	D-4



NOTE:
ALL CONDUIT RUNS WHICH CROSS ROADWAYS SHALL HAVE A 2" SPARE CONDUIT.

CONDUIT TRENCH SECTION

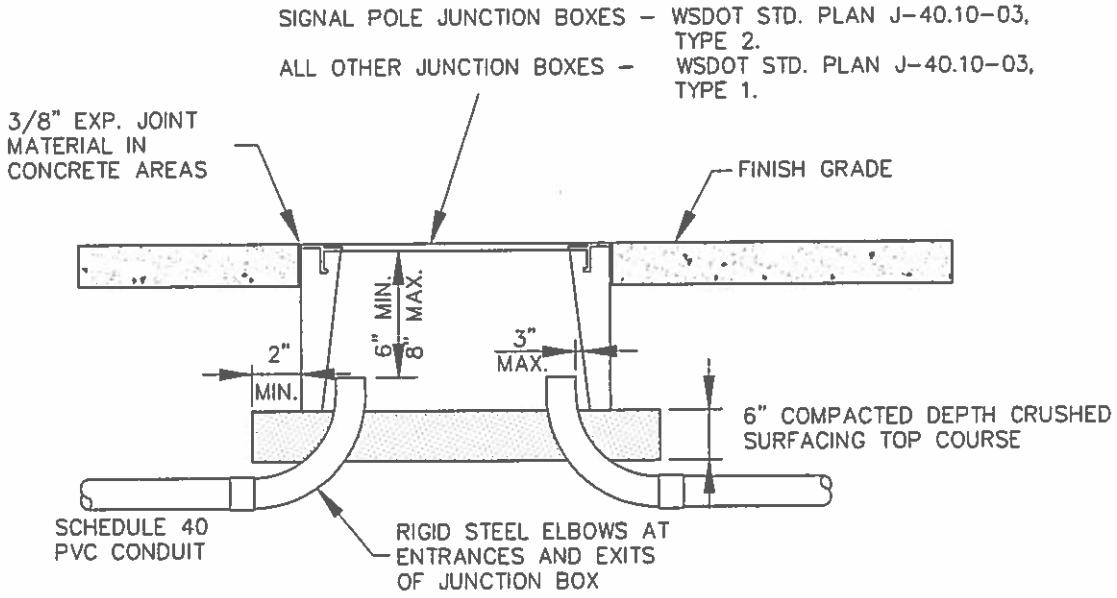
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	CONDUIT TRENCH	E-1

NOTE:
GROUND ROD FOR PVC CONDUIT
OR NO. 8 AWG BONDING JUMPER
FOR METAL CONDUIT (RIGID)
REQUIRED AT EACH JUNCTION BOX.
SEE PLANS FOR CONDUIT TYPE.



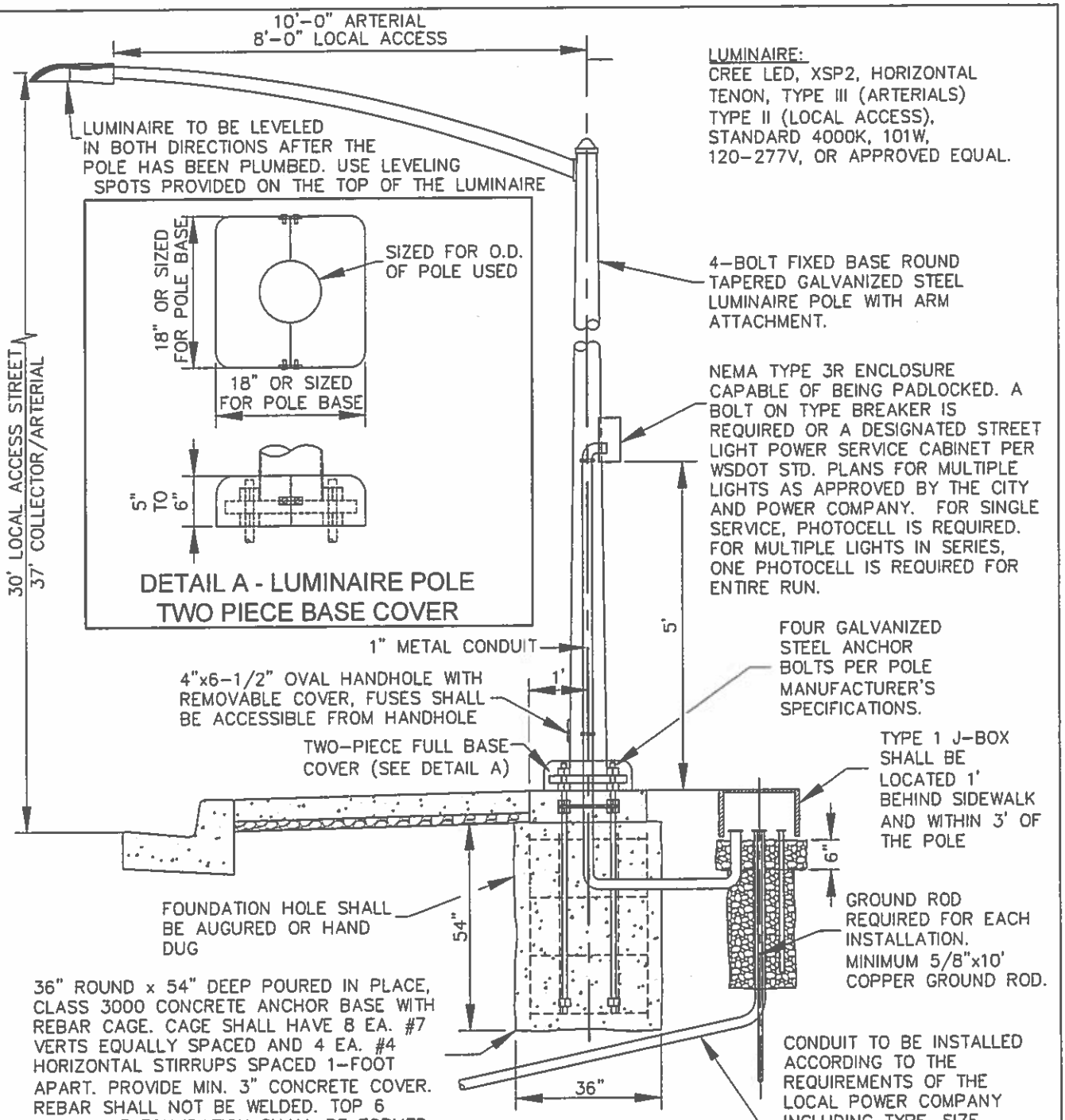
CONDUIT ENTRANCE AT JUNCTION BOX

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	CONDUIT ENTRANCE AT JUNCTION BOX	E-2



TYPICAL SECTION

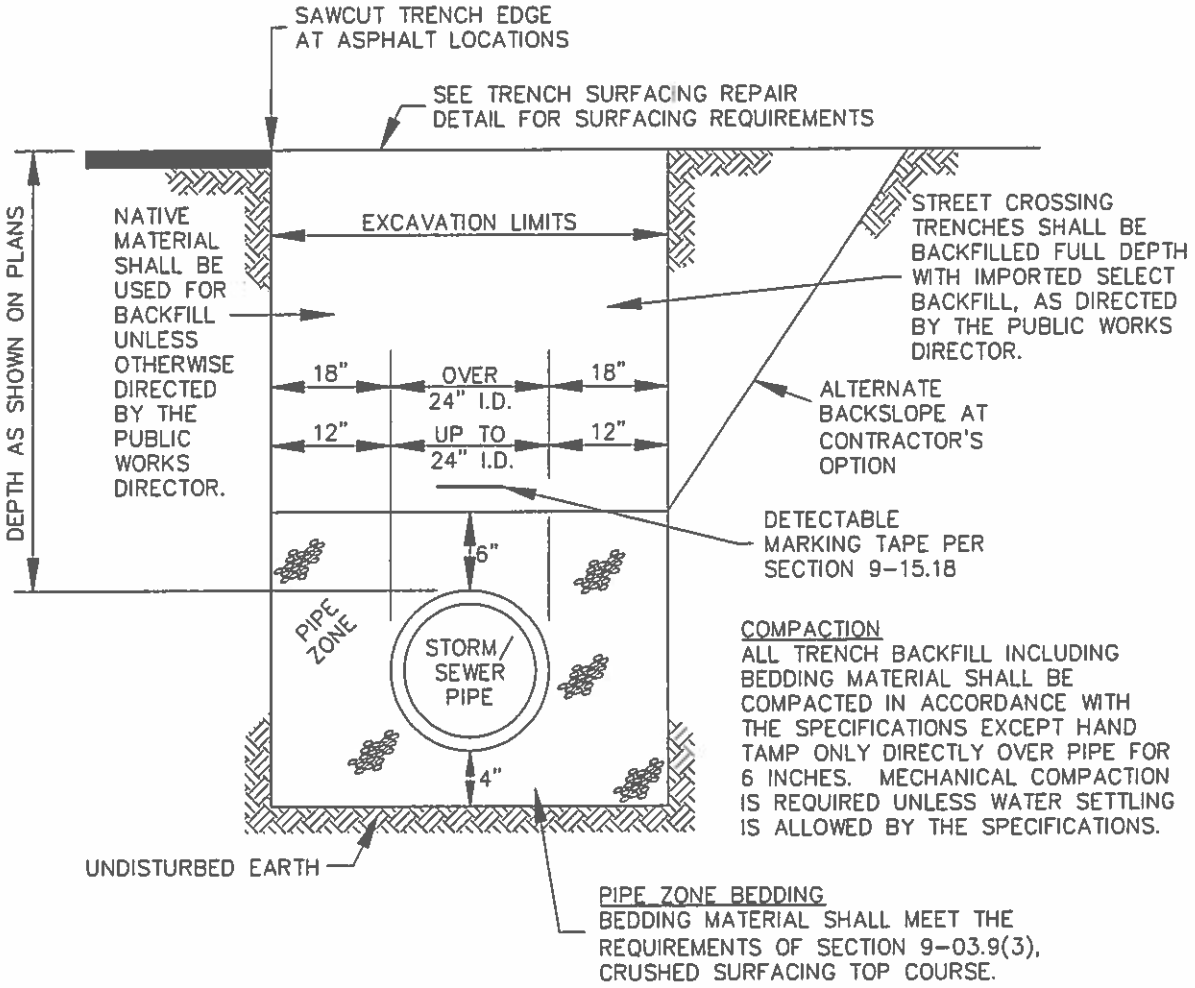
STREET LIGHT

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	10/06		

CITY OF GRANDVIEW-STANDARD DETAIL	STREET LIGHT	E-3



NOTES:

1. FOR 4" AND 6" SIDE SEWERS, INSTALL IMPORTED PIPE ZONE BEDDING A MINIMUM OF 3" THICK ON ALL SIDES OF PIPE.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE O.S.H.A. AND W.I.S.H.A. SAFETY AND HEALTH REGULATIONS.

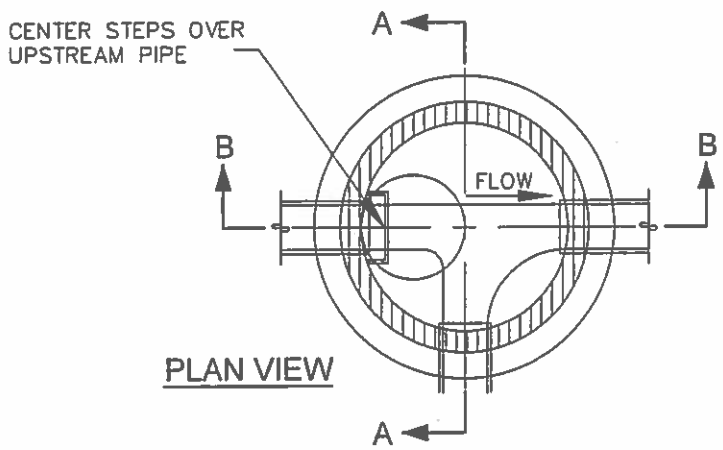
STORM/SEWER PIPE TRENCH SECTION

NOT TO SCALE

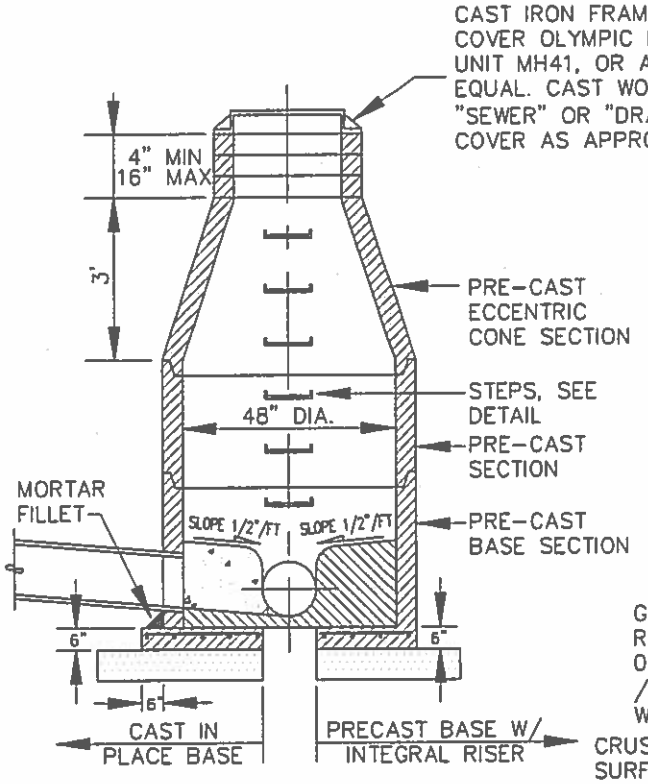
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

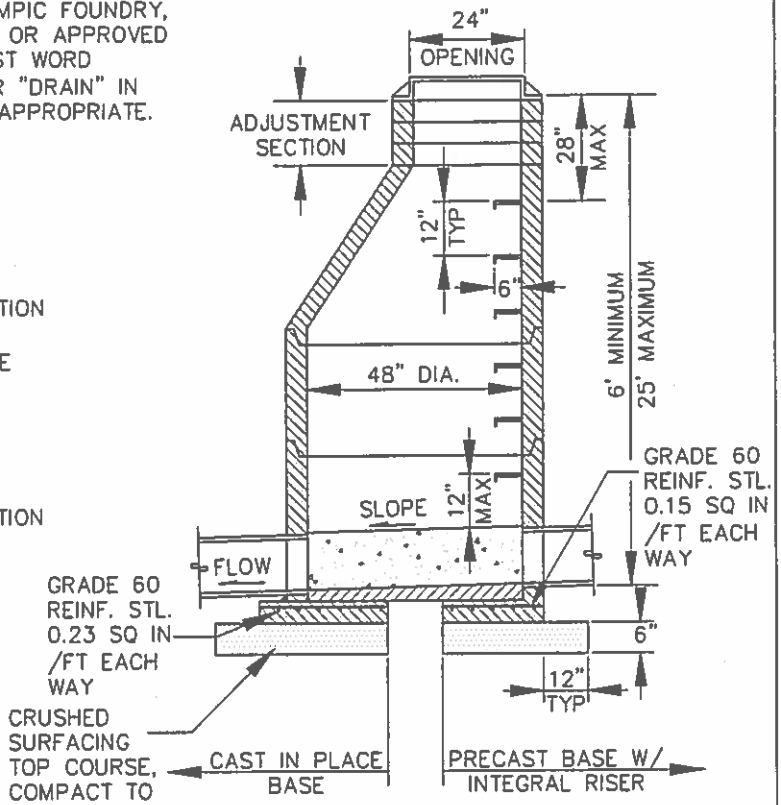
CITY OF GRANDVIEW-STANDARD DETAIL	STORM/SEWER PIPE TRENCH SECTION	SS-1



PLAN VIEW



SECTION A-A



SECTION B-B

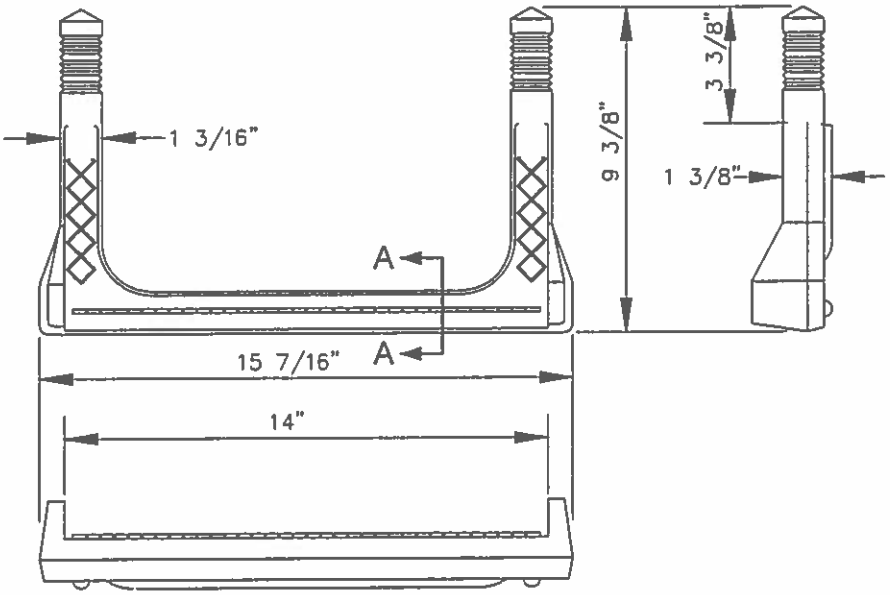
MANHOLE TYPE 1

NOT TO SCALE

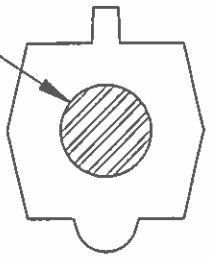
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

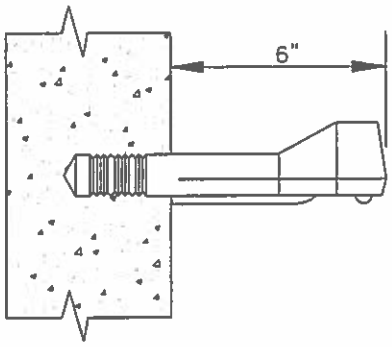
CITY OF GRANDVIEW-STANDARD DETAIL	MANHOLE TYPE 1	SS-2



COPOLYMER
POLYPROPYLENE
PLASTIC COATED 1/2"
GRADE 60 STEEL
REINFORCEMENT



SECTION A-A



NOTE:
MANHOLE STEPS SHALL BE COPOLYMER POLYPROPYLENE PLASTIC COATED 1/2" GRADE 60 STEEL REINFORCEMENT, MODEL PS2-PF, AS MANUFACTURED BY M.A. INDUSTRIES INC., OR APPROVED EQUAL

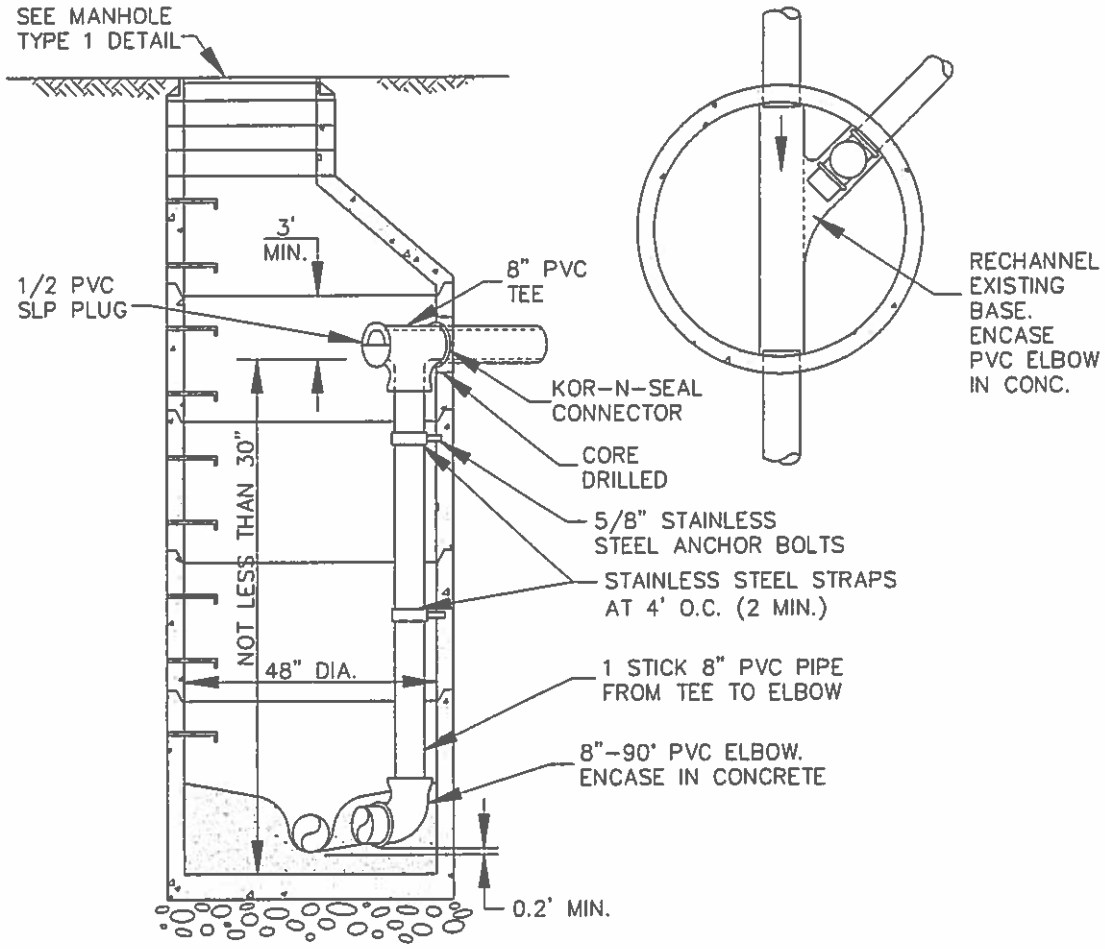
MANHOLE SAFETY STEP

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	MANHOLE SAFETY STEP	SS-3



NOTES:
1. DROP TEE TO BE INSTALLED MINIMUM OF 3' BELOW CONE SECTION.
2. DROP MANHOLE SHALL BE INSTALLED ONLY WHERE APPROVED BY THE CITY.

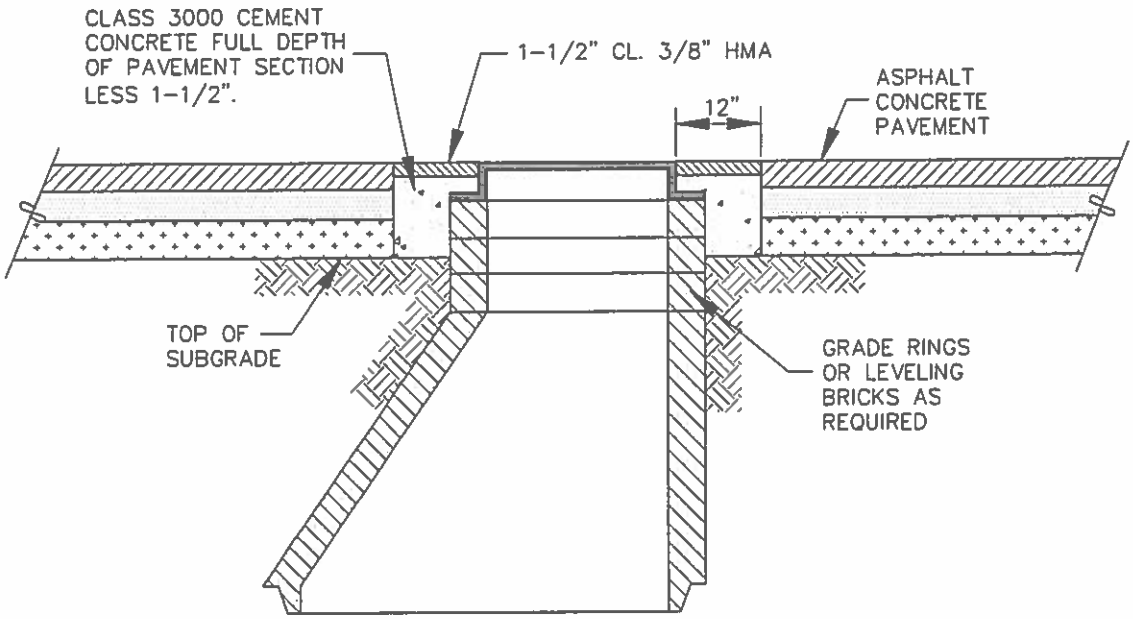
DROP MANHOLE CONNECTION

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	DROP CONNECTION	SS-4



NOTES:

1. MANHOLES SHALL BE ADJUSTED TO FINISHED GRADE AFTER PLACEMENT OF ASPHALT CONCRETE PAVEMENT.
2. GRADE RINGS AND/OR LEVELING BRICKS SHALL BE GROUTED IN PLACE AND BE WATER TIGHT.
3. IN UNPAVED AREAS, PROVIDE 12" THICK, 4' DIA. CEMENT CONCRETE RING AROUND TOP OF MANHOLE. SET MANHOLE FRAME FLUSH W/ FINISHED GRADE AND SLOPE CONCRETE OUTWARD AT 1/4"/FT.

MANHOLE ADJUSTMENT

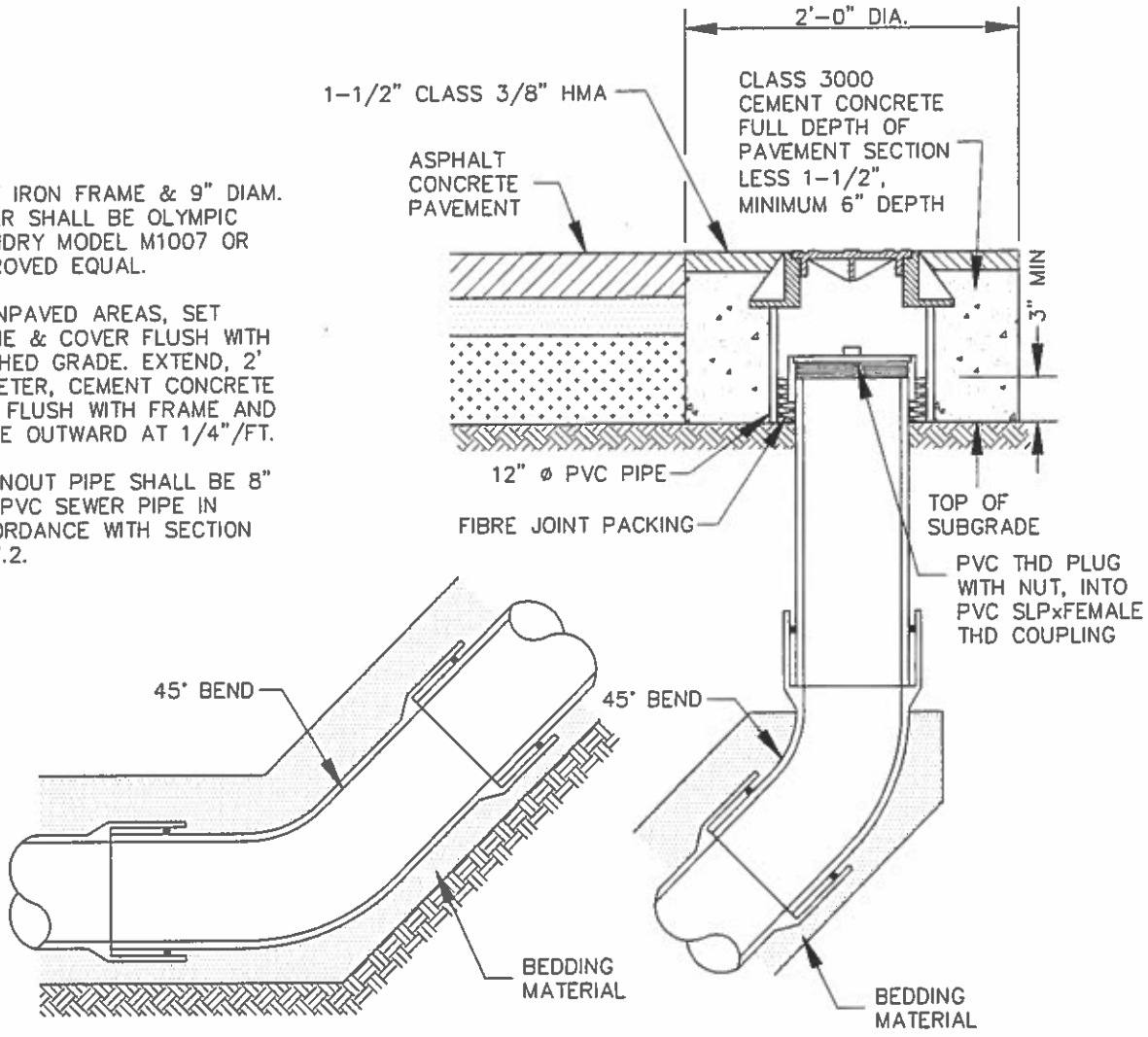
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	MANHOLE ADJUSTMENT	SS-5

NOTES:
1. CAST IRON FRAME & 9" DIAM. COVER SHALL BE OLYMPIC FOUNDRY MODEL M1007 OR APPROVED EQUAL.
2. IN UNPAVED AREAS, SET FRAME & COVER FLUSH WITH FINISHED GRADE. EXTEND, 2' DIAMETER, CEMENT CONCRETE RING FLUSH WITH FRAME AND SLOPE OUTWARD AT 1/4"/FT.
3. CLEANOUT PIPE SHALL BE 8" DIA. PVC SEWER PIPE IN ACCORDANCE WITH SECTION 7-17.2.



SANITARY SEWER CLEANOUT

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	SANITARY SEWER CLEANOUT	SS-6

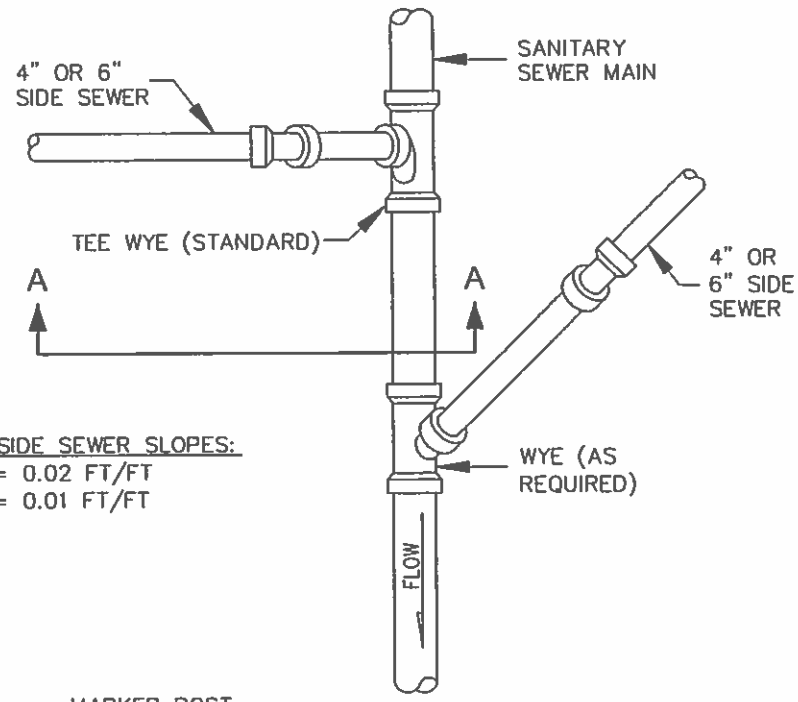
CITY OF GRANDVIEW-STANDARD DETAIL

SIDE SEWER CONNECTION

SS-7

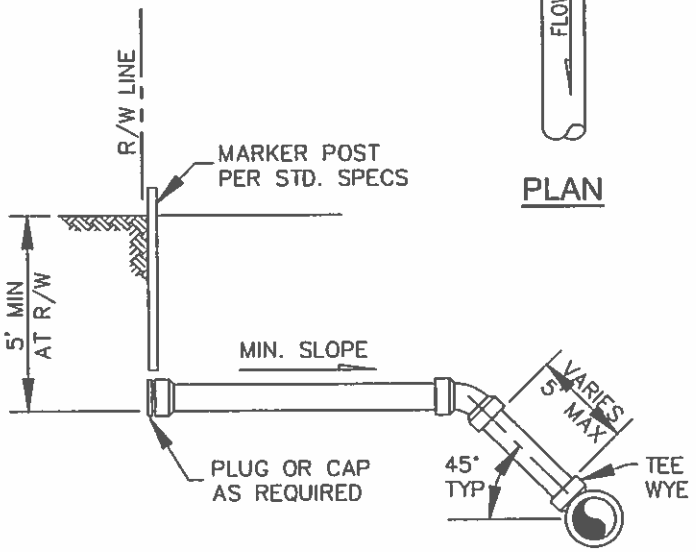
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
ORIG.	04/04		
	01/15	2015 UPDATE	



PLAN

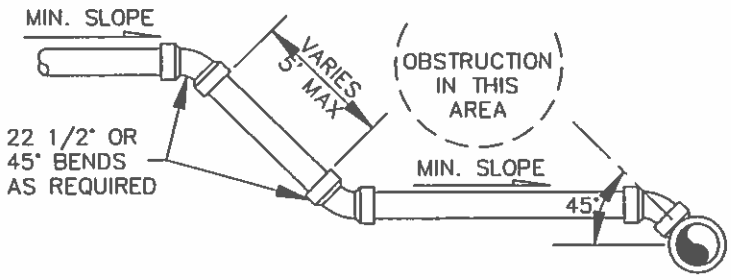
MINIMUM SIDE SEWER SLOPES:
4" PIPE = 0.02 FT/FT
6" PIPE = 0.01 FT/FT



SECTION A-A

NOTES:

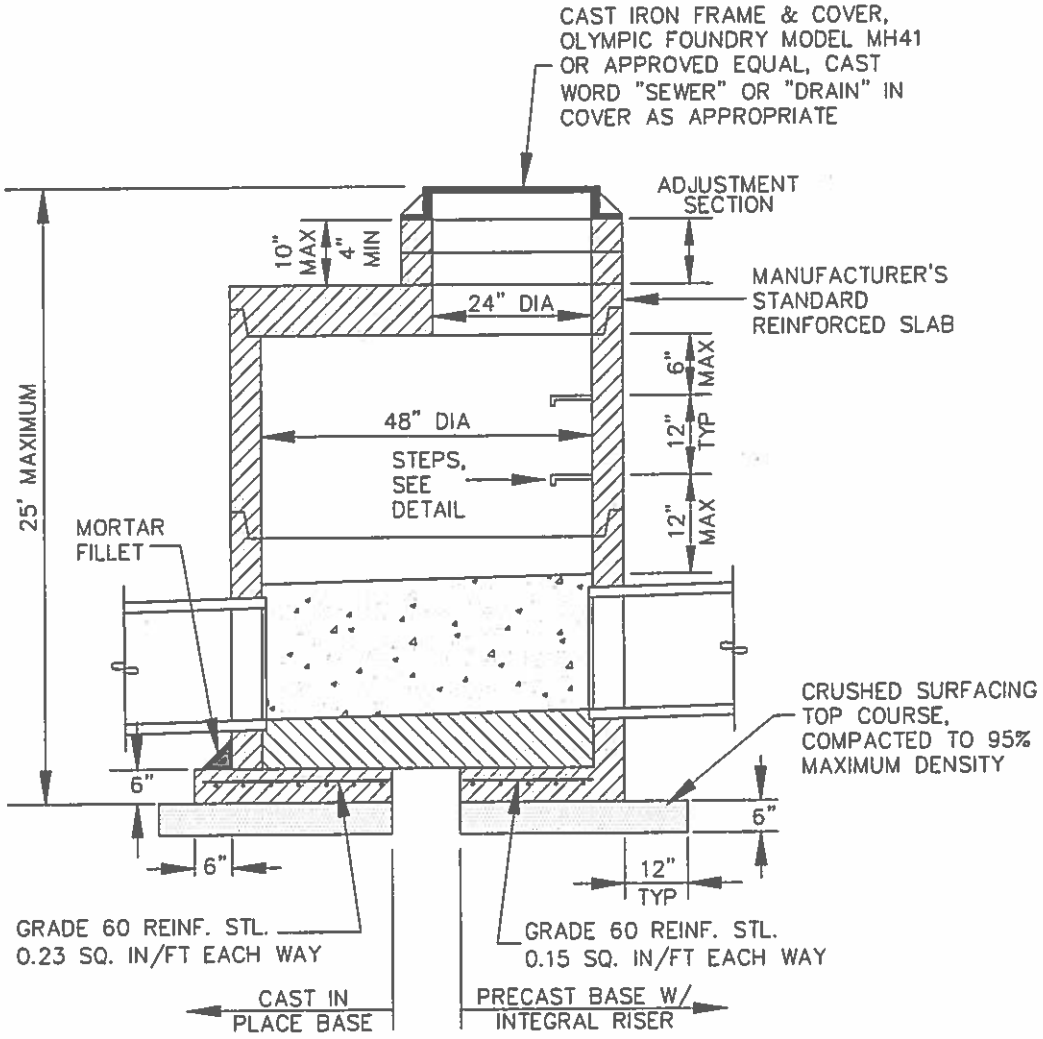
1. SERVICE CONNECTIONS 8" OR LARGER MUST BE MADE AT MANHOLE.
2. IF 5' MAXIMUM SLOPED DISTANCE IS INSUFFICIENT FOR SIDE SEWER CONNECTION, INSTALL SIDE SEWER RISER PER DETAIL.
3. ROTATE SANITARY SEWER MAIN TEE WYE OR WYE 45° UPWARD.
4. TEE WYES OR WYES SHALL BE INSTALLED IN NEW SANITARY SEWER MAINS. WHEN INSTALLING SIDE SEWERS IN EXISTING MAINS, CONNECTION SHALL BE MADE BY MACHINE MADE TAP AND APPROVED SADDLE.
5. WHERE DEPTH IS INSUFFICIENT TO ALLOW CONNECTION AS SHOWN, CONNECT SERVICE AS DIRECTED BY ENGINEER.
6. TERMINATE SIDE SEWER AT R/W LINE UNLESS OTHERWISE DIRECTED BY ENGINEER OR SHOWN OTHERWISE ON PLANS.
7. ALL SIDE SEWER MATERIALS SHALL BE PVC SEWER PIPE CONFORMING TO THE REQUIREMENTS OF SECTION 9-05.12 OF THE STANDARD SPECIFICATIONS.



CONNECTION AT OBSTRUCTION

SIDE SEWER CONNECTION

NOT TO SCALE



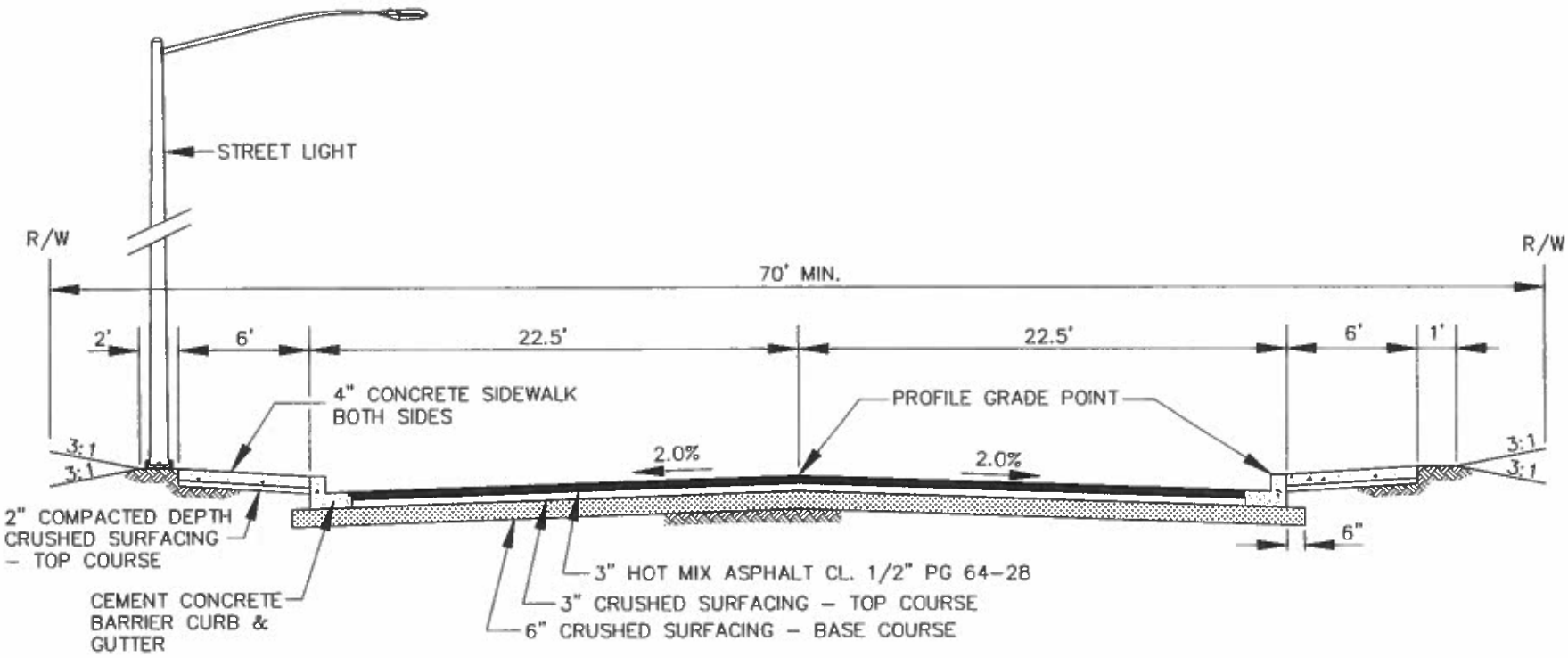
SHALLOW MANHOLE TYPE 3

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	SHALLOW MANHOLE TYPE 3	SS-8

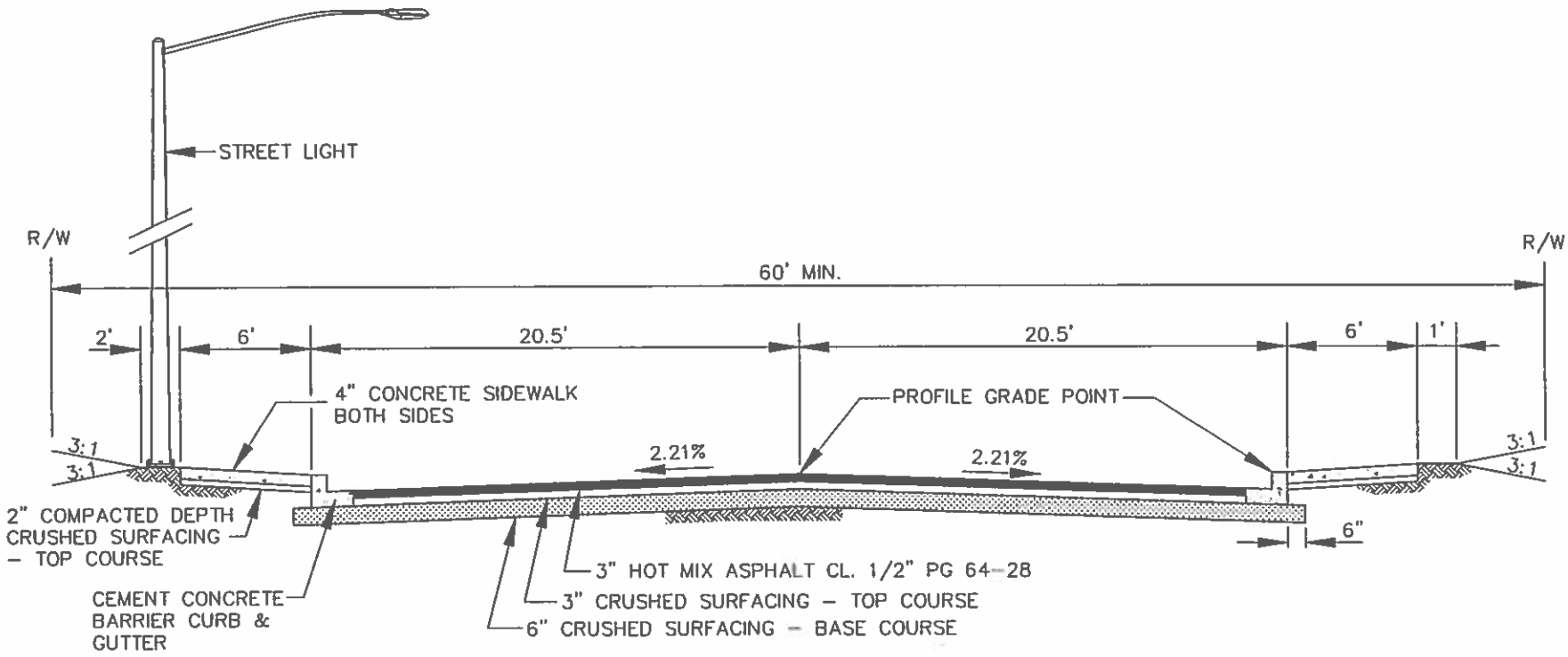


NOTES:
1. ALL THICKNESSES ARE COMPACTED DEPTHS.
2. BACK SLOPES SHALL BE 3:1 UNLESS OTHERWISE APPROVED BY PUBLIC WORKS DIRECTOR.
3. CONCRETE SIDEWALK TO BE:
   6" THICK AT DRIVEWAYS,
   4" THICK ALL OTHER LOCATIONS.

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	06/04		

CITY OF GRANDVIEW-STANDARD DETAIL	TYPICAL ARTERIAL ROADWAY SECTION	ST-1

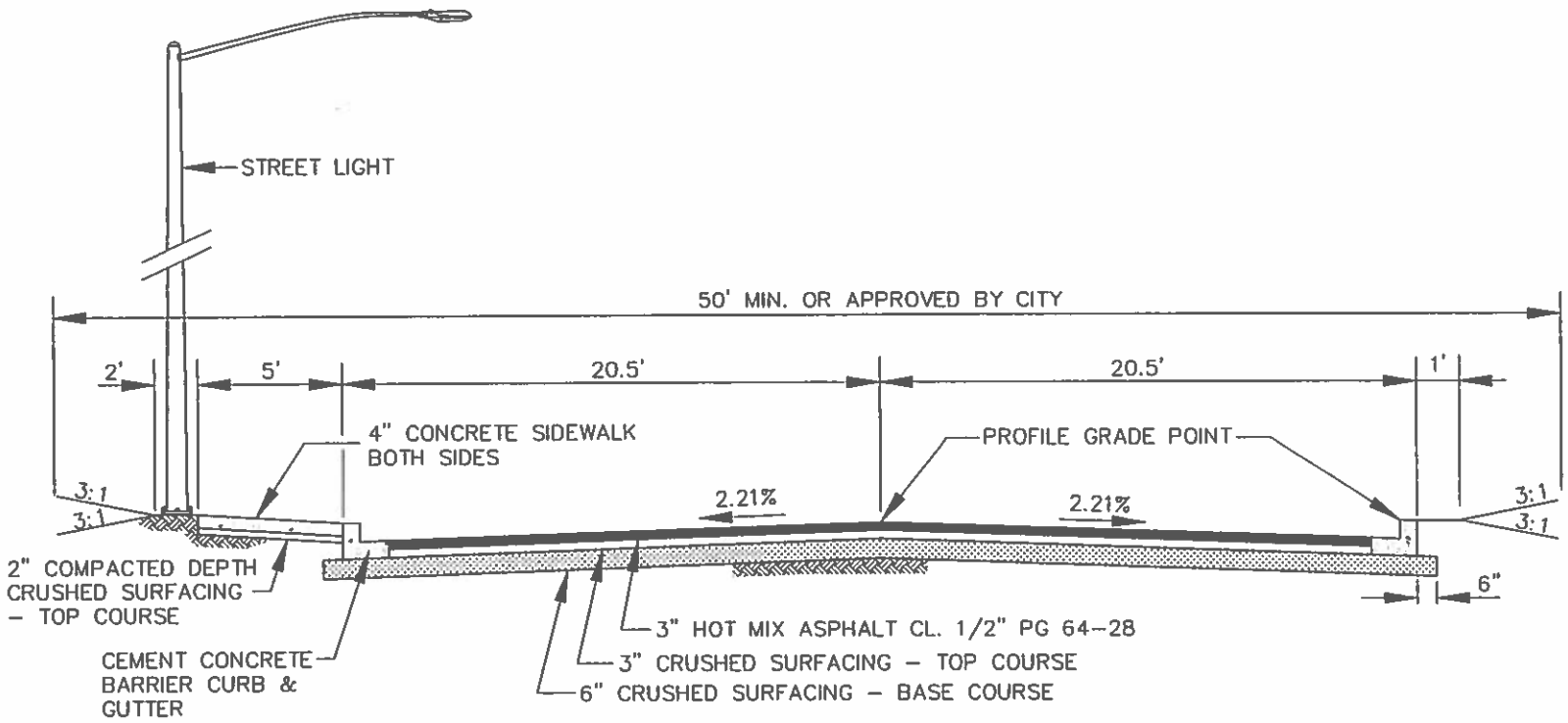


NOTES:
1. ALL THICKNESSES ARE COMPACTED DEPTHS.
2. BACK SLOPES SHALL BE 3:1 UNLESS OTHERWISE APPROVED BY PUBLIC WORKS DIRECTOR.
3. CONCRETE SIDEWALK TO BE:
   6" THICK AT DRIVEWAYS,
   4" THICK ALL OTHER LOCATIONS.

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	01/15	2015 UPDATE	
ORIG.	06/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	TYPICAL COLLECTOR ROADWAY SECTION	ST-2



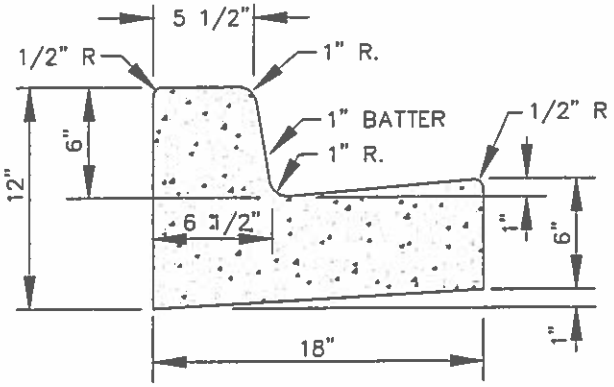
NOTES:

1. ALL THICKNESSES ARE COMPACTED DEPTHS.
2. BACK SLOPES SHALL BE 3:1 UNLESS OTHERWISE APPROVED BY PUBLIC WORKS DIRECTOR.
3. CONCRETE SIDEWALK TO BE:
   6" THICK AT DRIVEWAYS,
   4" THICK ALL OTHER LOCATIONS.
4. IF ROLLED CURB AND GUTTER IS APPROVED, SIDEWALK SHALL BE 6" THICK.

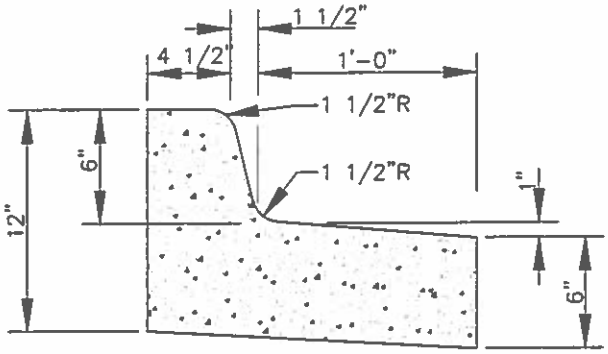
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	06/04		

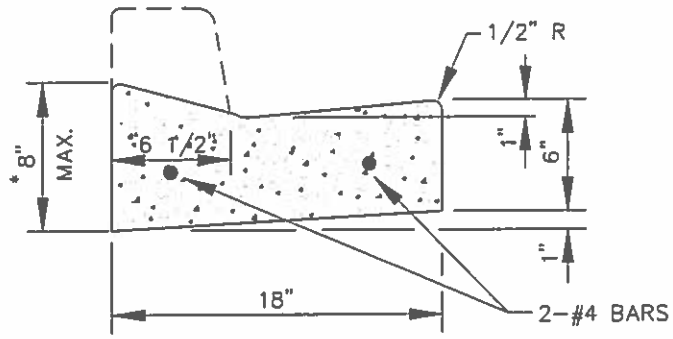
CITY OF GRANDVIEW-STANDARD DETAIL	TYPICAL LOCAL ACCESS ROADWAY SECTION	ST-3



FULL HEIGHT - BARRIER

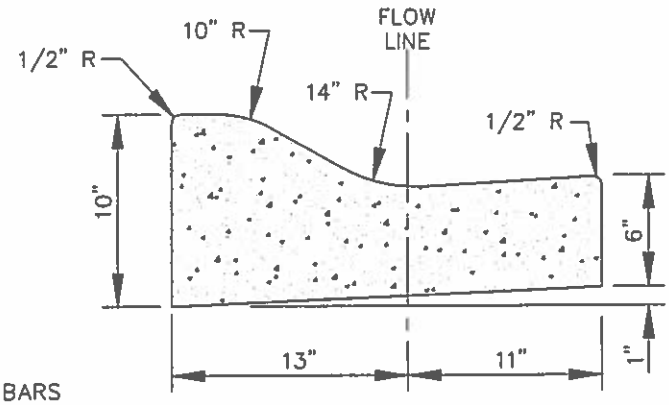


CONCRETE SPILL CURB



DEPRESSED - DRIVEWAYS

NOTE:
*AS DIRECTED BY ENGINEER. MAY VARY DEPENDING UPON GRADE OF SIDEWALK AND DRIVEWAY BEYOND CURB.



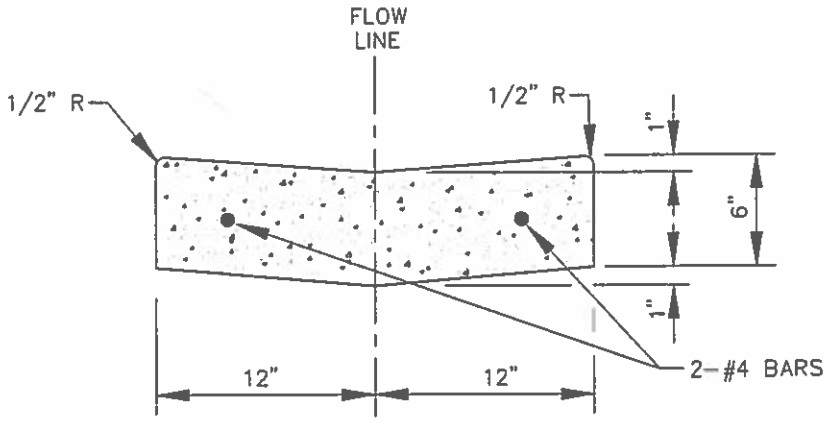
ROLLED CURB

NOTE:
TOP OF CURB ELEVATION SHOWN IS TOP OF FULL HEIGHT CURB. SUBTRACT 0.17' FOR TOP OF ROLLED CURB.

NOTES:

1. 3/8" THICK MASTIC EXPANSION JOINT TO BE PLACED AT ALL POINTS OF TANGENCY.
2. FOR STATIONARY FORM CONSTRUCTION STANDARD PLATES AND HALF PLATES TO BE PLACED AT 10'-0" INTERVALS.
3. FOR SLIP-FORM CONSTRUCTION, PROVIDE FULL DEPTH JOINTS AT 10'-0" INTERVALS.
4. BACKFILL BEHIND CURB SHALL EXTEND FROM TOP OF CURB BACK TO A POINT AS DIRECTED BY THE PUBLIC WORKS DIRECTOR. THE TOP 4" OF BACKFILL OR EXISTING MATERIAL SHALL BE OF A FINE GRADED MATERIAL, SUITABLE FOR LAWNS, AND BE DAMPENED AND THEN BE MECHANICALLY COMPACTED TO OBTAIN A REASONABLE LEVEL OF COMPACTION.

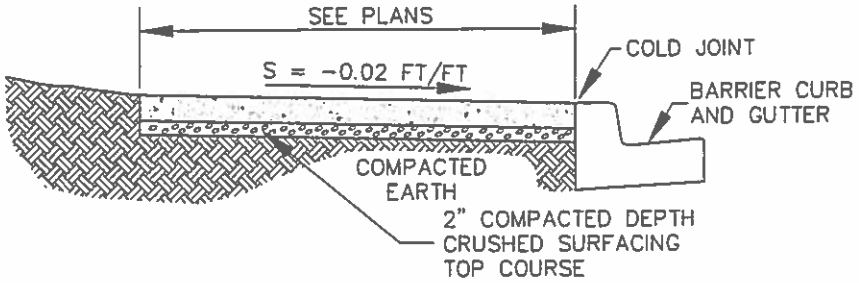
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



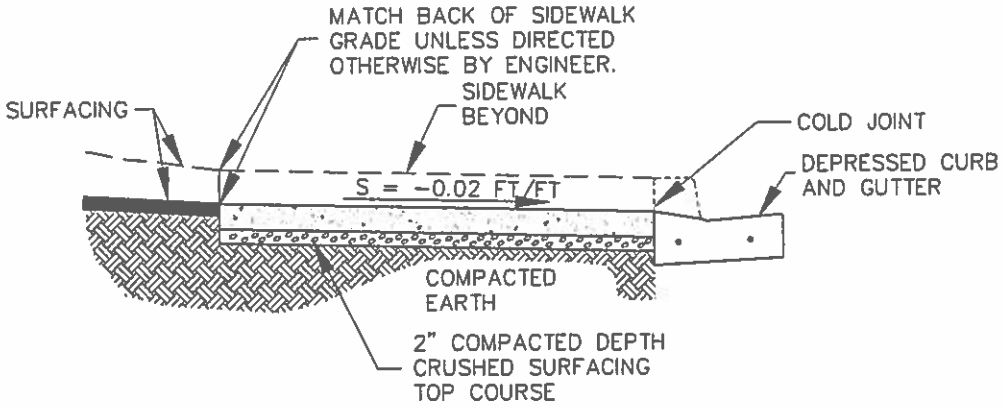
VALLEY GUTTER

	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	CONCRETE CURB AND GUTTER	ST-4



4" THICK SIDEWALK SECTION



6" THICK CONCRETE APPROACHES AT DRIVEWAYS

NOTES:
1. DRIVEWAYS SHALL MEET REQUIREMENTS OF SECTION 8-06.
2. DRIVEWAY CONCRETE SHALL DEVELOP 2,500 PSI STRENGTH IN 3 DAYS.

CONCRETE SIDEWALK SECTIONS

NOT TO SCALE

NOTE:
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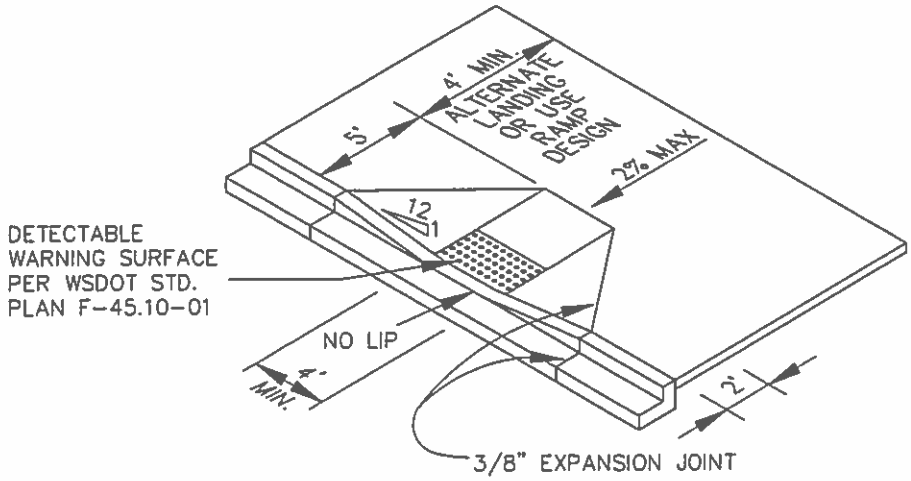
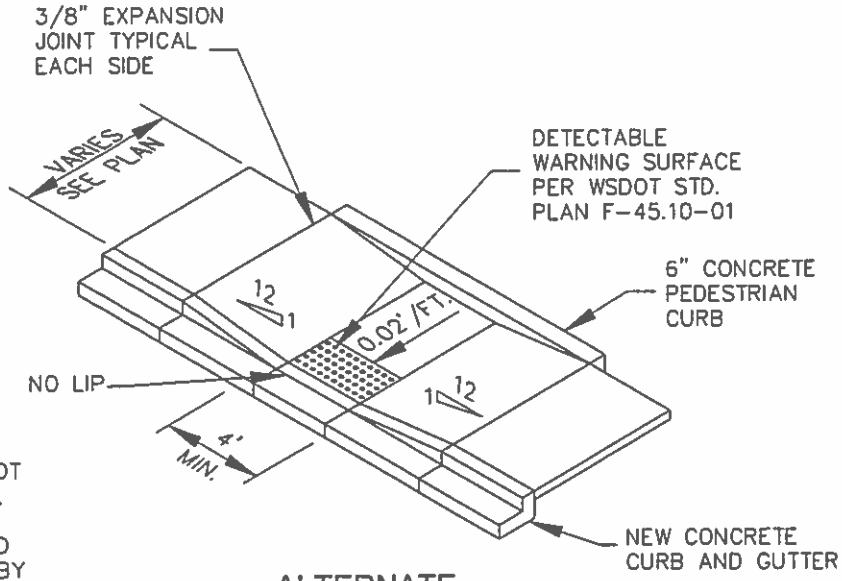
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	CONCRETE SIDEWALK SECTIONS	ST-5



STANDARD



ALTERNATE

NOTE:
CURB RAMPS WILL NOT BE POURED INTEGRAL WITH SIDEWALK OR CURB & GUTTER, AND SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES BUT NOT AT THE END OF RAMP ADJACENT TO THE CURB.

CONCRETE SIDEWALK RAMP

NOT TO SCALE

NOTE:
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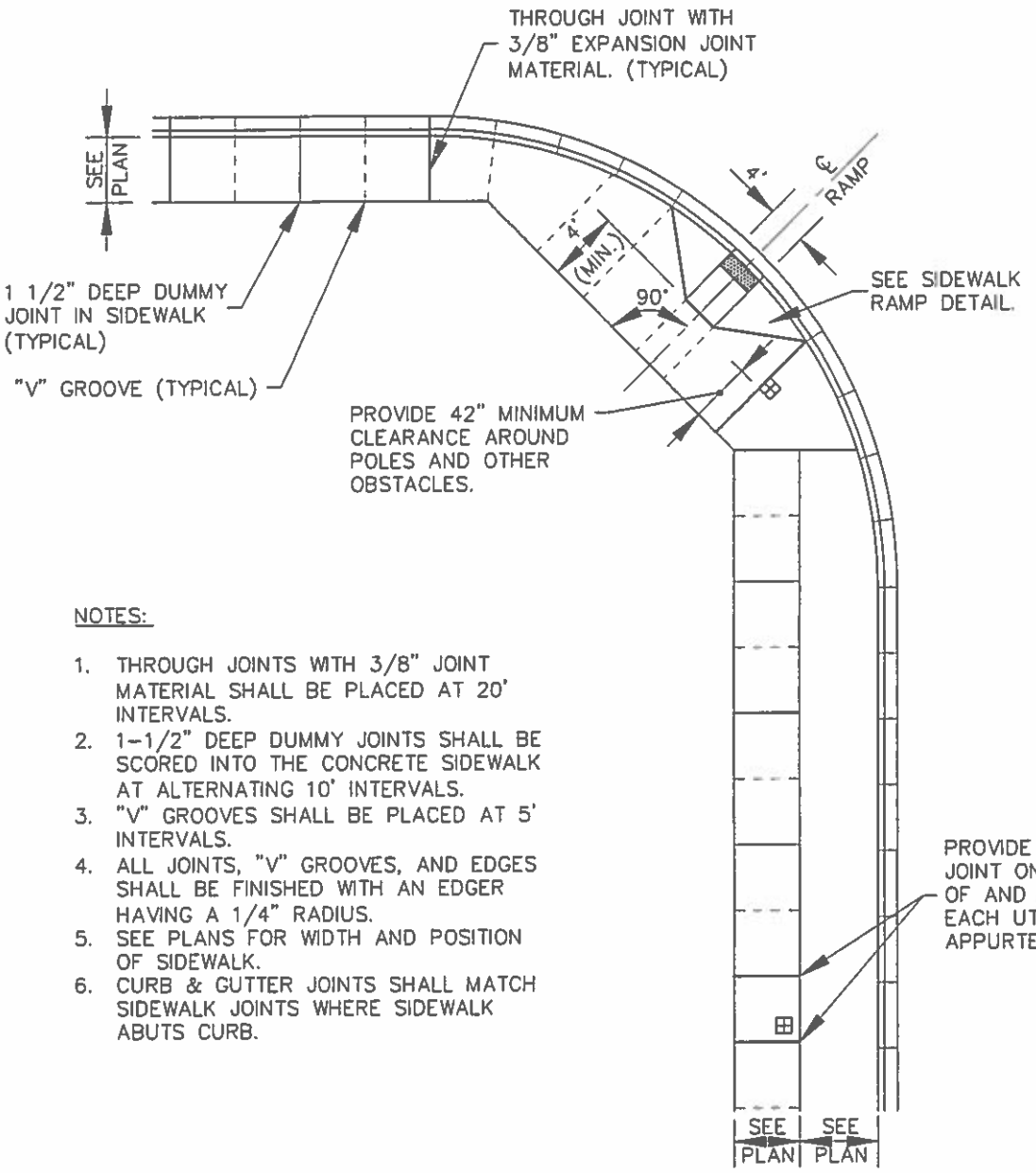
Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	CONCRETE SIDEWALK RAMP	ST-6



NOTES:

1. THROUGH JOINTS WITH 3/8" JOINT MATERIAL SHALL BE PLACED AT 20' INTERVALS.
2. 1-1/2" DEEP DUMMY JOINTS SHALL BE SCORED INTO THE CONCRETE SIDEWALK AT ALTERNATING 10' INTERVALS.
3. "V" GROOVES SHALL BE PLACED AT 5' INTERVALS.
4. ALL JOINTS, "V" GROOVES, AND EDGES SHALL BE FINISHED WITH AN EDGER HAVING A 1/4" RADIUS.
5. SEE PLANS FOR WIDTH AND POSITION OF SIDEWALK.
6. CURB & GUTTER JOINTS SHALL MATCH SIDEWALK JOINTS WHERE SIDEWALK ABUTS CURB.

SIDEWALK JOINTING

NOT TO SCALE

	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

NOTE:
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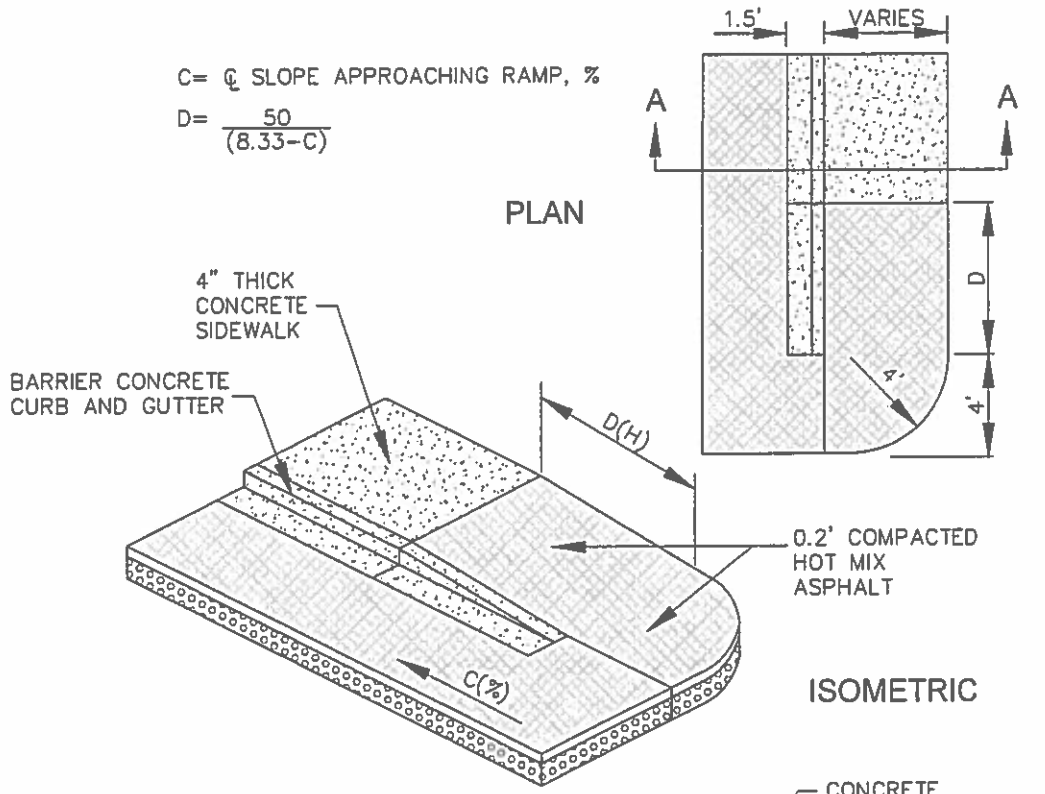
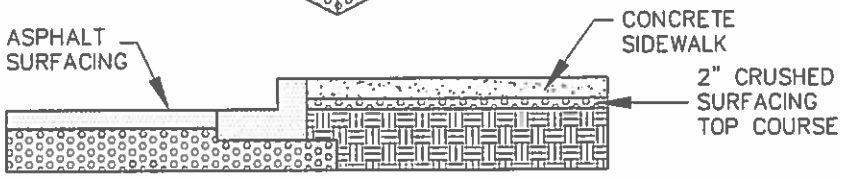
CITY OF GRANDVIEW-STANDARD DETAIL	SIDEWALK JOINTING	ST-7

C= ℄ SLOPE APPROACHING RAMP, %

$$D = \frac{50}{(8.33 - C)}$$





SECTION A-A

NOTE:
ALL THICKNESSES ARE COMPACTED DEPTHS.

ASPHALT SIDEWALK RAMP

NOT TO SCALE

NOTE:
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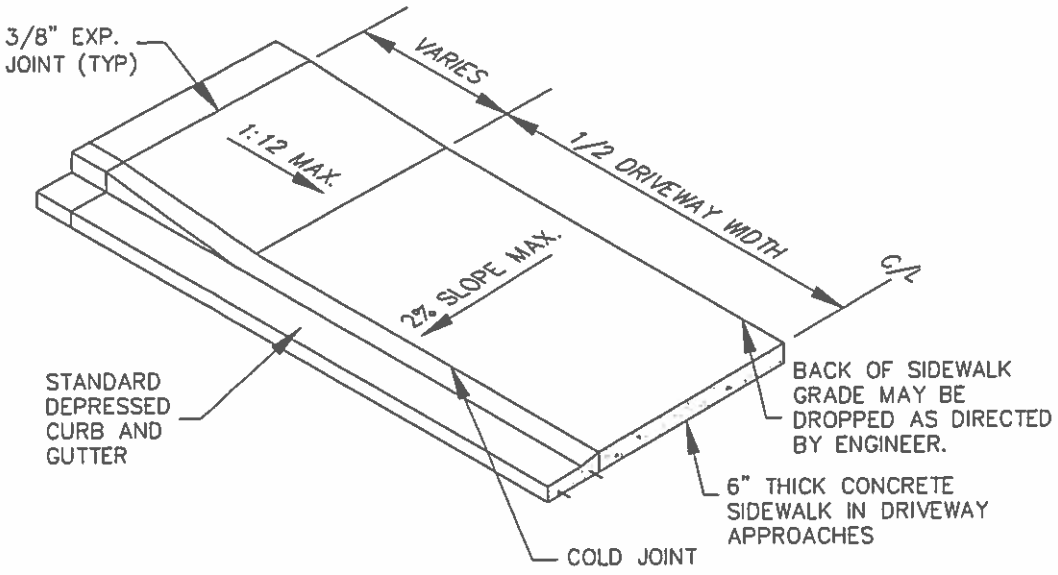
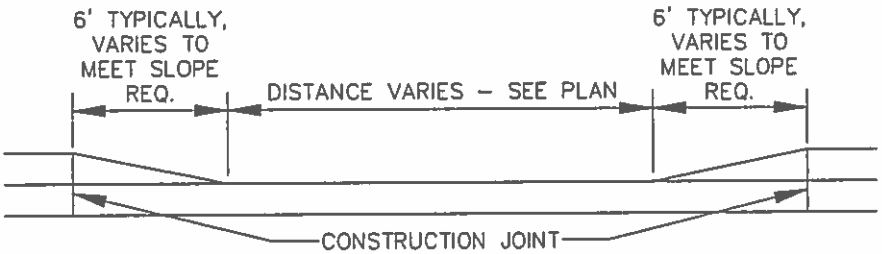
Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	ASPHALT SIDEWALK RAMP	ST-8



ISOMETRIC VIEW



ELEVATION VIEW

NOTES:
1. REINFORCEMENT NOT SHOWN FOR CLARITY. EXTEND REINFORCEMENT TO CONSTRUCTION JOINTS.
2. DRIVEWAYS ARE CONCRETE APPROACHES PER SECTION 8-06.
3. DRIVEWAY CONCRETE SHALL DEVELOP 2500 PSI STRENGTH IN 3 DAYS.

RESIDENTAL DRIVEWAY APPROACH

NOT TO SCALE

NOTE:
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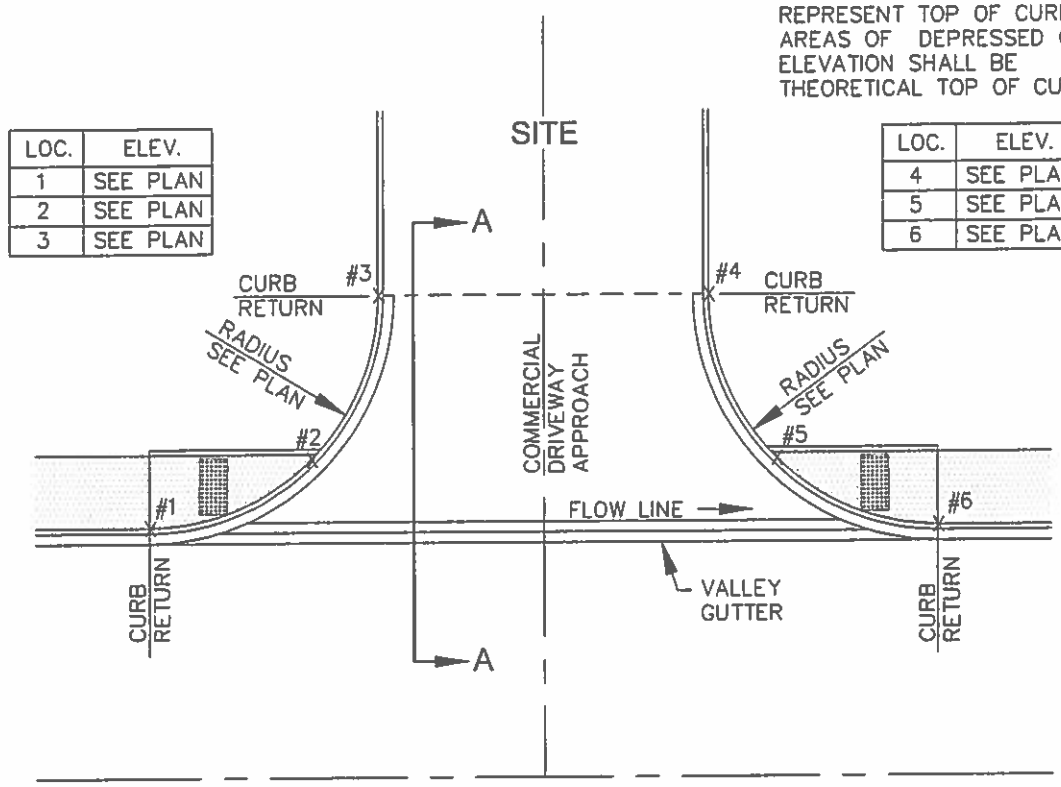
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	RESIDENTIAL DRIVEWAY APPROACH	ST-9

NOTE:
ALL ELEVATIONS SHALL REPRESENT TOP OF CURB. IN AREAS OF DEPRESSED CURB, ELEVATION SHALL BE THEORETICAL TOP OF CURB.

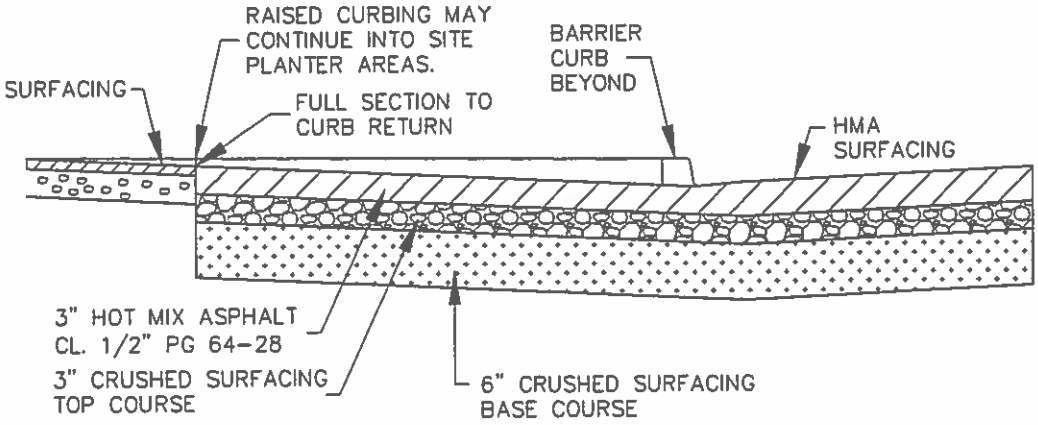
LOC.	ELEV.
1	SEE PLAN
2	SEE PLAN
3	SEE PLAN

LOC.	ELEV.
4	SEE PLAN
5	SEE PLAN
6	SEE PLAN



NOTE:
ALTERNATE AVAILABLE FOR USE FOLLOWING APPROVAL BY PUBLIC WORKS DIRECTOR.

PLAN



SECTION A-A

COMMERCIAL DRIVEWAY APPROACH

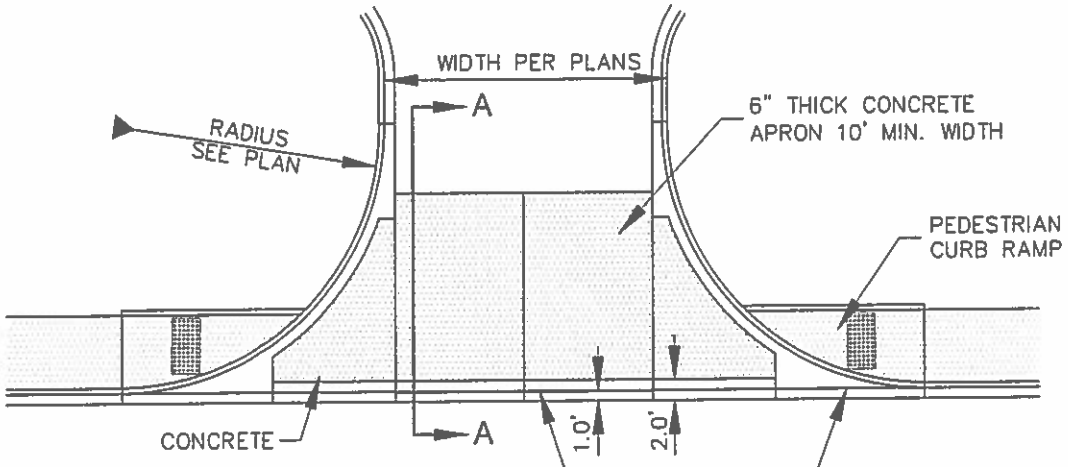
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

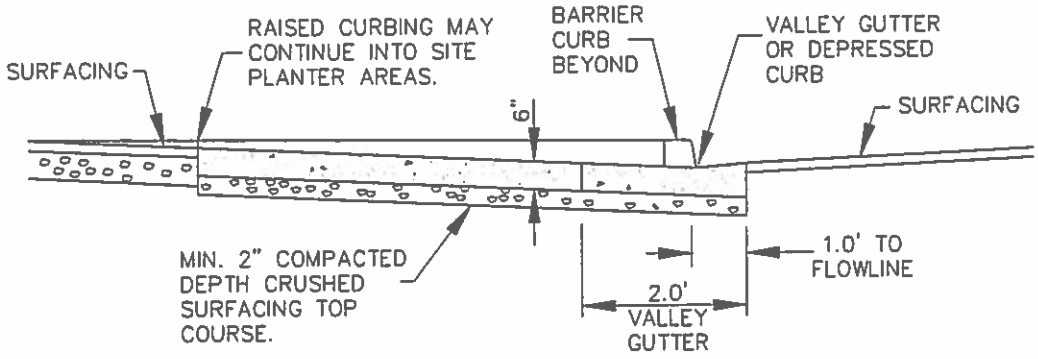
CITY OF GRANDVIEW-STANDARD DETAIL	COMMERCIAL DRIVEWAY APPROACH	ST-10

NOTE:
COMMERCIAL DRIVEWAY APPROACH ALTERNATE SHALL BE REQUIRED WHEN 5 OR MORE HEAVY VEHICLES ARE PROJECTED TO ENTER SITE DAILY, OR BY THE DISCRETION OF THE PUBLIC WORKS DIRECTOR. DEVELOPER MAY ELECT TO USE ALTERNATE ON OWN TERMS.



CURB & GUTTER, VALLEY GUTTER, & CONCRETE APPROACH SHALL BE SEPARATED BY EXPANSION JOINT OR SEPARATE POUR.

PLAN



SECTION A-A

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

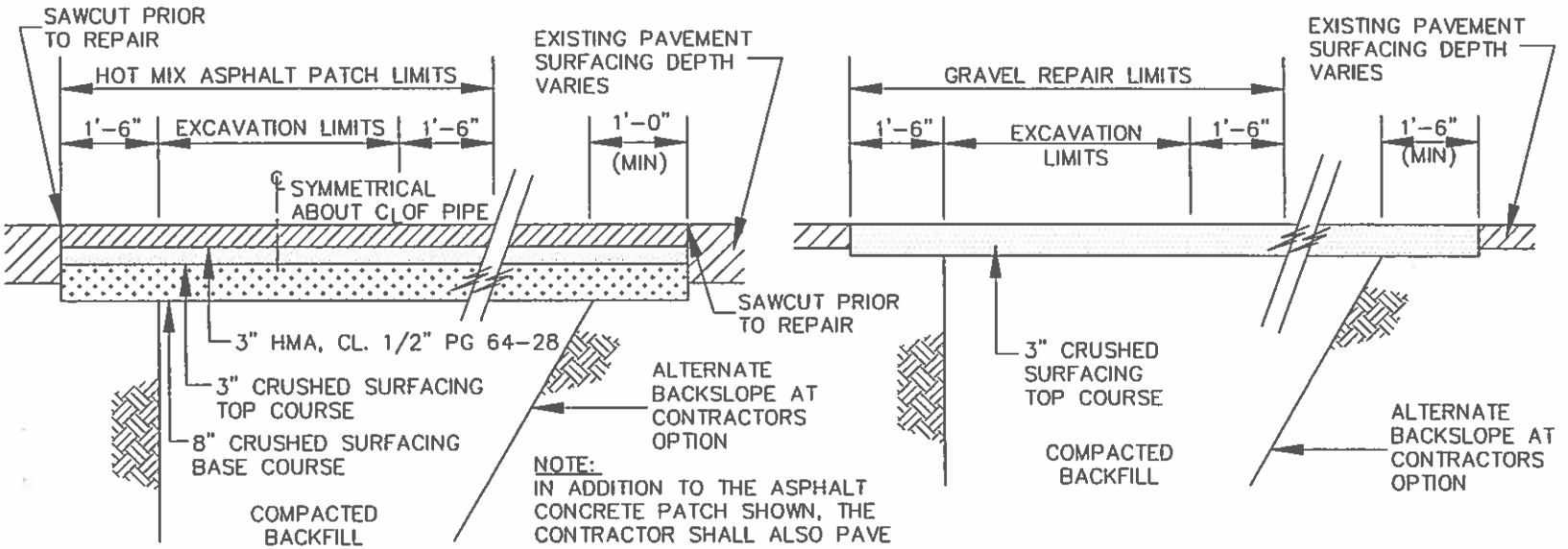
CITY OF GRANDVIEW-STANDARD DETAIL	COMMERCIAL DRIVEWAY APPROACH ALTERNATE	ST-10A

CITY OF GRANDVIEW-STANDARD DETAIL

TRENCH SURFACING REPAIR

ST-11

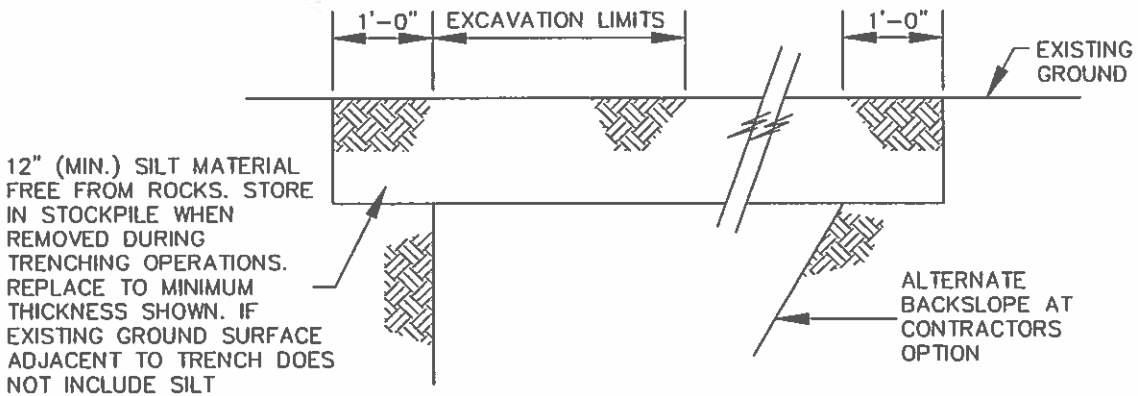
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.



NOTE:
IN ADDITION TO THE ASPHALT CONCRETE PATCH SHOWN, THE CONTRACTOR SHALL ALSO PAVE AN ASPHALT CONCRETE CLASS 3/8" OVERLAY FROM 1-1/2" DEPTH AT EDGE OF PAVEMENT TO 0" DEPTH (FEATHERED) AT THE ROADWAY CENTERLINE.

HMA PAVEMENT REPAIR

GRAVEL SURFACING



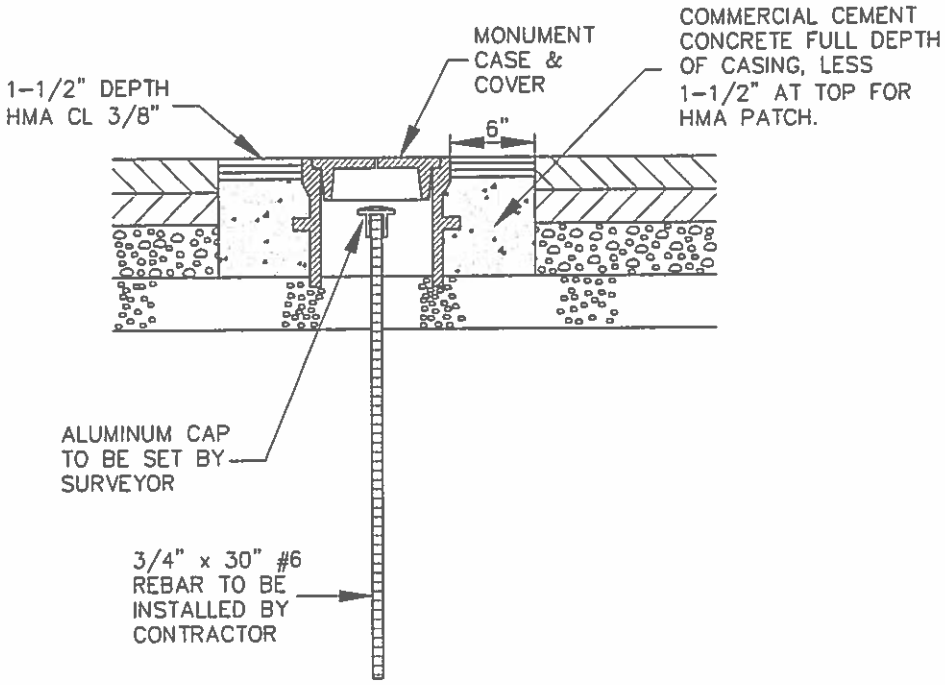
UNSURFACED AREAS

NOTES:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCH SURFACE RESTORATION BEYOND THE LIMITS SHOWN, INCLUDING WIDER TRENCH SECTIONS RESULTING FROM LAYING BACK TRENCH SIDES AT THE CONTRACTORS OPTION. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR SURFACE REPAIR BEYOND THE PAYMENT LIMITS.
2. NO AREA REQUIRING ASPHALT CONCRETE SURFACING REPAIR SHALL REMAIN UNPAVED FOR MORE THAN FIVE WORKING DAYS FOLLOWING INITIAL EXCAVATION.
3. ALL THICKNESSES ARE COMPACTED DEPTHS.

TRENCH SURFACING REPAIR

NOT TO SCALE

Revision	Date	Description	Appr
ORIG.	04/04		
	01/15	2015 UPDATE	



NOTES:
1. TOP OF MONUMENT CAP SHALL BE 3" BELOW FINISH GRADE.
2. MONUMENT, MONUMENT CASE & COVER TO BE PLACED AFTER FINAL LIFT OF HMA.
3. MONUMENT CASE, COVER AND RISERS SHALL MEET REQUIREMENTS OF SECTION 9-22 AS MANUFACTURED BY OLYMPIC FOUNDARY OR EQUAL.

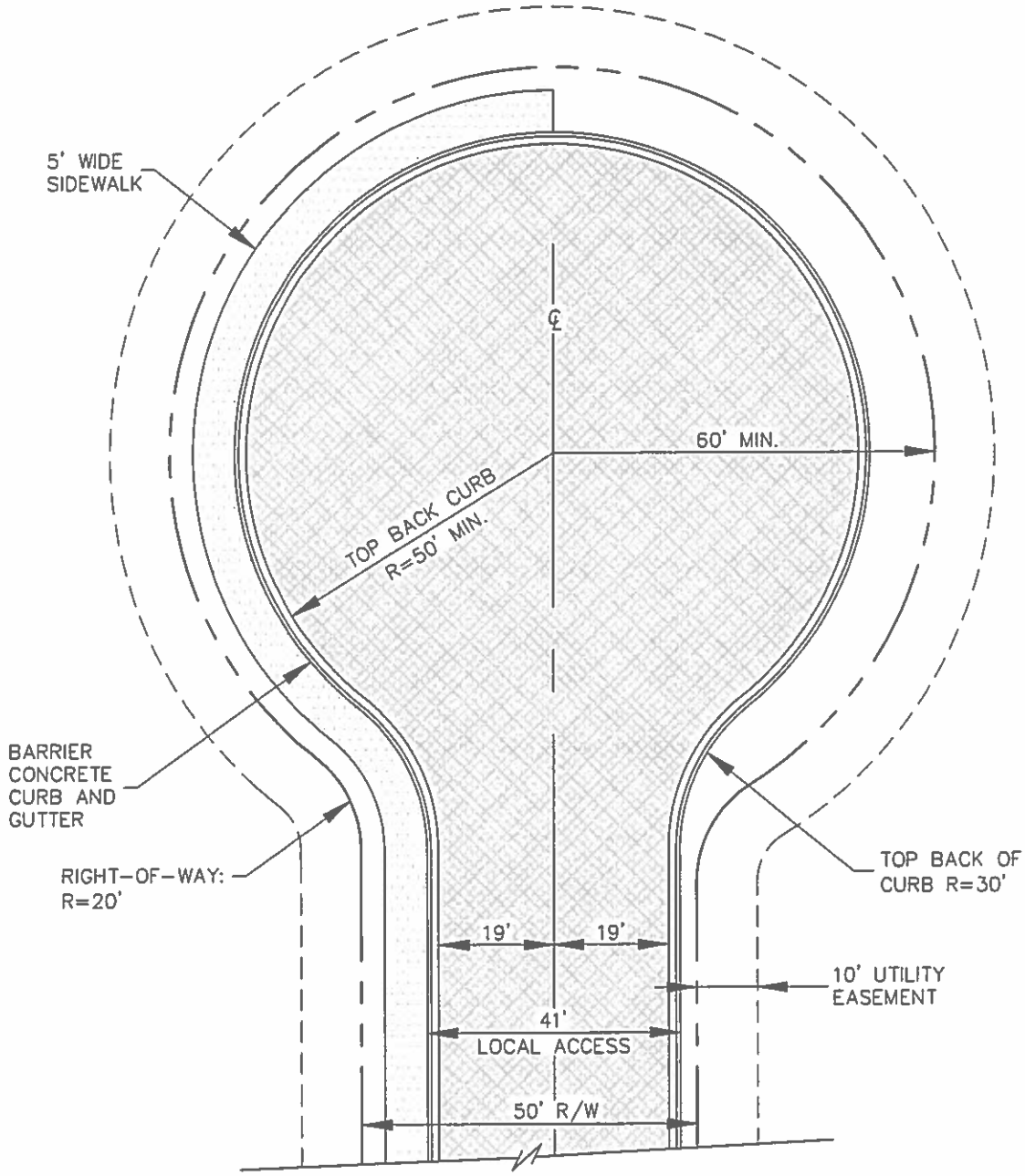
MONUMENT DETAIL

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	MONUMENT	ST-12



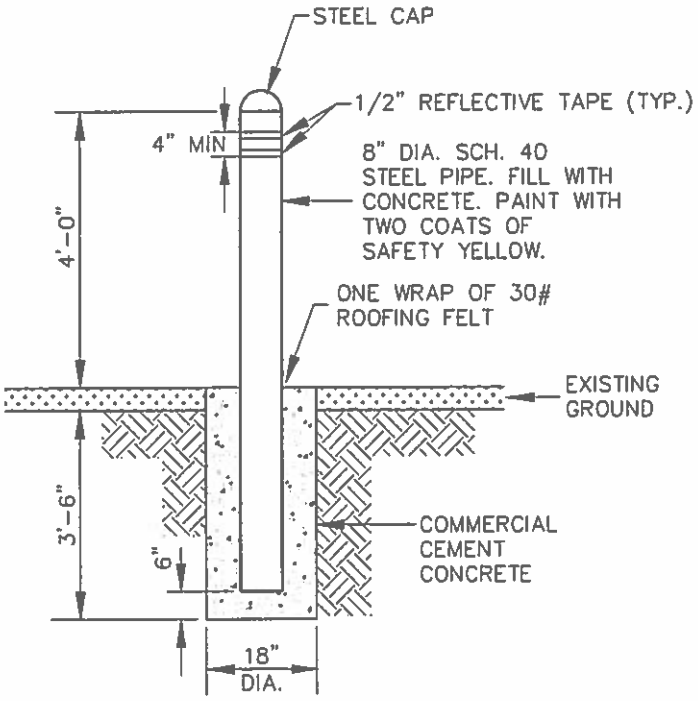
NOTE:
CUL-DE-SAC STREETS SHALL BE A MAXIMUM OF 600 FEET IN LENGTH.

PLAN VIEW
NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	11/14		

CITY OF GRANDVIEW-STANDARD DETAIL	CUL-DE-SAC LAYOUT	ST-13



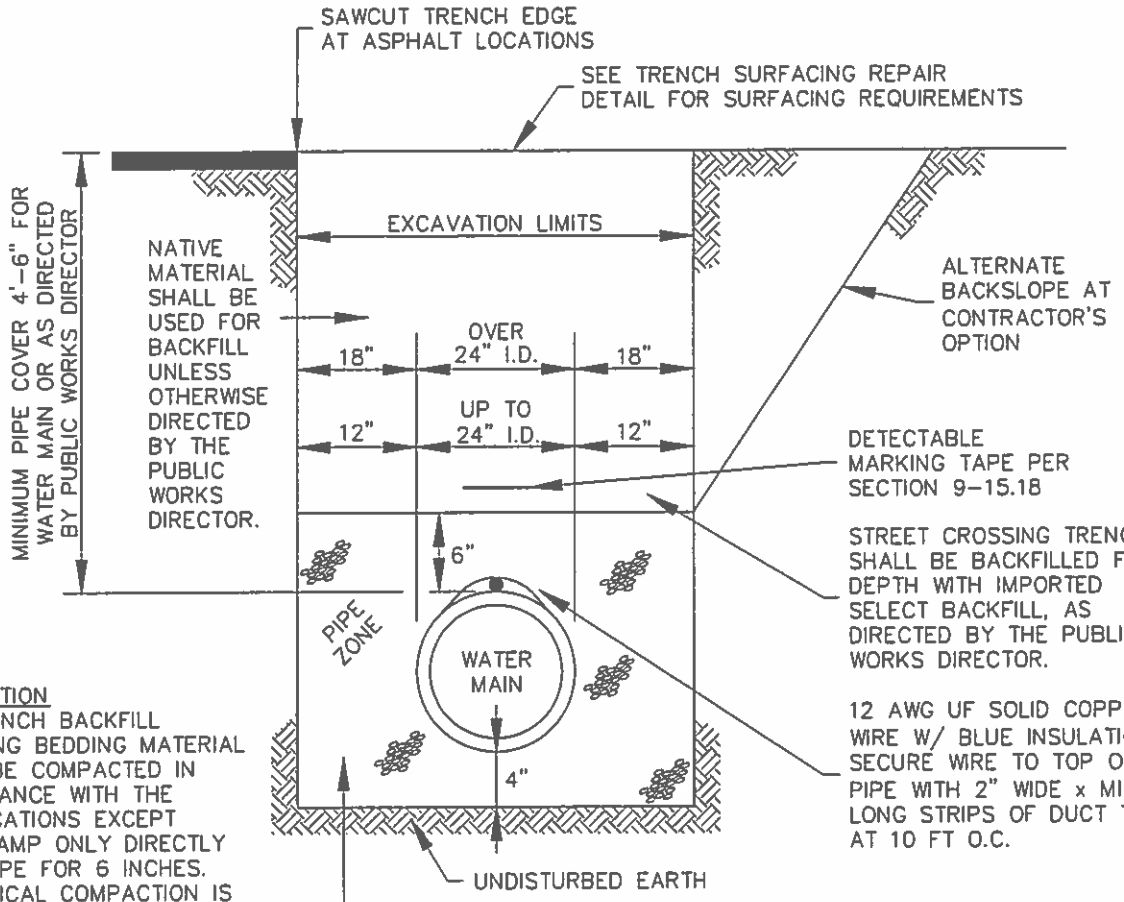
BOLLARD

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
ORIG.	01/15		

CITY OF GRANDVIEW-STANDARD DETAIL	BOLLARD	ST-14



COMPACTION
ALL TRENCH BACKFILL INCLUDING BEDDING MATERIAL SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS EXCEPT HAND TAMP ONLY DIRECTLY OVER PIPE FOR 6 INCHES. MECHANICAL COMPACTION IS REQUIRED UNLESS WATER SETTLING IS ALLOWED BY THE SPECIFICATIONS.

PIPE ZONE BEDDING
BEDDING MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 9-03.9(3), CRUSHED SURFACING TOP COURSE.

LOCATING WIRE NOTES:
1. AT SPLICES THE CONNECTING ENDS OF THE WIRES SHALL BE OVERLAPPED AND TIED. THE ENDS SHALL BE STRIPPED AND CONNECTED WITH A WIRE NUT. WATERPROOF CONNECTION WITH SILICONE SPLICE KIT.
2. ACCESS TO LOCATING WIRE TERMINAL ENDS SHALL BE MADE AT ALL VALVE BOXES AND FIRE HYDRANTS, SECURE TO EXTERIOR OF VALVE BOXES AND HYDRANTS WITH STAINLESS STEEL PIPE STRAPS.

NOTE:
CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE O.S.H.A. AND W.I.S.H.A. SAFETY AND HEALTH REGULATIONS.

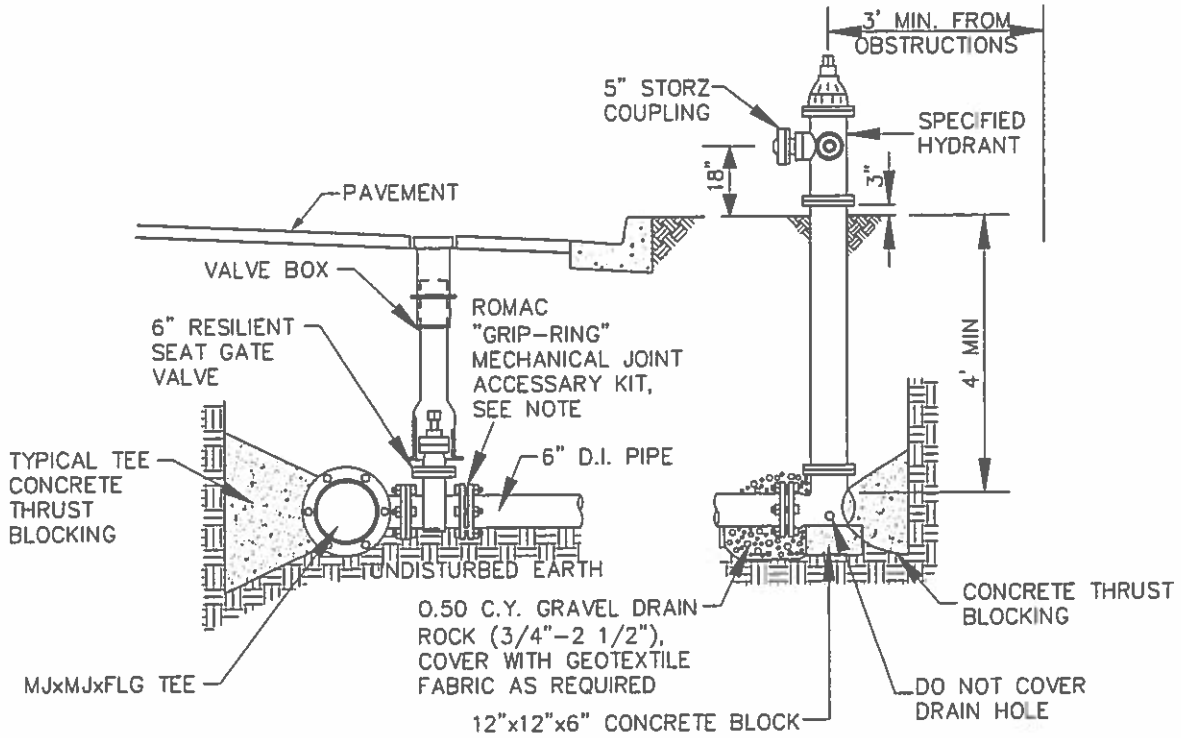
WATER MAIN TRENCH SECTION

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	WATER MAIN TRENCH SECTION	W-1



NOTES:

1. ROMAC "GRIP RING" MECHANICAL JOINT ACCESSORY KITS SHALL BE USED ON ALL MECHANICAL JOINT CONNECTIONS FROM VALVE TO HYDRANT.
2. WHEN DISTANCE FROM VALVE TO HYDRANT IS GREATER THAN 18', SHACKLE RODS AND CONCRETE BLOCKING SHALL BE USED.
3. SHACKLE RODS ARE TO BE THREADED AT EACH END A LENGTH SUFFICIENT TO ALLOW THE USE OF DOUBLE NUTS ON EACH END TO REPLACE THE BOLTS NORMALLY USED IN MECHANICAL JOINT CONNECTIONS.
4. REMAINDER OF HYDRANT DETAIL IS TYPICAL OF BLOCKED HYDRANT.

FIRE HYDRANT ASSEMBLY

NOT TO SCALE

NOTE:
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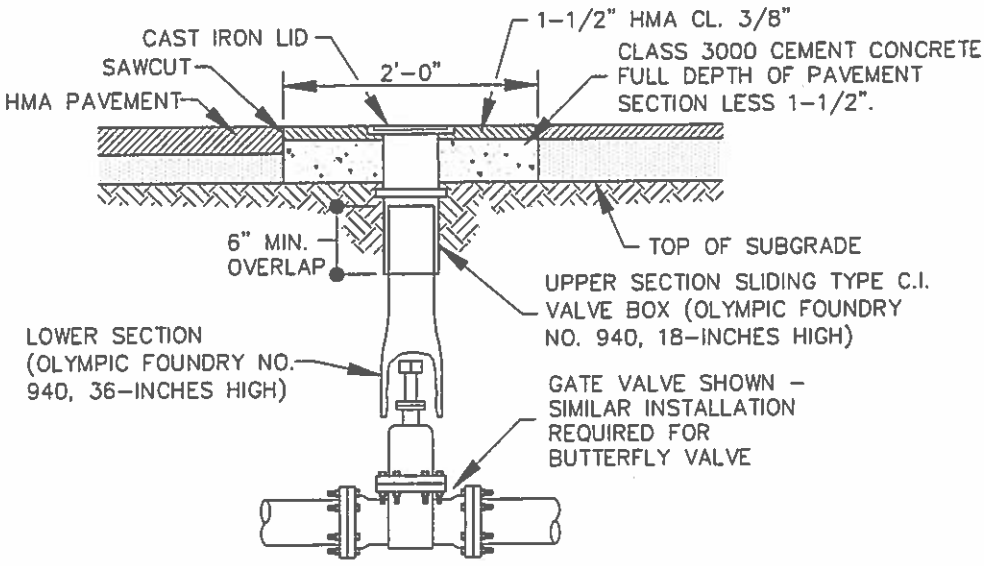
Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	FIRE HYDRANT ASSEMBLY	W-2

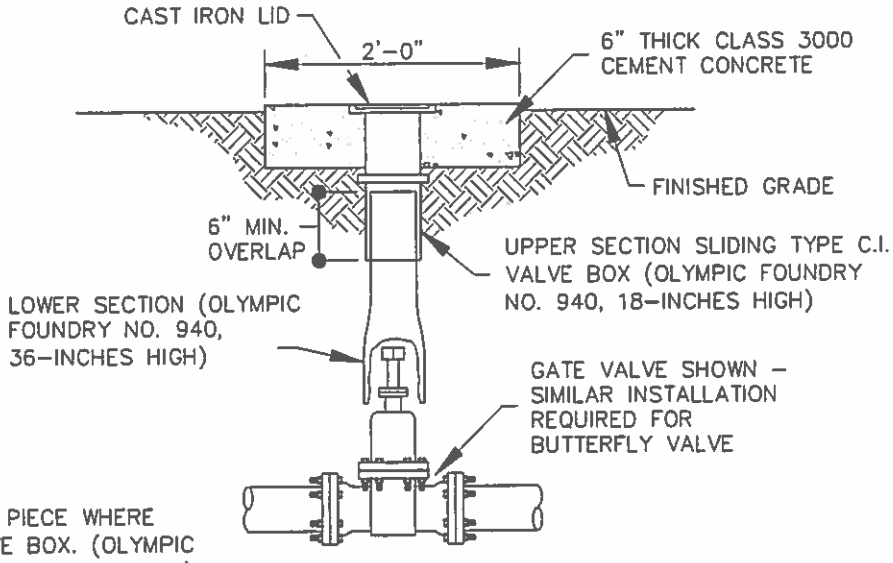


NOTE:

PROVIDE EXTENSION PIECE WHERE REQUIRED FOR VALVE BOX. (OLYMPIC FOUNDRY NO. 940R 12, 12-INCHES HIGH)

WATER VALVE BOX - IN PAVEMENT

NOT TO SCALE



NOTE:

PROVIDE EXTENSION PIECE WHERE REQUIRED FOR VALVE BOX. (OLYMPIC FOUNDRY NO. 940, 12-INCHES HIGH)

WATER VALVE BOX - NOT IN PAVEMENT

NOT TO SCALE

NOTE:
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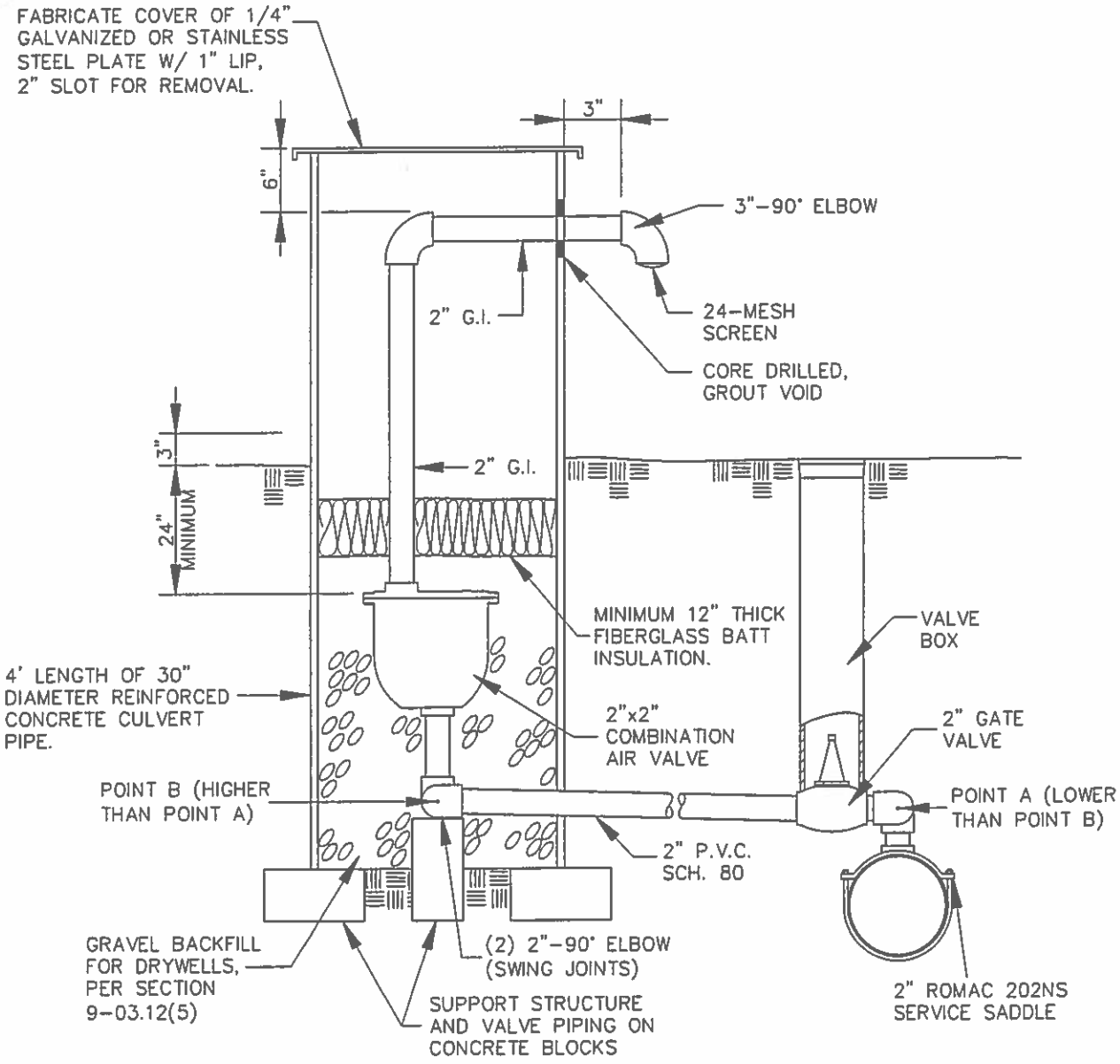
Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	WATER VALVE BOX	W-3



NOTE:
LOCATE AT HIGH POINT IN WATERMAIN.

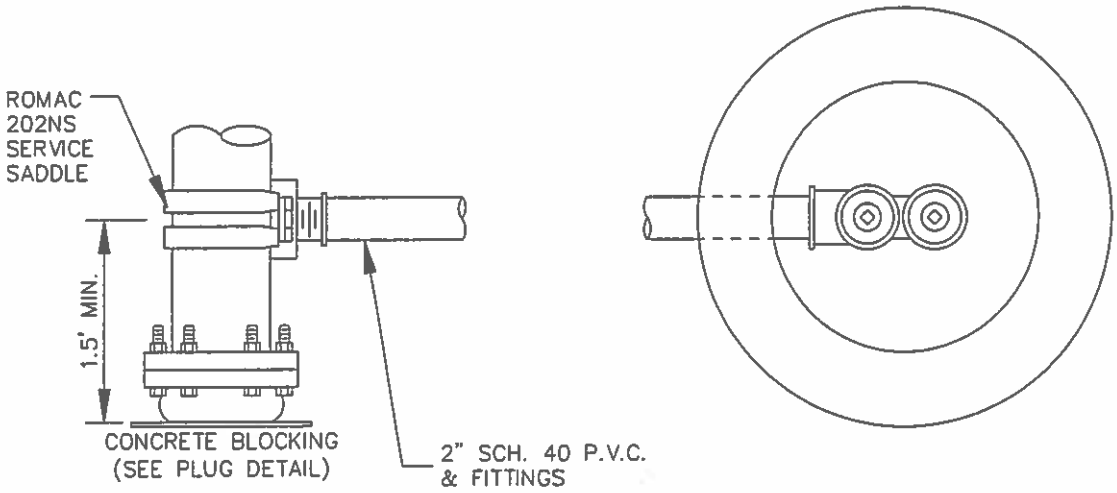
AIR RELEASE VALVE

NOT TO SCALE

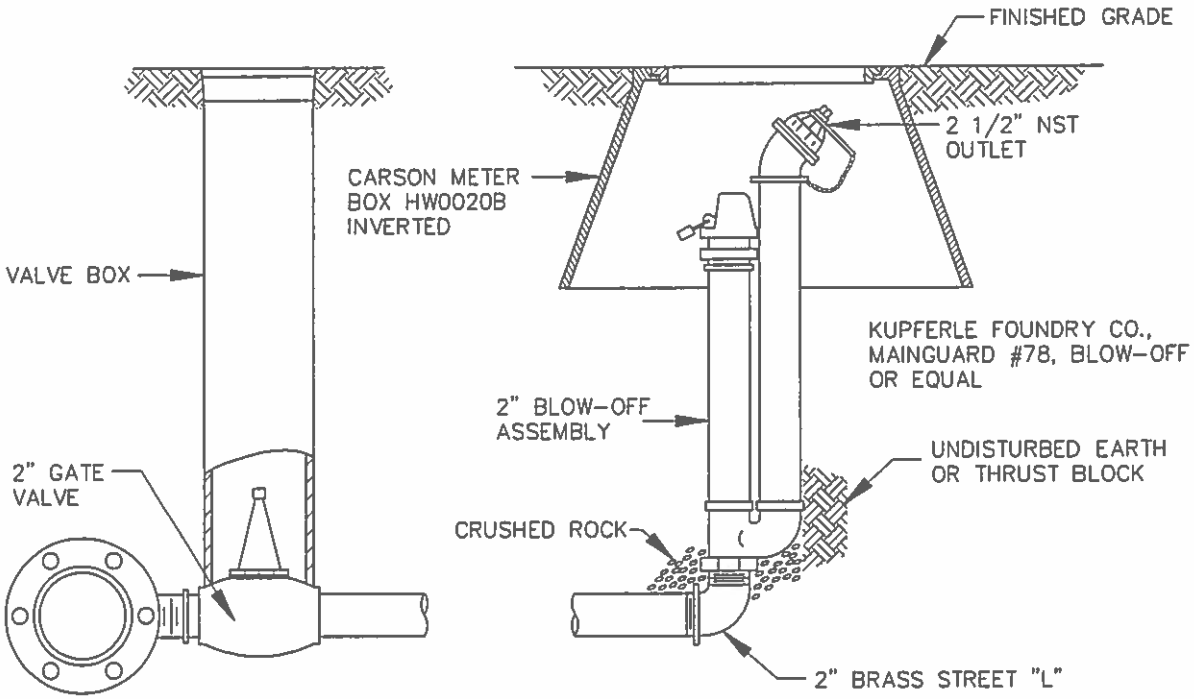
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	AIR RELEASE VALVE	W-4



TOP VIEW



BLOW-OFF ASSEMBLY

NOT TO SCALE

NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	BLOW - OFF ASSEMBLY	W-5

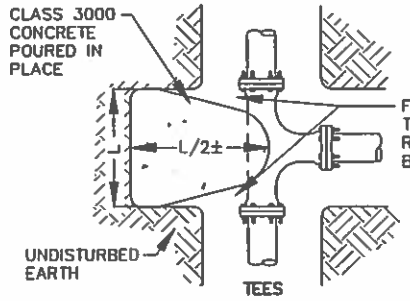
CITY OF GRANDVIEW-STANDARD DETAIL

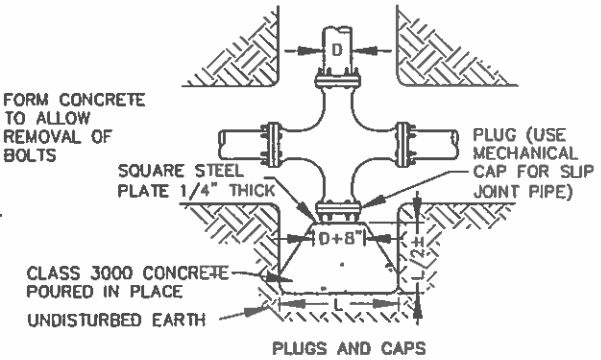
CONCRETE THRUST BLOCKING

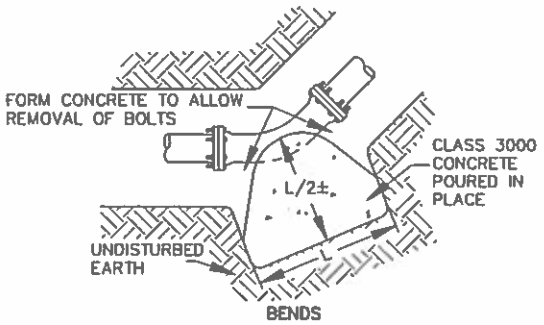
W-6

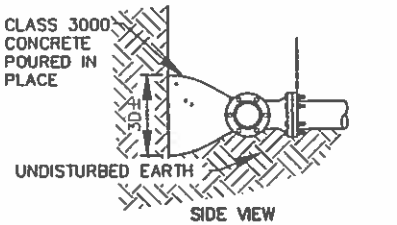
NOTE:
ONLY THE LATEST DETAIL, AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS, SHALL BE USED.

Revision	Date	Description	Appr
ORIG.	04/04		
	01/15	2015 UPDATE	

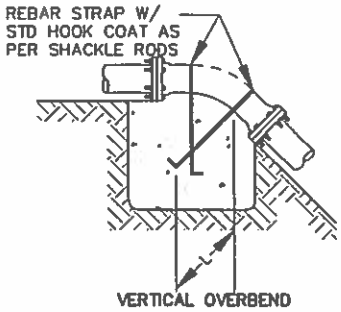








NOTES:
1. D IS APPROXIMATE PIPE DIAMETER. THE ABOVE END AREAS ARE BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 1500 PSF AND 250 PSI TEST PRESSURE.
2. DIMENSIONS LISTED DENOTE MINIMUM STANDARDS FOR SOIL AND TEST PRESSURES SHOWN. SHOULD TEST PRESSURE AND/OR SOIL CONDITIONS VARY. THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR SPECIAL THRUST BLOCK DESIGN.
3. ALL FITTINGS AND/OR PIPE MAKING DIRECT CONTACT WITH CONCRETE SHALL BE WRAPPED WITH 4 MIL POLYETHYLENE SHEETING PRIOR TO PLACEMENT OF CONCRETE.

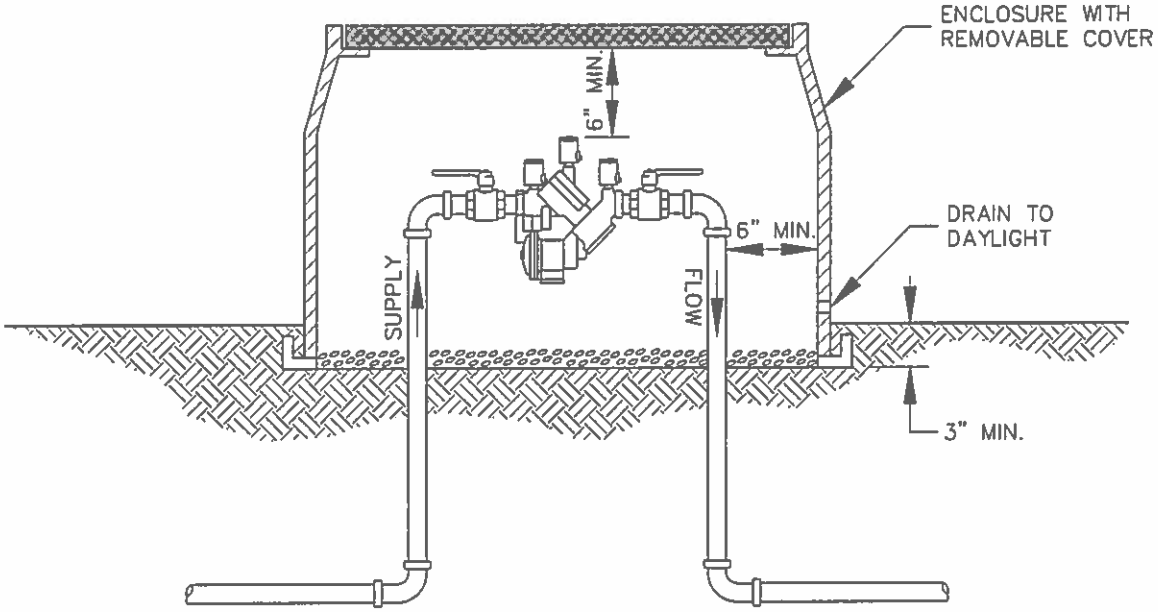


MINIMUM END AREAS				
PIPE SIZE (D)	TEES & PLUGS	90° BENDS	45° BENDS	11¼° AND 22½° BENDS
6"	5.1 SQ FT	7.2 SQ FT	3.9 SQ FT	2.0 SQ FT
8"	8.8 SQ FT	12.4 SQ FT	6.7 SQ FT	3.4 SQ FT
10"	14.3 SQ FT	20.2 SQ FT	11.0 SQ FT	5.6 SQ FT
12"	20.4 SQ FT	28.9 SQ FT	15.7 SQ FT	7.9 SQ FT
14"	27.7 SQ FT	39.2 SQ FT	21.2 SQ FT	10.7 SQ FT
16"	35.8 SQ FT	51.2 SQ FT	27.5 SQ FT	13.9 SQ FT

VERTICAL OVERBEND				
PIPE SIZE (D)	22½° BEND	45° BEND	REBAR SIZE	L
6"	20 CU FT	39 CU FT	#5	2.0 FT
8"	34 CU FT	67 CU FT	#5	2.0 FT
10"	56 CU FT	110 CU FT	#5	2.0 FT
12"	79 CU FT	157 CU FT	#6	2.5 FT
14"	107 CU FT	212 CU FT	#7	3.0 FT
16"	139 CU FT	275 CU FT	#9	4.0 FT

CONCRETE THRUST BLOCKING

NOT TO SCALE



NOTES:
1. ASSEMBLY MUST BE PROTECTED FROM FREEZING.
2. REMOVABLE INSULATED COVERS CAN BE USED.
3. ENCLOSURES MUST BE IN AREA NOT SUBJECT TO FLOODING.
4. THE INSULATION ON THE SUPPLY LINE (AHEAD OF ASSEMBLY) OF A STRAINER WITH TAPPING BLOWOUT IS RECOMMENDED.

SMALL PRESSURE REDUCING VALVE ASSEMBLY

NOT TO SCALE

NOTE:
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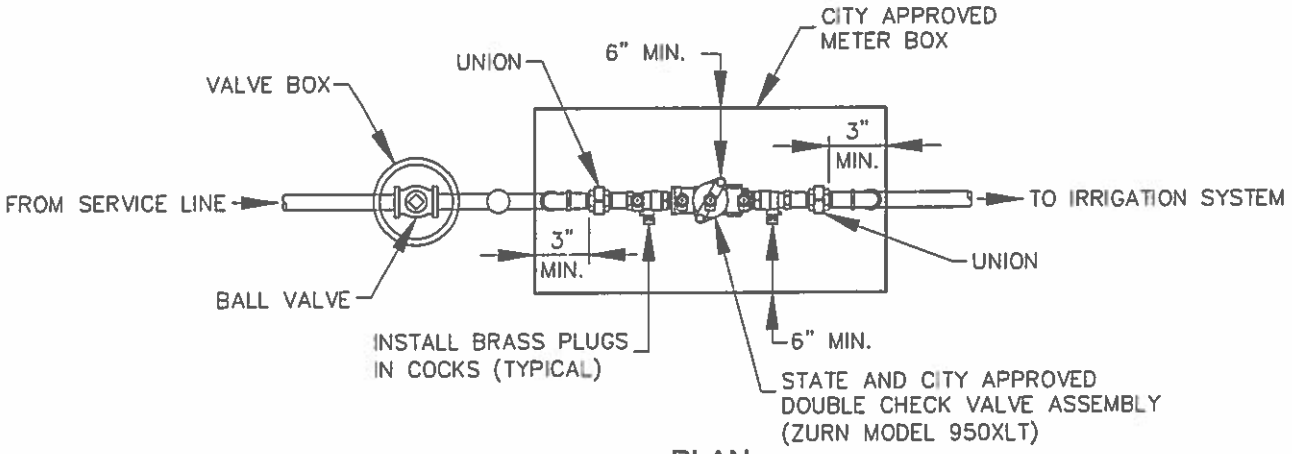
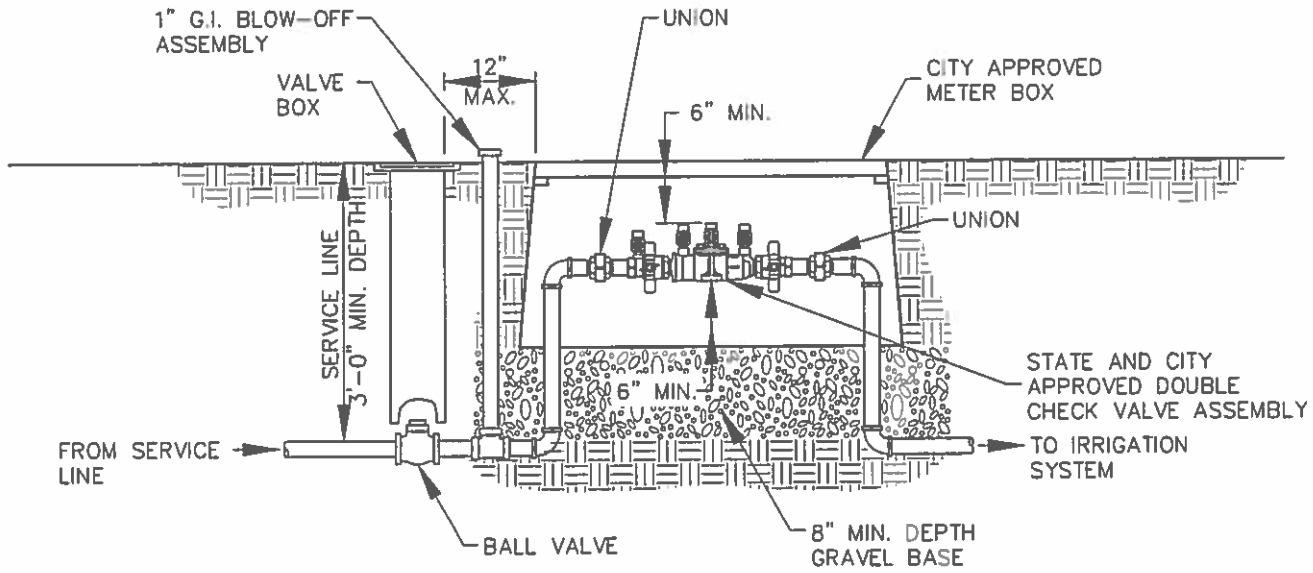
Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	SMALL PRESSURE REDUCING VALVE ASSEMBLY	W-7



PLAN



ELEVATION

NOTES:
1. DOUBLE CHECK VALVE ASSEMBLY SHALL MEET REQUIREMENTS OF THE AWWA "ACCEPTED PROCEDURE AND PRACTICE IN CROSS-CONNECTION CONTROL" MANUAL.
2. DEVICES MUST BE ON STATE DEPT. OF SOCIAL AND HEALTH SERVICES LIST OF "APPROVED CROSS CONNECTION CONTROL DEVICES".
3. METER BOX SIZE SHOULD BE SIZED TO PROVIDE THE MINIMUM CLEARANCES SHOWN IN THE DETAIL.

IRRIGATION BACKFLOW PREVENTER

NOT TO SCALE

NOTE:
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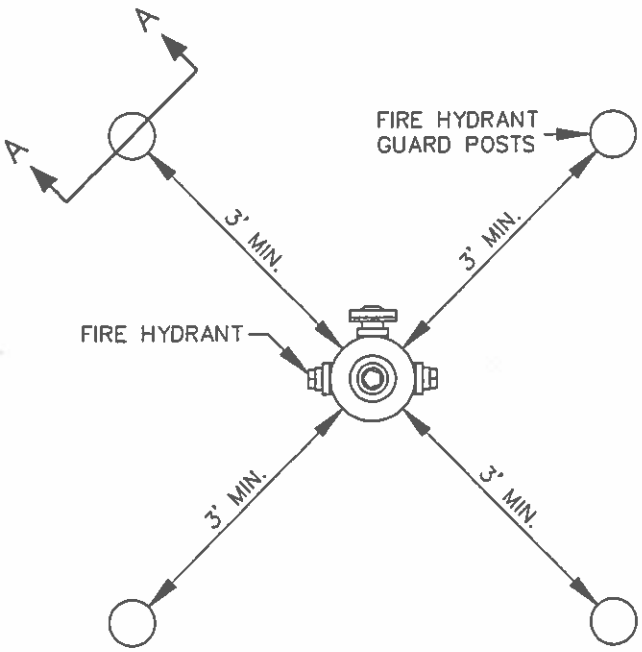
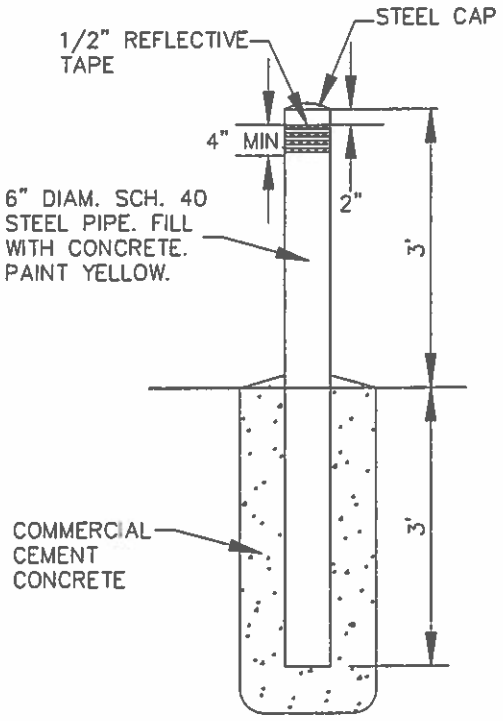
	01/15	2015 UPDATE	
ORIG.	04/04		
Revision	Date	Description	Appr

CITY OF GRANDVIEW-STANDARD DETAIL	IRRIGATION BACKFLOW PREVENTER	W-8



PLAN



SECTION A-A

HYDRANT GUARD POSTS

NOT TO SCALE

NOTE:
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Revision	Date	Description	Appr
	01/15	2015 UPDATE	
ORIG.	04/04		

CITY OF GRANDVIEW-STANDARD DETAIL	HYDRANT GUARD POSTS	W-9

APPENDIX C

GRANDVIEW MUNICIPAL CODE

Chapter 16.28
IMPROVEMENTS

Sections:

16.28.010 Streets.

Existing or proposed streets within or adjacent to a proposed subdivision shall be improved at the expense of the developer by the construction of curbs, gutters, sidewalks, illumination, storm drainage and pavement surface in conformance with the city's design and construction standards and specifications for public works improvements. Improvement of adjacent streets to the proposed subdivision may be postponed by the city council until such time as other portions of this adjacent street are improved by the city or others. If such postponement of street improvements is permitted by the city council, an obligation or covenant running with the land shall be placed on the face of the subdivision plat which requires said lots in that subdivision to such adjacent street to participate in a future local improvement district for street improvements in compliance with Chapters 16.24 and 16.28 GMC as they exist at the time the local improvement district is formed. Postponement does not relieve the developer from his obligation to make the improvements at such time as is determined by the city council. The city council may require the developer to deposit all or a portion of the estimated development costs in escrow to cover the cost of the improvements postponed. (Ord. 2015-6 § 1; Ord. 1574 § 1, 2000; Ord. 1343 § 4, 1992).

16.28.020 Utilities.

A. All underground utilities (non-city-owned) in all new residential areas shall be installed and maintained at a depth of not less than three feet below the graded surface of said way or street, provided existing installations may be maintained at the present level until replaced.

B. All new or existing utilities within or adjacent to a proposed subdivision shall be installed underground, except for the following:

1. Electric, pad-mounted transformers;

2. Electric transmission systems of a voltage of 15 KV or more;

3. Service meters at structures;

4. TV cable amplifiers, distribution taps;

5. Telephone pedestals and cross-connection terminals;

6. Temporary services necessary for construction.

C. No buildings or structures, except fences, shall be permitted to be constructed on any utility easements, or over any utility facilities. Masonry fences will be considered as structures, rather than fences. (Ord. 2015-6 § 1; Ord. 1724 § 1, 2005; Ord. 1343 § 4, 1992).

16.28.030 Water.

A. A complete domestic water distribution and fire protection system shall be installed at the expense of the developer in conformance with the city's approved water system plan. All water lines and services shall be installed prior to street improvements.

B. The water distribution system shall be designed and constructed in accordance with the State Department of Health regulations, the city's design and construction standards and specifications for public works improvements, and with the standard practices of the city. Fire hydrants shall be installed, at the expense of the developer, at locations determined necessary by the fire chief. Water mains shall be extended to the far edge of subdivisions for future extension by others.

C. The city, at its discretion, may direct that water main diameters in excess of that needed for service and fire protection for the subdivision be installed. If the city directs such oversizing, the city will pay the difference in pipe material cost between the pipe diameter required for the subdivision and the city-directed oversize diameter pipe. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

16.28.040 Sanitary sewer.

A. A sanitary sewer system shall be installed at the expense of the developer with a separate connection to the city sewer system for each lot and shall be constructed in conformance with the Comprehensive Sewer Plan.

B. Sewer lines should be located within the paved portion of the street right-of-way, and must be a minimum of eight inches in diameter.

C. The sanitary sewer system shall be designed and constructed in accordance with the State Department of Ecology regulations, the city's design and construction standards and specifications for public works improvements, and with the standard practices of the city. Sewer mains shall be extended to the far edge of subdivisions for future extensions by others.

D. The city, at its discretion, may direct that sewer main diameters in excess of that needed for service for the subdivision be installed. If the city directs such oversizing, the city will pay the difference in pipe material cost between the pipe diameter required for the subdivision and the city-directed oversize diameter pipe.

E. A city-approved backflow prevention device shall be installed at the expense of the developer on the side sewer extension for each lot. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

16.28.050 Storm drainage.

Each subdivision shall provide a drainage system for the collection, control, and disposal of surface water runoff. All storm drainage improvements shall be planned, designed, permitted, constructed and maintained in accordance with the requirements of the latest edition of the Washington Department of Ecology (WDOE) Stormwater Management Manual for Eastern Washington (SWMMEW).

A. It is the intent of this section to adequately provide for suitable drainage provision in all short or long subdivisions. All subdivisions shall provide for drainage such that their development does not conflict with present drainage patterns, or create a drainage problem within itself or for its neighbors.

B. A drainage plan, where required, shall be designed by a professional engineer licensed in the state of Washington and submitted to the city for review and approval for any proposed land development that will increase the quantity of or in any way alter the drainage runoff occurring prior to development.

C. Design calculations for peak flow and peak volume storage requirements shall be based on a design storm frequency of 25 years. At the city's discretion, if the facilities are critical to public health and safety, or significant property damage could occur, or the development is located in a drainage problem area, they shall be designed to successfully pass the 50-year or 100-year storm.

D. The plan shall provide for the on-site detention and/or retention, and disposal, of the total water intercepted and collected by the development and the areas (improved or unimproved) lying and draining presently to and through the proposed development for the design storm, unless other natural or manmade systems are available for use.

E. There exist several areas of subsurface drainage systems, known as drainage improvement districts or DIDs. These systems were designed and constructed specifically for the purpose of lowering the ground water tables sufficiently to promote agricultural development. It was never the intent of these systems to convey surface drainage. Over the years, the drainage demand on these systems has steadily increased to the point where almost all of the DIDs are experiencing overloaded conditions. Engineers shall not consider the use of any of these DIDs in their drainage plans.

F. Detention and/or retention of storm water runoff from any proposed land development shall be accomplished by storm water holding facilities, either open or closed. Storm water shall be introduced into permeable soils via an infiltration system in accordance with the SWMMEW, all remaining on site.

G. The drainage plan shall incorporate all calculations for the determination of the required size of the system. Said calculations shall be based on required criteria hereinafter stated and upon an analysis of estimated runoff from areas contributing runoff to those facilities. Peak flow analyses and storage volume quantities shall be done using methods presented in the SWMMEW. The assumption for the infiltration rate used will need to be verified by the developer by actual field testing in the case of infiltration systems. Collection systems shall be either gravity pipe systems, open channels, or a combination of the two.

H. The submitted drainage plan shall incorporate, among other data, a topographical map to clearly define:

1. The proposed development;

2. All areas, improved or unimproved, lying upstream and draining to and across the proposed development; and

3. Drainage course, natural or otherwise, to which the proposed development shall drain.

I. Said plans shall include a plan-profile of the systems, including cross-sections of all open ditches and channels. Hydraulic and physical data such as grades, bottom elevations of ditches and channels, inverts of pipes at all structures, such as manholes and catch basins, sizes and lengths of all pipes, length of ditches and channels, and top elevations of all catch basin covers shall be called out. This includes the invert elevations of the existing or other proposed storm drainage systems that the subject drainage plan proposes to tie into. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

16.28.060 Sidewalks.

Cement concrete sidewalks shall be constructed at the developer's expense along all new and existing streets in conformance with the following minimum standards:

A. Sidewalks shall be located in the right-of-way and shall be four inches thick in walk areas (behind barrier curb) and six inches thick in drivable areas (behind depressed and rolled curb);

B. Sidewalks shall be placed along at least one side of all local access streets and shall have a minimum width of five feet;

C. Sidewalks shall be placed along both sides of all arterial and collector streets and shall have a minimum width of six feet;

D. Where a proposed subdivision or short subdivision is located adjacent to an existing street, the subdivider is not required to provide a sidewalk on the opposite side of the street;

E. Curb ramps for physically handicapped shall be constructed pursuant to RCW 35.68.075 and 35.68.076 at all intersections and other appropriate locations. (Ord. 2015-6 § 1; Ord. 1406 § 3, 1995; Ord. 1343 § 4, 1992).

16.28.070 Street signs and traffic control.

The subdivider shall install, at his expense, street signs and traffic control devices to the satisfaction of the public works director. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

16.28.080 Street lighting.

Street lights shall be installed with the initial capital cost at the city's expense in conformance with the following standards:

A. One street light at each intersection;

B. One street light at midblock if the block is longer than 450 feet; and

C. Placement of street lights along arterial and collector streets shall conform to the city's design and construction standards and specifications for public works improvements. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

16.28.090 Irrigation facilities.

A. A pressurized irrigation piping system shall be installed at the expense of the developer within the subdivision boundaries with a separate three-fourths-inch minimum pipe diameter service lateral to each lot. The irrigation system shall be designed and constructed with the standard practices of the city.

B. Irrigation mains shall be four-inch diameter, pressure class 160 psi or greater, polyvinyl chloride (PVC) pipe installed and maintained at a depth of not less than two feet below the graded surface of streets or utility easements.

C. Individual irrigation service laterals shall be three-fourths-inch diameter, Schedule 40, polyvinyl chloride (PVC) pipe installed and maintained at a depth of not less than two feet below the graded surface of streets or utility easements.

D. Irrigation mains shall be extended to the far edge of subdivisions for future extension by others. (Ord. 2015-6 § 1; Ord. 1343 § 4, 1992).

Chapter 16.24
DESIGN STANDARDS

Sections:

16.24.010 General requirements.

A. Land which the city council or planning commission has found to be unsuitable due to flooding, bad drainage, or swamp conditions likely to be harmful to the safety, welfare and general health of future residents shall not be subdivided unless adequate means of control have been formulated by the subdivider and approved by the city engineer or other licensed engineer acting on behalf of the city.

B. In the event the land to be subdivided has a slope or slopes of more than 20 percent and/or has rock or unstable soil conditions, the subdivider shall furnish soils data to the city. If conditions warrant control measures to correct slides, erosion, or other similar problems, the subdivider shall be responsible for the design, installation and expense of any device or corrective measure subject to approval of the city council.

C. Except for subdivisions exempted under the provisions in GMC 16.04.040, permanent control monuments shall be established at each and every controlling corner on the boundaries of the parcel of land being subdivided and on each lot within the subdivision.

D. All subdivisions shall be required to be connected to an accepted city street. (Ord. 2015-5 § 1; Ord. 1105 § 3 (G)(1), 1984).

16.24.020 Lots.

A. Each lot shall have direct access to and frontage upon dedicated public streets. Minimum frontage shall be 50 feet except for lots located within the arc of a curve or where unusual topography exists, a minimum frontage of 35 feet is allowed.

B. Insofar as practical, side lot lines shall be at right angles to street lines or radial to curved street lines. Side and rear lot lines shall be straight or composed of straight lines.

C. Lots having frontage on two streets shall be avoided whenever possible. However, double frontage lots are permitted only where determined by the city to be essential to provide separation of residential lots from principal and minor arterial streets, high-intensity land uses, or to overcome specific disadvantages of topography or parcel configuration. (Ord. 2015-5 § 1; Ord. 1406 § 2, 1995; Ord. 1105 § 3(G)(2), 1984).

16.24.030 Blocks.

A. The lengths, widths, and shapes of blocks shall be determined with due consideration of:

1. The provisions of adequate building sites suitable to the special needs of the proposed subdivision;

2. The need for convenient and safe access, circulation and control of street traffic;

3. The limitations and opportunities of the topography.

B. The maximum length of a block shall be 1,000 feet. (Ord. 2015-5 § 1; Ord. 1105 § 3(G)(3), 1984).

16.24.040 Streets.

All new street design and construction shall conform to the city's design and construction standards and specifications for public works improvements.

A. Right-of-Way. Right-of-way shall be dedicated for new or existing streets to or within a subdivision to accommodate the following right-of-way widths:

1. Arterial streets: 70 feet minimum;

2. Collector streets: 60 feet minimum; and

3. Local streets: 50 feet minimum.

B. Construction Guidelines.

1. Arterial streets: 44-foot-wide roadway surface face of curb to face of curb, hot mix asphalt (HMA) surfacing, curb and gutter, sidewalk both sides, illumination, and storm drainages required;

2. Collector streets: 40-foot-wide roadway surface face of curb to face of curb, hot mix asphalt (HMA) surfacing, curb and gutter, sidewalk both sides, illumination, and storm drainages required; and

3. Local access streets: 40-foot-wide roadway surface face of curb to face of curb, hot mix asphalt (HMA) surfacing, curb and gutter, sidewalk one side, illumination, and storm drainage required.

C. Curbs and Gutters. Cement concrete barrier curb and gutter shall be installed along all new streets. Curb and gutter shall be poured as a single unit in accordance with the city's design and construction standards and specifications for public works improvements.

D. Surfacing Between Curbs. The street area between the curbs shall be constructed with the following minimum compacted depth of surfacing materials:

• Three-inch hot mix asphalt class one-half inch PG 64-28;

• Three-inch crushed surfacing – top course (five-eighths-inch to zero);

• Six-inch crushed surfacing – base course (one and one-quarter inch to zero).

All materials installed and work performed pursuant to the requirements of the above paragraph shall be done in accordance with the city's design and construction standards and specifications for public works improvements.

E. Grades. All grades of streets and curbs shall be approved by the city engineer or other licensed engineer acting on behalf of the city before any improvement is commenced.

F. Cul-de-Sacs. Maximum length shall be 600 feet and right-of-way radius shall be 60 feet.

G. Offset Intersections. Offset intersections shall have a minimum of 100 feet between street centerlines.

H. Curves. The minimum centerline radii for horizontal curves shall be 100 feet and the minimum length for vertical curves shall be 50 feet.

I. Alleys. Alleys are not required but may be included in the subdivision at the developer's option. Alleys shall have a minimum right-of-way width of 20 feet. Utility easements may be provided in lieu of alleys.

J. Dead-End Roads. All dead-end roadways shall include cul-de-sacs. The city may allow use of an "L" or "hammerhead" turnaround upon approval by the public works director. (Ord. 2015-5 § 1; Ord. 1453 § 19, 1996; Ord. 1400 § 1, 1995; Ord. 1343 § 3, 1992; Ord. 1105 § 3(G)(4), 1984).

16.24.045 Street trees.

Planting in city rights-of-way shall be in conformity with Chapter 12.14 GMC. (Ord. 2015-5 § 1; Ord. 1189 § 1, 1987).

16.24.050 Utility easements.

A. Utility easements shall be continuous and aligned from block to block within a subdivision and with adjoining subdivisions.

B. A 10-foot utility easement for underground power, telephone, irrigation water and cable television shall be provided across the front of each lot within a subdivision and short subdivision. Side lot line easements shall be required where deemed necessary to adequately provide lots with utility services or to provide for continuous easements.

C. Easements for new and/or future utility lines shall be a minimum of 16 feet wide, provided the width of the easements for buried utilities will be at least twice the depth of the planned excavation.

D. Drainage easements shall be provided where a subdivision is traversed by a watercourse, drainageway, or stream channel.

E. Easements for unusual facilities such as high voltage electric lines, irrigation canals, and high-capacity gas transmission lines shall be approved by the public works director. (Ord. 2015-5 § 1; Ord. 1105 § 3(G)(5), 1984).

16.24.060 Design and engineering plans required.

The developer shall submit to the public works director plan and profile drawings of the proposed streets, grading and water, sewer, storm drainage, planting in public rights-of-way, and irrigation water systems for construction purposes prepared in accordance with the city's design and construction standards and specifications for public works improvements. Following initial review by the city and any required corrections by the developer for compliance with the city's design and construction standards and specifications for public works improvements, the developer shall submit to the city the original plan tracings and specifications for final approval. The city's responsible officials shall approve such drawings and specifications before any groundwork is done. Construction shall be in accordance with drawings and specifications approved by the city. (Ord. 2015-5 § 1; Ord. 1189 § 2, 1987; Ord. 1105 § 3(G)(6), 1984).

16.24.070 Submission of as-built drawings.

The developer's consulting engineer shall prepare and maintain a neatly marked, full-sized print set of record drawings showing the final location and layout of all new construction of the public facilities. Prior to final acceptance by the city of Grandview, one set of reproducible record drawings and two sets of prints prepared by the developer's engineer and clearly marked "Record Drawings" shall be delivered to the public works director for review and acceptance. (Ord. 2015-5 § 1; Ord. 1105 § 3(G)(7), 1984).

APPENDIX D

SEPA CHECKLIST

SEPA ENVIRONMENTAL CHECKLIST

UPDATED 2014

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the Supplemental Sheet for Nonproject Actions (Part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. background

1. Name of proposed project, if applicable:

2. Name of applicant:

3. Address and phone number of applicant and contact person:

4. Date checklist prepared:

5. Agency requesting checklist:

6. Proposed timing or schedule (including phasing, if applicable): [

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

10. List any government approvals or permits that will be needed for your proposal, if known.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site
(circle one): Flat, rolling, hilly, steep slopes, mountainous,
other _____

b. What is the steepest slope on the site (approximate percent slope)?

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

3. **Water**

a. Surface Water:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type
and provide names. If appropriate, state what stream or river it flows into.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

b. Ground Water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

2) Could waste materials enter ground or surface waters? If so, generally describe.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

4. **Plants**

a. Check the types of vegetation found on the site:

____deciduous tree: alder, maple, aspen, other
____evergreen tree: fir, cedar, pine, other
____shrubs
____grass

____pasture
____crop or grain
____ Orchards, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____water plants: water lily, eelgrass, milfoil, other
____other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

c. List threatened and endangered species known to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

e. List all noxious weeds and invasive species known to be on or near the site.

5. **Animals**

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other _____

b. List any threatened and endangered species known to be on or near the site.

c. Is the site part of a migration route? If so, explain.

d. Proposed measures to preserve or enhance wildlife, if any:

e. List any invasive animal species known to be on or near the site.

6. **Energy and natural resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

7. **Environmental health**

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

1) Describe any known or possible contamination at the site from present or past uses.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

4) Describe special emergency services that might be required.

5) Proposed measures to reduce or control environmental health hazards, if any:

b. **Noise**

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

3) Proposed measures to reduce or control noise impacts, if any:

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

c. Describe any structures on the site.

d. Will any structures be demolished? If so, what?

e. What is the current zoning classification of the site?

f. What is the current comprehensive plan designation of the site?

g. If applicable, what is the current shoreline master program designation of the site?

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

i. Approximately how many people would reside or work in the completed project?

j. Approximately how many people would the completed project displace?

k. Proposed measures to avoid or reduce displacement impacts, if any:

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

c. Proposed measures to reduce or control housing impacts, if any:

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

b. What views in the immediate vicinity would be altered or obstructed?

c. Proposed measures to reduce or control aesthetic impacts, if any:

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

b. Could light or glare from the finished project be a safety hazard or interfere with views?

c. What existing off-site sources of light or glare may affect your proposal?

d. Proposed measures to reduce or control light and glare impacts, if any:

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

b. Would the proposed project displace any existing recreational uses? If so, describe.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

13. **Historic and cultural preservation**

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

14. **Transportation**

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

h. Proposed measures to reduce or control transportation impacts, if any:

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

b. Proposed measures to reduce or control direct impacts on public services, if any.

16. **Utilities**

a. Circle utilities currently available at the site:
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee _____

Position and Agency/Organization _____

Date Submitted: _____

D. supplemental sheet for nonproject actions

(**IT IS NOT NECESSARY** to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

   Proposed measures to avoid or reduce such increases are:

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

   Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

   Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

   Proposed measures to protect such resources or to avoid or reduce impacts are:

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed measures to avoid or reduce shoreline and land use impacts are:

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

APPENDIX E

DEVELOPMENT TRAFFIC IMPACT DATA CHECKLIST

City of Grandview

THE TRANSPORTATION CHECKLIST IS TO BE COMPLETED BY THE DEVELOPER AND THE INFORMATION WILL ASSIST QUESTION 14(G) OF THE TRANSPORTATION SECTION OF THE S.E.P.A. QUESTIONNAIRE.

Development Traffic Impact Data Checklist

Development Name: _____
Development Address: _____
_____

Developer Name: _____
Developer Address: _____
_____

1. Type of residential development:

   ~ Single Family ~ Multi-Family ~ Duplex ~ Other _____

   Number of Units: _____

2. Average vehicle trips per unit:

~ Single Family	10 trips per day	~ Mobile Home Park	5 trips per day
~ Duplex	8 trips per day	~ Retirement Community	4 trips per day
~ Multi-family	6 trips per day	~ Other _____	

3. Total vehicle trips per day for the development: _____

4. Trip distribution to existing public streets from proposed development:

   _____ daily trips to_____
   _____ daily trips to_____
   _____ daily trips to_____

5. Peak hour trips to public streets from development:

   _____ Peak hour trips to _____
   _____ Peak hour trips to _____
   _____ Peak hour trips to _____

6. Existing traffic count (ADT) for public streets accessed by proposed development:

   _____ _____ _____ _____

7. Existing level of service (LOS) capacity for existing public streets accessed by development:

   _____ Two lane street, LOS C. - 8,000 ADT
   _____ Two lane, plus left turn lane, LOS C. - 12,000 ADT
   _____ Four lane, LOS C. - 20,000 ADT
   _____ Other _____

   Concurrency Test: Available capacity (subtract #6 from #7) _____
   Projected number of trips (#3) - _____
   Remaining capacity _____

   (If -0- or negative, adverse impact; if 1 or more, no adverse impact)

8. Three-year accident history of existing public streets accessed by development:
   (In vicinity of development)

   ~ None ~ See Attached

9. Traffic/street improvements proposed to mitigate this development:

   ~ None at this time ~ See Attached

_____ _____
Completed By Date

J:\Traffic Impact Checklist.doc

CITY OF GRANDVIEW

27.
CITIZEN CONTACT RECORD FORM

HLA
Engineering and Land Surveying, Inc.

PRESS HARD ~ YOU ARE MAKING 4 COPIES

CITIZEN CONTACT RECORD

CITY OF GRANDVIEW

207 WEST SECOND STREET
GRANDVIEW, WASHINGTON 98930
(509) 882-9200

☐ COMPLAINT ☐ REQUEST
☐ COMMENT ☐ SUGGESTIONS

CITIZEN NAME	ADDRESS

SERVICE ADDRESS OR LOCATION	PHONE NO.

SUMMARY OF COMPLAINT / COMMENT / REQUEST OR SUGGESTION

RECEIVED BY	DEPT.	DATE	TIME A.M. P.M.

E REF TO CITY SUPERVISOR	REFERRED TO (DEPT.)	DATE REFERRED	DATE RESPONSE DUE

ACTION SUMMARY

DATE CITIZEN NOTIFIED	NOTIFIED BY	WHO NOTIFIED CITIZEN
	☐ MAIL ☐ PHONE ☐ IN PERSON	

BY _____

TITLE _____

28.
CITY OF GRANDVIEW FIRE DEPARTMENT HYDRANT FLOW TEST

HLA
Engineering and Land Surveying, Inc.

HLA #	GVFD #	ADDRESS	STATIC PRESS	RESIDUAL PRESS	CALC FLOW @ 20 PSI	DATE M-YR
1	A051	160 BETHANY RD	80	76	5321	9-12
2	A067	501 STOVER RD	86	78	4228	8-09
3	A027	509 N EUCLID RD	68	60	3244	9-12
4	E070	1906 W 2ND ST	60	50	2242	9-11
5	E063	W 5TH & APPLEWAY	56	48	2329	9-11
6	E066	2200 HILL DR	62	54	2431	9-11
7	E084	509 MEADOWLARK RD	58	54	3666	9-11
8	E023	MISSOURI & W CONCORD	44	34	1142	9-11
9	E042	1100 S EUCLID #69	60	40	1443.329	9-07
10	E045	MONTY PYTHON & S EUCLID				
11	D051	NICKA & BROADVIEW DR	65	48	1554	9-10
12	D005	W 2ND & AVE F	62	48	1920	9-10
13	C009	ASH & E WINE COUNTRY RD	58	52	2874	5-14
14	C012	DIVISION & E 4TH ST	58	50	2461	5-14
15	C047	APACHE & PLEASANT	50	38	1507	9-10
16	C067	700 BLK S ELM	50	46	2728	9-09
17	B012	E BONNIEVIEW & N ELM	44	38	1585	9-09
18	B024	2680 OLMSTEAD RD				
19	C084	813 ESPERANZA	46	40	2028	9-09
20	C072	940 E WINE COUNTRY RD	56	52	3386	5-14

CITY OF GRANDVIEW

29.
SANITARY SURVEY

HLA
Engineering and Land Surveying, Inc.

Sanitary Survey Data Report / Packet

As Of: 9/26/2022

Administrative Data

WS Id: 28970 J WS Name: GRANDVIEW CITY OF Owner Name: GRANDVIEW, CITY OF

Group: A Type: Comm Group Active Date: 01/01/1970 Region: Eastern County: YAKIMA

Primary Contact Name: Castulo T. Arteaga Phone: (509) 882-9213 Cell: (509) 830-9213 Fax:

Primary Contact Email: xxxxxxxxxxxxxxxxxxx Owner Email: xxxxxxxxxxxxxxxxxxx

Delivery Address:	City:	State:	Zip code:
Mailing Address: 207 W 2nd St	City: Grandview	State: WA	Zip code: 98930

Sanitary Survey Notes

Comment Focus	Comment Date	Author
Source	*03/05/2019*	*M Hadorn*

Per A Cervantes, DOH RE: S17 status change from inactive to active. Source was taken offline for pump replacement/repair. Work is completed and source returned to service.

Comment Focus	Comment Date	Author
Administrative	*03/14/2016*	*Brad*

FT SFR population increased to 11010 from 10922

Comment Focus	Comment Date	Author
Source	*08/28/2013*	*K. Anderson*

S17 inactivated. Source offline due to pumping problems. Will come back online when they have installed a new pump.

S13 changed to emergency use only.

Comment Focus	Comment Date	Author
General	*03/11/2013*	*K. Anderson*

System now serves Village Court Apartments. Populations/connections added to Grandview from Village Court: 1 apartment building connection with 16 units; 2 non-residential/commercial connections; 60 full time residents.

Comment Focus	Comment Date	Author
Merge	*12/09/2009*	*George Simon*

Source Data was Split to Water System ID:AC297 - Bridgeview Water System 1

Comment Focus	Comment Date	Author
General	*11/02/2005*	*G.SImon*

Cus Artega, Dave, & Roy from the System came in and changed all the source names to eliminate confusion.

Comment Focus	Comment Date	Author
Source	*09/10/2004*	*G.Simon*

Source 7 Inactivated as per WFI update, okayd by MW.

Comment Focus	Comment Date	Author
General	*05/14/2002*	*DWAIN Conversion*

CvtDWPRO - UNSPECIFIED # APPRVD. SERV. PER DS S15 INACTIVATED PER LTR DTD 12/31/98 D.MARTINEZ, CITY OF GRANDVIEW. S07 INACTIVATED FOR HIGH NITRATES PER D.MARTINEZ, CITY OF GRANDVIEW 8/14/00.

Planning

Plan Date: Out of Compliance

Last Plan Date:

Next Plan Due Date:

Type of Plan: Water System Plan

Sanitary Survey Data Report / Packet

As Of: 9/26/2022

Operator Certification

Number of Mandatory Positions for the WS Id: 5

Operator Compliance Status: In Compliance

Mandatory	Pos. Num.	Operator Name (Last, First, MI)	Min. Cert. Req'd	Certification Held	Operator Number	Evening / Weekend Phone Number	EMail	Has CCS
Yes	1	Arteaga, Castulo T	WDM 2	WDM 3	003401	(xxx)-xxx-xxxx	xxxxxxxxxxxxxxxxxx	
No		Moreno, Juan J		WDM 1	010981	(xxx)-xxx-xxxx	xxxxxxxxxxxxxxxxxx	
No		Mejia, Hector			014443	(xxx)-xxx-xxxx	xxxxxxxxxxxxxxxxxx	
No		Rodriguez, Francisco			014477	(xxx)-xxx-xxxx	xxxxxxxxxxxxxxxxxx	
No		Taylor, Cory L			008349	(xxx)-xxx-xxxx	xxxxxxxxxxxxxxxxxx	Yes

Compliance

Action	DOH Program	Status	Issue Date	Survey Date
Directive	Sanitary Survey	Completed	12/22/2015	05/19/2015

Comments: 05/19/2015: SS by Andres Cervantes, PE
No deficiencies identified.

Source Information

Source Inventory

Src Num	Source Name	Status	Type	Susc	Use	Depth to First Open Interval	Capacity (GPM)	Source Metered	Well Tag ID
01	W. Main Well	Act	Well	H	P	180	180.0	Yes	
02	Balcom Well	Act	Well	H	P	1150	500.0	Yes	
03	Velma Well	Act	Well	H	P	1650	175.0	Yes	
04	Well #5 (Orchard)	Decom	Well	H	P	1123	130.0	Undefined	
06	Euclid Well	Act	Well	X	E	248	30.0	Yes	
07	Olmstead (A) Well	Act	Well	H	E	112	165.0	Yes	
08	Appleway Well	InAct	Well	M	P	342	.0	Yes	
09	(Abandoned Well)	InAct	Well	X	P	157	.0	Undefined	
10	North Willoughby Well	Act	Well	H	P	620	410.0	Yes	
11	Highland Well	Act	Well	H	P	250	60.0	Yes	
12	Pecan Well	InAct	Well	H	P	320	.0	Yes	
13	South Willoughby Well	Act	Well	H	P	954	1,980.0	Yes	
14	Butternut Well	Act	Well	L	P	1294	1,490.0	Yes	
15	(River)	InAct	Well	H	P	140	30.0	Undefined	
16	Olmstead (B) Well	Act	Well	H	E	349	90.0	Yes	AAS278
17	Ashael Curtis Well - AAS242	Act	Well	H	P	489	160.0	Yes	AAS242
18	Pecan Well - AAS161	Act	Well	M	P	339	180.0	Yes	AAS161

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As Of: 9/26/2022

Source Location

Src Num	Source Name	Qtr / Qtr	Sect	Township	Range	Lat / Long	SWTR
01	W. Main Well	NENW	23	09	23E	46.256382 / -119.905231	Does Not Apply
02	Balcom Well	SWNE	23	09	23E	46.252793 / -119.901644	Does Not Apply
03	Velma Well	NESE	22	09	23E	46.248565 / -119.919262	Does Not Apply
04	Well #5 (Orchard)	NWSE	21	09	23E	46.249358 / -119.944515	Does Not Apply
06	Euclid Well	NENE	22	09	23E	46.256915 / -119.915979	Does Not Apply
07	Olmstead (A) Well	SWSW	12	09	23E	46.273870 / -119.893133	Does Not Apply
08	Appleway Well	NWSW	22	09	23E	46.247710 / -119.936417	Does Not Apply
09	(Abandoned Well)	SENE	03	08	23E	46.272918 / -119.892690	Does Not Apply
10	North Willoughby Well	NESW	13	09	23E	46.265426 / -119.888503	Does Not Apply
11	Highland Well	NWSW	24	09	23E	46.251120 / -119.892020	Does Not Apply
12	Pecan Well	SWSW	22	09	23E	46.245848 / -119.932873	Does Not Apply
13	South Willoughby Well	NESE	13	09	23E	46.264574 / -119.888555	Does Not Apply
14	Butternut Well	NESW	22	09	23E	46.249609 / -119.930546	Does Not Apply
15	(River)	NENE	03	08	23E	46.214666 / -119.914240	Does Not Apply
16	Olmstead (B) Well	SWSW	12	09	23E	46.273886 / -119.893030	
17	Ashael Curtis Well - AAS242	NESE	21	09	23E	46.253100 / -119.943000	
18	Pecan Well - AAS161	SWSW	22	09	23E	46.245830 / -119.932935	

Water Treatment Plant / Source treatment

Plant Id	Source #	Src Name	Treat Purpose	Treatment Required	Treatment Type	Applicable Rule	Reason of Treatment	Approval Status
28970001	01	W. Main Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option	Preventative	UnAppv
28970002	02	Balcom Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option	Preventative	UnAppv
28970002	02	Balcom Well	TASTE/ODOR CONTROL & DECHLORINATION	No	AERATION, CASCADE, SLAT TRAY, SPRAY	Purveyor Option	Aesthetic Concerns	UnAppv
28970003	06	Euclid Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option	Preventative	UnAppv
28970004	07	Olmstead (A) Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option	Preventative	AppvCCR
28970004	07	Olmstead (A) Well	INORGANICS REMOVAL/TREATMENT	No	SOURCE BLENDING	Nitrate Purveyor Option		UnAppv
28970004	16	Olmstead (B) Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option	Preventative	AppvCCR
28970004	16	Olmstead (B) Well	INORGANICS REMOVAL/TREATMENT	No	SOURCE BLENDING	Nitrate Purveyor Option		UnAppv
28970005	10	North Willoughby Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option	Preventative	AppvCCR
28970005	10	North Willoughby Well	INORGANICS REMOVAL/TREATMENT	No	SOURCE BLENDING	Nitrate Purveyor Option		UnAppv

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28970006	12	Pecan Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option	Preventative	UnAppv
28970007	13	South Willoughby Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option	Preventative	AppvCCR
28970007	13	South Willoughby Well	INORGANICS REMOVAL/TREATMENT	No	SOURCE BLENDING	Nitrate Purveyor Option		UnAppv
28970007	13	South Willoughby Well	TASTE/ODOR CONTROL & DECHLORINATION	No	AERATION, CASCADE, SLAT TRAY, SPRAY	Purveyor Option	Aesthetic Concerns	AppvCCR
28970008	14	Butternut Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option	Preventative	AppvCCR
28970008	14	Butternut Well	TASTE/ODOR CONTROL & DECHLORINATION	No	AERATION, CASCADE, SLAT TRAY, SPRAY	Purveyor Option	Aesthetic Concerns	AppvCCR
28970009	03	Velma Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option		UnAppv
28970010	11	Highland Well	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option		UnAppv
28970011	17	Ashael Curtis Well - AAS242	DISINFECTION	No	CHLORINATION, HYPOCHLORITE	Purveyor Option		UnAppv
28970012	18	Pecan Well - AAS161	DISINFECTION	No	CHLORINATION, GASEOUS	Purveyor Option		UnAppv

Plant ID: 28970001

Measurements per month	28	Date Activated	
Performance required:	No Performance Required		
Maximum Flow Rate (gpm)	400.0	Residual Required (mg/L)	
Comments			

Plant ID: 28970002

Measurements per month	28	Date Activated	
Performance required:	No Performance Required		
Maximum Flow Rate (gpm)	500.0	Residual Required (mg/L)	
Comments			

Plant ID: 28970003

Measurements per month	28	Date Activated	
Performance required:	No Performance Required		
Maximum Flow Rate (gpm)	450.0	Residual Required (mg/L)	
Comments			

Plant ID: 28970004

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As Of: 9/26/2022

Measurements per month	28	Date Activated
Performance required:	No Performance Required	
Maximum Flow Rate (gpm)	380.0	Residual Required (mg/L)
Comments		

Plant ID: 28970005

Measurements per month	28	Date Activated
Performance required:	No Performance Required	
Maximum Flow Rate (gpm)	450.0	Residual Required (mg/L)
Comments		

Plant ID: 28970006

Measurements per month	28	Date Activated
Performance required:	No Performance Required	
Maximum Flow Rate (gpm)	144.0	Residual Required (mg/L)
Comments		

Plant ID: 28970007

Measurements per month	28	Date Activated
Performance required:	No Performance Required	
Maximum Flow Rate (gpm)	1800.0	Residual Required (mg/L)
Comments		

Plant ID: 28970008

Measurements per month	28	Date Activated
Performance required:	No Performance Required	
Maximum Flow Rate (gpm)	1550.0	Residual Required (mg/L)
Comments		

Disinfection Treatment Report

	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022
Operation	X	X	X	X	X	X	X	X	X	X	X	X
Report	X	X										

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Water Quality

COLIFORM SUMMARY / 2 - Years

	9/22	8/22	7/22	6/22	5/22	4/22	3/22	2/22	1/22	12/21	11/21	10/21
Routine Sample												
SamReq		10	10	10	10	10	10	10	10	10	10	10
SamTaken		10	10	10	10	10	10	10	11	10	10	10
TC												
EC												
FC												
Repeat Sample												
SamReq												
SamTaken												
TC												
EC												
FC												
Incidents Actual												
E.Coli (Acute)												
TTT PS (Non Acute)												
TTT R (MajorRep)												
Mon (MajorMon)												
RTCRA												
TTV-A												
TTV-CA												
TTV-S												

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	9/21	8/21	7/21	6/21	5/21	4/21	3/21	2/21	1/21	12/20	11/20	10/20
Routine Sample												
SamReq	10	10	10	10	10	10	10	10	10	10	10	10
SamTake	10	10	10	10	10	10	10	10	10	10	10	10
TC	1		1									
EC												
FC												
Repeat Sample												
SamReq	3		3									
SamTake	3		4									
TC			1									
EC												
FC												

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Incidents Actual												
E.Coli												
TTT PS												
TTT R												
Mon												
RTCRA			Lvl1									
TTV-A												
TTV-CA												
TTV-S												

Sam Collect Date	Sam Location	Lab Sam	Purpose	TC	EColi	Fecal
09/12/2022	708 HILLCREST TEST FAUCET	151 17501	RC	A		
09/12/2022	306 WESTRIDGE	151 17601	RC	A		
09/12/2022	2013 HILL DR	151 17701	RC	A		
09/07/2022	OUTSIDE FAUCET 1005 GRANDRIDGE	151 08701	RC	A		
09/07/2022	OUTSIDE FAUCET 912 CARRIAGE SQ	151 08702	RC	A		
09/07/2022	OUTSIDE FAUCET 100 W 2ND	151 08703	RC	A		
08/15/2022	306 WESTRIDGE	151 26401	RC	A		
08/15/2022	2013 HILL DR	151 26402	RC	A		
08/15/2022	708 HILLCREST	151 26403	RC	A		
08/08/2022	FAUCET 912 CARRIAGE SQ	151 12202	RC	A		
08/08/2022	FAUCET 100 W 2ND	151 12203	RC	A		
08/08/2022	FAUCET 1005 GRANDRIGDE	151 12201	RC	A		
08/01/2022	341 N ELM FAUCET	151 01501	RC	A		
08/01/2022	303 WEST MAIN	151 01502	RC	A		
08/01/2022	207 WEST 2ND STREET	151 01503	RC	A		
08/01/2022	815 WALLACE WAY	151 01504	RC	A		
07/18/2022	912 carnage sq test tap	151 31001	RC	A		
07/18/2022	100 w 2nd test tap	151 31002	RC	A		
07/18/2022	1005 grandridge test tap	151 31003	RC	A		
07/11/2022	303 w main	151 14201	RC	A		
07/11/2022	341 n elm	151 14202	RC	A		
07/11/2022	815 wallace way tap	151 14203	RC	A		
07/11/2022	207 w 2nd st tap	151 14204	RC	A		
07/05/2022	708 hillcrest	151 06103	RC	A		
07/05/2022	306 westridge	151 06101	RC	A		
07/05/2022	2013 hill dr	151 06102	RC	A		

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As Of: 9/26/2022

Sam Collect Date	Sam Location	Lab Sam	Purpose	TC	EColi	Fecal
06/21/2022	303 w main	151 31902	RC	A		
06/21/2022	207 w 2nd st	151 31903	RC	A		
06/21/2022	815 wallace way	151 31904	RC	A		
06/21/2022	341 n elm st	151 31901	RC	A		
06/13/2022	708 hillcrest	151 18601	RC	A		
06/13/2022	306 westridge	151 18602	RC	A		
06/13/2022	2013 hill dr	151 18603	RC	A		
06/06/2022	100 w 2nd	151 05403	RC	A		
06/06/2022	1005 grandridge	151 05401	RC	A		
06/06/2022	912 carriage se	151 05402	RC	A		
05/16/2022	708 hillcrest test tap	151 26601	RC	A		
05/16/2022	306 westridge test tap	151 26602	RC	A		
05/16/2022	2031 hill dr test tap	151 26603	RC	A		
05/09/2022	912 carriage se	151 14801	RC	A		
05/09/2022	1005 grandridge	151 14802	RC	A		
05/09/2022	100 w 2nd	151 14803	RC	A		
05/02/2022	341 n elm	151 01901	RC	A		
05/02/2022	303 w main	151 01902	RC	A		
05/02/2022	207 w 2nd	151 01903	RC	A		
05/02/2022	815 wallace way	151 01904	RC	A		
04/18/2022	912 carriage sw	151 25003	RC	A		
04/18/2022	1005 grandridge	151 02500	RC	A		
04/18/2022	100 w 2nd	151 25002	RC	A		
04/11/2022	341 n elm	151 15303	RC	A		
04/11/2022	207 w 2nd	151 15304	RC	A		
04/11/2022	708 hillcrest	151 15305	RC	A		
04/11/2022	306 westridge	151 15306	RC	A		
04/11/2022	815 wallace way	151 15301	RC	A		
04/11/2022	303 w main	151 15302	RC	A		
04/04/2022	2013 hill dr faucet	151 01601	RC	A		
03/14/2022	207 w 2nd st faucet	151 20401	RC	A		
03/14/2022	815 wallace way faucet	151 20402	RC	A		
03/14/2022	303 w main faucet	151 20403	RC	A		
03/14/2022	341 n elm faucet	151 20404	RC	A		
03/07/2022	306 westridge	151 07601	RC	A		

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Sam Collect Date	Sam Location	Lab Sam	Purpose	TC	EColi	Fecal
03/07/2022	2013 hill dr	151 07602	RC	A		
03/07/2022	708 hillcrest	151 07603	RC	A		
03/01/2022	912 carriage sq faucet	151 01401	RC	A		
03/01/2022	1005 grandridge faucet	151 01402	RC	A		
03/01/2022	100 w 2nd	151 01403	RC	A		
02/14/2022	708 hillcrest	151 13101	RC	A		
02/14/2022	306 westridge faucet	151 13102	RC	A		
02/14/2022	2013 hill dr faucet	151 13103	RC	A		
02/07/2022	912 carriage faucet	151 08601	RC	A		
02/07/2022	1005 grandridge faucet	151 08602	RC	A		
02/07/2022	100 west 2nd street faucet	151 08603	RC	A		
02/01/2022	207 w 2nd street faucet	151 00602	RC	A		
02/01/2022	341 n elm faucet	151 00603	RC	A		
02/01/2022	303 w main faucet	151 00604	RC	A		
02/01/2022	815 wallace way faucet	151 00601	RC	A		
01/18/2022	912 carriage sq	151 12601	RC	A		
01/18/2022	1005 grandridge	151 12602	RC	A		
01/18/2022	200 e 2nd st	151 12603	RC	A		
01/10/2022	341 n elm	151 00301	RC	A		
01/10/2022	303 w main	151 00302	RC	A		
01/10/2022	815 wallace way	151 00303	RC	A		
01/10/2022	207 w 2nd st	151 00304	RC	A		
01/10/2022	950 bridgeview rd	151 00305	RC	A		
01/10/2022	850 bridgeview	151 00306	RC	A		
01/04/2022	2013 hilldrive test faucet	151 00038	RC	A		
01/04/2022	306 westridge test faucet	151 00039	RC	A		
12/21/2021	341 n elm	151 25718	RC	A		
12/21/2021	303 w main	151 25719	RC	A		
12/21/2021	815 wallace way	151 25720	RC	A		
12/21/2021	207 w 2nd st	151 25721	RC	A		
12/13/2021	306 westridge	151 25163	RC	A		
12/13/2021	708 hillcrest	151 25164	RC	A		
12/13/2021	2013 hill dr	151 25165	RC	A		
12/06/2021	1005 grandridge	151 24714	RC	A		
12/06/2021	912 carriage sq	151 24715	RC	A		

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Sam Collect Date	Sam Location	Lab Sam	Purpose	TC	EColi	Fecal
12/06/2021	200 e 2nd	151 24716	RC	A		
11/16/2021	708 hillcrest	151 23539	RC	A		
11/16/2021	2013 hill drive	151 23540	RC	A		
11/16/2021	306 westridge	151 23538	RC	A		
11/08/2021	1005 grandridge	151 23020	RC	A		
11/08/2021	912 carriage sq	151 23021	RC	A		
11/08/2021	200 e 2nd	151 23022	RC	A		
11/01/2021	303 w main	151 22441	RC	A		
11/01/2021	207 w 2nd	151 22442	RC	A		
11/01/2021	815 wallace way	151 22443	RC	A		
11/01/2021	341 n elm	151 22444	RC	A		
10/18/2021	912 Carriage St test faucet	151 21629	RC	A		
10/18/2021	1005 Grandridge test faucet	151 21630	RC	A		
10/18/2021	200 E 2nd test faucet	151 21631	RC	A		
10/11/2021	815 wallace way test faucet	151 21033	RC	A		
10/11/2021	341 n elm test faucet	151 21030	RC	A		
10/11/2021	207 w 2nd test faucet	151 21031	RC	A		
10/11/2021	303 w main test faucet	151 21032	RC	A		
10/04/2021	2013 hilldrive ?	151 20353	RC	A		
10/04/2021	708 hillcrest	151 20354	RC	A		
10/04/2021	306 wesridge	151 20355	RC	A		

INORGANIC CHEMICALS (IOC)

History - IOC - Analyte Group

Src Num	Source Name	Source Type	Source Status	Source Use	Lab / Sample Num	Collect Date	Test Panel	Analytes Tested
01	W. Main Well	W	Act	P	105 11853	5/14/2019	IOC	31 of 43
02	Balcom Well	W	Act	P	105 22801	7/12/2022	IOC_SHOR	1 of 10
02	Balcom Well	W	Act	P	105 18101	4/12/2022	IOC	2 of 43
02	Balcom Well	W	Act	P	105 07254	4/3/2018	IOC	31 of 43
02	Balcom Well	W	Act	P	105 15972	6/8/2015	IOC_SHOR	1 of 10
02	Balcom Well	W	Act	P	105 12295	5/11/2015	IOC_SHOR	1 of 10
03	Velma Well	W	Act	P	105 38301	7/19/2022	IOC_SHOR	1 of 10
03	Velma Well	W	Act	P	105 09619	4/23/2019	IOC	31 of 43

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INORGANIC CHEMICALS (IOC)

History - IOC - Analyte Group

Src Num	Source Name	Source Type	Source Status	Source Use	Lab / Sample Num	Collect Date	Test Panel	Analytes Tested
07	Olmstead (A) Well	W	Act	E	105 12133	5/14/2019	IOC_SHOR	1 of 10
07	Olmstead (A) Well	W	Act	E	105 27335	9/12/2016	IOC	31 of 43
07	Olmstead (A) Well	W	Act	E	105 29248	11/10/2014	AR	1 of 1
07	Olmstead (A) Well	W	Act	E	105 26069	10/2/2014	AR	1 of 1
10	North Willoughby Well	W	Act	P	105 13201	6/7/2022	IOC_SHOR	1 of 10
10	North Willoughby Well	W	Act	P	105 17413	6/17/2019	IOC_SHOR	1 of 10
10	North Willoughby Well	W	Act	P	105 27336	9/12/2016	IOC	31 of 43
11	Highland Well	W	Act	P	105 30050	9/4/2019	IOC_SHOR	1 of 10
11	Highland Well	W	Act	P	105 27672	8/13/2019	AR	1 of 1
11	Highland Well	W	Act	P	105 07710	4/4/2016	IOC	31 of 43
11	Highland Well	W	Act	P	105 11379	5/4/2015	AR	1 of 1
13	South Willoughby Well	W	Act	P	151 12201	6/7/2022	IOC_SHOR	1 of 10
13	South Willoughby Well	W	Act	P	151 12653	6/29/2021	IOC_SHOR	1 of 10
13	South Willoughby Well	W	Act	P	105 08288	5/4/2020	IOC_SHOR	1 of 10
13	South Willoughby Well	W	Act	P	105 11854	5/14/2019	IOC	31 of 43
13	South Willoughby Well	W	Act	P	105 21011	7/16/2018	IOC_SHOR	1 of 10
13	South Willoughby Well	W	Act	P	105 16026	6/19/2017	IOC_SHOR	1 of 10
13	South Willoughby Well	W	Act	P	105 14784	6/6/2016	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	151 06001	7/5/2022	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	151 15401	4/11/2022	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 00044	1/4/2022	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 20358	10/4/2021	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	151 13061	7/6/2021	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 05977	4/5/2021	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 00567	1/11/2021	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 21254	10/5/2020	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 13243	7/6/2020	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 06369	4/6/2020	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 01468	1/23/2020	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 33005	10/7/2019	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 20794	7/8/2019	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 07250	4/1/2019	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 01139	1/14/2019	IOC_SHOR	1 of 10

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INORGANIC CHEMICALS (IOC)

History - IOC - Analyte Group

Src Num	Source Name	Source Type	Source Status	Source Use	Lab / Sample Num	Collect Date	Test Panel	Analytes Tested
14	Butternut Well	W	Act	P	105 32462	10/8/2018	IOC_SHOR	1 of 10
14	Butternut Well	W	Act	P	105 28960	9/11/2018	IOC	31 of 43
16	Olmstead (B) Well	W	Act	E	105 15729	6/11/2019	IOC	31 of 43
16	Olmstead (B) Well	W	Act	E	105 12134	5/14/2019	AR	1 of 1
16	Olmstead (B) Well	W	Act	E	105 11378	5/4/2015	AR	1 of 1
17	Ashael Curtis Well - AAS242	W	Act	P	105 18001	4/12/2022	IOC	3 of 43
17	Ashael Curtis Well - AAS242	W	Act	P	105 21287	7/8/2019	IOC_SHOR	1 of 10
17	Ashael Curtis Well - AAS242	W	Act	P	105 06085	3/19/2019	IOC	31 of 43
18	Pecan Well - AAS161	W	Act	P	105 22101	7/12/2022	IOC	22 of 43
18	Pecan Well - AAS161	W	Act	P	112 64201	7/12/2022	IOC	1 of 43
18	Pecan Well - AAS161	W	Act	P	151 22101	7/12/2022	IOC	8 of 43
18	Pecan Well - AAS161	W	Act	P	105 27673	8/13/2019	AR	1 of 1
18	Pecan Well - AAS161	W	Act	P	105 14866	7/8/2013	IOC	31 of 43

Detail - IOC

Source 01

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	11853	05/14/2019	303 w main

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0035	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0477	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0023	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	EQ	mg/L	0.0020	0.0015	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	EQ	mg/L	0.0050	0.0017	N	0.0999	N	0.1000
0112	ANTIMONY	LT	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	EQ	mg/L	0.0010	0.0006	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	0.3200	N	1.9999	N	4.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0500	N	0.4999	N	1.0000
0020	NITRATE-N	EQ	mg/L	0.5000	7.3200	Y	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	EQ	mg/L	0.5000	7.3200	N		N	
0008	IRON	LT	mg/L	0.1000	0.0097	N		N	
0010	MANGANESE	EQ	mg/L	0.0100	0.0003	N		N	
0013	SILVER	LT	mg/L	0.1000	0.0001	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	16.8000	N		N	
0022	SULFATE	EQ	mg/L	50.0000	45.3000	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0062	N		N	
0014	SODIUM	EQ	mg/L	5.0000	19.6000	N		N	

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0015	HARDNESS	EQ	mg/L	10.0000	232.0000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	534.0000	N		N	
0017	TURBIDITY	LT	NTU	0.1000	0.1000	N		N	
0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	312.0000	N		N	
0009	LEAD	LT	mg/L	0.0010	0.0001	N	9999.0000	N	
0023	COPPER	EQ	mg/L	0.0200	0.0005	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	
0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	EQ	mg/L	0.1000	18.5000	N		N	
0405	CALCIUM	EQ	mg/L	0.0500	62.5000	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	
0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	
0099	INACTIVATION RATIO	NA	None			N		N	
0100	RESIDUAL CHLORINE	NA	mg/L	0.2000		N		N	
0115	ASBESTOS	NA	MFL	0.2000		N	6.9990	N	7.0000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 02

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	07254	04/03/2018	s02 balcom & moe

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0026	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0627	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0020	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	EQ	mg/L	0.0020	0.0020	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	EQ	mg/L	0.0050	0.0003	N	0.0999	N	0.1000
0112	ANTIMONY	EQ	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	EQ	mg/L	0.0010	0.0014	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	0.4400	N	1.9999	N	4.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0700	N	0.4999	N	1.0000
0020	NITRATE-N	EQ	mg/L	0.5000	5.4600	Y	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	EQ	mg/L	0.5000	5.4600	N		N	
0008	IRON	EQ	mg/L	0.1000	0.0392	N		N	
0010	MANGANESE	EQ	mg/L	0.0100	0.0050	N		N	
0013	SILVER	LT	mg/L	0.1000	0.0001	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	18.5000	N		N	
0022	SULFATE	EQ	mg/L	50.0000	44.6000	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0037	N		N	
0014	SODIUM	EQ	mg/L	5.0000	25.0000	N		N	
0015	HARDNESS	EQ	mg/L	10.0000	208.0000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	533.0000	N		N	
0017	TURBIDITY	EQ	NTU	0.1000	0.1700	N		N	

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0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	344.0000	N		N	
0009	LEAD	EQ	mg/L	0.0010	0.0002	N	9999.0000	N	
0023	COPPER	EQ	mg/L	0.0200	0.0019	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	
0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	EQ	mg/L	0.1000	17.4000	N		N	
0405	CALCIUM	EQ	mg/L	0.0500	54.7000	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	
0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	
0099	INACTIVATION RATIO	NA	None			N		N	
0100	RESIDUAL CHLORINE	NA	mg/L	0.2000		N		N	
0115	ASBESTOS	NA	MFL	0.2000		N	6.9990	N	7.0000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 03

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	09619	04/23/2019	1208 king st s03

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0028	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0544	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0028	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	EQ	mg/L	0.0020	0.0022	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	LT	mg/L	0.0050	0.0001	N	0.0999	N	0.1000
0112	ANTIMONY	LT	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	EQ	mg/L	0.0010	0.0003	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	0.3000	N	1.9999	N	4.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0500	N	0.4999	N	1.0000
0020	NITRATE-N	EQ	mg/L	0.5000	4.6500	N	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	EQ	mg/L	0.5000	4.6500	N		N	
0008	IRON	EQ	mg/L	0.1000	0.0104	N		N	
0010	MANGANESE	EQ	mg/L	0.0100	0.0008	N		N	
0013	SILVER	EQ	mg/L	0.1000	0.0002	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	13.8000	N		N	
0022	SULFATE	EQ	mg/L	50.0000	45.1000	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0088	N		N	
0014	SODIUM	EQ	mg/L	5.0000	16.0000	N		N	
0015	HARDNESS	EQ	mg/L	10.0000	185.0000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	444.0000	N		N	
0017	TURBIDITY	EQ	NTU	0.1000	0.1100	N		N	
0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	288.0000	N		N	
0009	LEAD	EQ	mg/L	0.0010	0.0005	N	9999.0000	N	

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0023	COPPER	EQ	mg/L	0.0200	0.0012	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	
0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	EQ	mg/L	0.1000	16.0000	N		N	
0405	CALCIUM	EQ	mg/L	0.0500	47.8000	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	
0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	
0099	INACTIVATION RATIO	NA	None			N		N	
0100	RESIDUAL CHLORINE	NA	mg/L	0.2000		N		N	
0115	ASBESTOS	NA	MFL	0.2000		N	6.9990	N	7.0000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 07

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	27335	09/12/2016	s07 olmstead

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0029	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0533	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0008	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	EQ	mg/L	0.0020	0.0013	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	LT	mg/L	0.0050	0.0001	N	0.0999	N	0.1000
0112	ANTIMONY	LT	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	EQ	mg/L	0.0010	0.0004	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	0.2900	N	1.9999	N	4.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0500	N	0.4999	N	1.0000
0020	NITRATE-N	EQ	mg/L	0.5000	8.3000	Y	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	EQ	mg/L	0.5000	8.3000	N		N	
0008	IRON	LT	mg/L	0.1000	0.0097	N		N	
0010	MANGANESE	EQ	mg/L	0.0100	0.0014	N		N	
0013	SILVER	LT	mg/L	0.1000	0.0001	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	17.3000	N		N	
0022	SULFATE	EQ	mg/L	50.0000	58.0000	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0123	N		N	
0014	SODIUM	EQ	mg/L	5.0000	24.1000	N		N	
0015	HARDNESS	EQ	mg/L	10.0000	259.0000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	614.0000	N		N	
0017	TURBIDITY	EQ	NTU	0.1000	0.1300	N		N	
0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	406.0000	N		N	
0009	LEAD	EQ	mg/L	0.0010	0.0002	N	9999.0000	N	
0023	COPPER	EQ	mg/L	0.0200	0.0009	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	

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0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	EQ	mg/L	0.1000	19.9000	N		N	
0405	CALCIUM	EQ	mg/L	0.0500	70.8000	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	
0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	
0099	INACTIVATION RATIO	NA	None			N		N	
0100	RESIDUAL CHLORINE	NA	mg/L	0.2000		N		N	
0115	ASBESTOS	NA	MFL	0.2000		N	6.9990	N	7.0000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 10

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	27336	09/12/2016	s10 n willoughby

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0017	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0593	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0005	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	EQ	mg/L	0.0020	0.0018	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	LT	mg/L	0.0050	0.0001	N	0.0999	N	0.1000
0112	ANTIMONY	LT	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	EQ	mg/L	0.0010	0.0004	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	0.1800	N	1.9999	N	4.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0500	N	0.4999	N	1.0000
0020	NITRATE-N	EQ	mg/L	0.5000	9.0000	Y	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	EQ	mg/L	0.5000	9.0000	N		N	
0008	IRON	LT	mg/L	0.1000	0.0097	N		N	
0010	MANGANESE	LT	mg/L	0.0100	0.0001	N		N	
0013	SILVER	LT	mg/L	0.1000	0.0001	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	21.4000	N		N	
0022	SULFATE	EQ	mg/L	50.0000	68.8000	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0104	N		N	
0014	SODIUM	EQ	mg/L	5.0000	15.4000	N		N	
0015	HARDNESS	EQ	mg/L	10.0000	233.0000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	551.0000	N		N	
0017	TURBIDITY	LT	NTU	0.1000	0.1000	N		N	
0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	376.0000	N		N	
0009	LEAD	EQ	mg/L	0.0010	0.0003	N	9999.0000	N	
0023	COPPER	EQ	mg/L	0.0200	0.0016	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	
0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	EQ	mg/L	0.1000	18.1000	N		N	

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0405	CALCIUM	EQ	mg/L	0.0500	63.6000	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	
0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	
0099	INACTIVATION RATIO	NA	None			N		N	
0100	RESIDUAL CHLORINE	NA	mg/L	0.2000		N		N	
0115	ASBESTOS	NA	MFL	0.2000		N	6.9990	N	7.0000

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 11

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	07710	04/04/2016	highland well

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0024	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0585	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0015	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	EQ	mg/L	0.0020	0.0017	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	LT	mg/L	0.0050	0.0001	N	0.0999	N	0.1000
0112	ANTIMONY	LT	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	EQ	mg/L	0.0010	0.0009	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	0.3900	N	1.9999	N	4.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0500	N	0.4999	N	1.0000
0020	NITRATE-N	EQ	mg/L	0.5000	7.7000	Y	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	EQ	mg/L	0.5000	7.7000	N		N	
0008	IRON	LT	mg/L	0.1000	0.0097	N		N	
0010	MANGANESE	EQ	mg/L	0.0100	0.0001	N		N	
0013	SILVER	EQ	mg/L	0.1000	0.0001	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	23.7000	N		N	
0022	SULFATE	EQ	mg/L	50.0000	72.9000	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0081	N		N	
0014	SODIUM	EQ	mg/L	5.0000	15.3000	N		N	
0015	HARDNESS	EQ	mg/L	10.0000	247.0000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	583.0000	N		N	
0017	TURBIDITY	LT	NTU	0.1000	0.1000	N		N	
0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	412.0000	N		N	
0009	LEAD	EQ	mg/L	0.0010	0.0004	N	9999.0000	N	
0023	COPPER	EQ	mg/L	0.0200	0.0004	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	
0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	EQ	mg/L	0.1000	19.7000	N		N	
0405	CALCIUM	EQ	mg/L	0.0500	66.6000	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	

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0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	
0099	INACTIVATION RATIO	NA	None			N		N	
0100	RESIDUAL CHLORINE	NA	mg/L	0.2000		N		N	
0115	ASBESTOS	NA	MFL	0.2000		N	6.9990	N	7.0000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 13

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	11854	05/14/2019	601 n willoughby

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0001	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0022	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0013	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	LT	mg/L	0.0020	0.0005	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	EQ	mg/L	0.0050	0.0002	N	0.0999	N	0.1000
0112	ANTIMONY	LT	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	EQ	mg/L	0.0010	0.0011	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	2.3100	Y	1.9999	2	2.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0500	N	0.4999	N	1.0000
0020	NITRATE-N	LT	mg/L	0.5000	0.0500	N	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	LT	mg/L	0.5000	0.5000	N		N	
0008	IRON	LT	mg/L	0.1000	0.0097	N		N	
0010	MANGANESE	EQ	mg/L	0.0100	0.0008	N		N	
0013	SILVER	LT	mg/L	0.1000	0.0001	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	19.1000	N		N	
0022	SULFATE	EQ	mg/L	50.0000	0.5400	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0006	N		N	
0014	SODIUM	EQ	mg/L	5.0000	78.9000	N		N	
0015	HARDNESS	EQ	mg/L	10.0000	1.8000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	414.0000	N		N	
0017	TURBIDITY	EQ	NTU	0.1000	0.1600	N		N	
0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	220.0000	N		N	
0009	LEAD	EQ	mg/L	0.0010	0.0008	N	9999.0000	N	
0023	COPPER	EQ	mg/L	0.0200	0.0002	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	
0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	LT	mg/L	0.1000	0.0600	N		N	
0405	CALCIUM	EQ	mg/L	0.0500	0.7200	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	
0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	

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0099	INACTIVATION RATIO	NA	None			N		N	
0100	RESIDUAL CHLORINE	NA	mg/L	0.2000		N		N	
0115	ASBESTOS	NA	MFL	0.2000		N	6.9990	N	7.0000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 14

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	28960	09/11/2018	s14 butternut well

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0002	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0019	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0006	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	LT	mg/L	0.0020	0.0005	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	EQ	mg/L	0.0050	0.0003	N	0.0999	N	0.1000
0112	ANTIMONY	LT	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	LT	mg/L	0.0010	0.0001	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	2.6600	Y	1.9999	2	2.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0500	N	0.4999	N	1.0000
0020	NITRATE-N	LT	mg/L	0.5000	0.0500	N	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	LT	mg/L	0.5000	0.5000	N		N	
0008	IRON	EQ	mg/L	0.1000	0.0216	N		N	
0010	MANGANESE	EQ	mg/L	0.0100	0.0009	N		N	
0013	SILVER	LT	mg/L	0.1000	0.0001	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	23.4000	N		N	
0022	SULFATE	EQ	mg/L	50.0000	0.9400	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0015	N		N	
0014	SODIUM	EQ	mg/L	5.0000	88.0000	N		N	
0015	HARDNESS	EQ	mg/L	10.0000	2.2000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	400.0000	N		N	
0017	TURBIDITY	EQ	NTU	0.1000	3.1000	N		N	
0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	272.0000	N		N	
0009	LEAD	LT	mg/L	0.0010	0.0001	N	9999.0000	N	
0023	COPPER	EQ	mg/L	0.0200	0.0002	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	
0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	LT	mg/L	0.1000	0.0600	N		N	
0405	CALCIUM	EQ	mg/L	0.0500	0.8800	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	
0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	
0099	INACTIVATION RATIO	NA	None			N		N	
0100	RESIDUAL CHLORINE	NA	mg/L	0.2000		N		N	

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0115	ASBESTOS	NA	MFL	0.2000	N	6.9990	N	7.0000

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 16

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	15729	06/11/2019	580 olmstead rd

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0030	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0504	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0011	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	EQ	mg/L	0.0020	0.0012	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	EQ	mg/L	0.0050	0.0002	N	0.0999	N	0.1000
0112	ANTIMONY	LT	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	EQ	mg/L	0.0010	0.0003	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	0.3400	N	1.9999	N	4.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0500	N	0.4999	N	1.0000
0020	NITRATE-N	EQ	mg/L	0.5000	8.8000	Y	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	EQ	mg/L	0.5000	8.8000	N		N	
0008	IRON	LT	mg/L	0.1000	0.0097	N		N	
0010	MANGANESE	EQ	mg/L	0.0100	0.0011	N		N	
0013	SILVER	LT	mg/L	0.1000	0.0001	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	19.0000	N		N	
0022	SULFATE	EQ	mg/L	50.0000	53.2000	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0091	N		N	
0014	SODIUM	EQ	mg/L	5.0000	25.5000	N		N	
0015	HARDNESS	EQ	mg/L	10.0000	258.0000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	622.0000	N		N	
0017	TURBIDITY	LT	NTU	0.1000	0.1000	N		N	
0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	378.0000	N		N	
0009	LEAD	LT	mg/L	0.0010	0.0001	N	9999.0000	N	
0023	COPPER	EQ	mg/L	0.0200	0.0004	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	
0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	EQ	mg/L	0.1000	20.0000	N		N	
0405	CALCIUM	EQ	mg/L	0.0500	70.3000	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	
0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	
0099	INACTIVATION RATIO	NA	None			N		N	

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0100	RESIDUAL CHLORINE	NA	mg/L	0.2000		N		N	
0115	ASBESTOS	NA	MFL	0.2000		N	6.9990	N	7.0000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 17

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	06085	03/19/2019	s17 sasahel curtis

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0039	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0548	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0009	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	EQ	mg/L	0.0020	0.0025	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	EQ	mg/L	0.0050	0.0005	N	0.0999	N	0.1000
0112	ANTIMONY	LT	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	EQ	mg/L	0.0010	0.0009	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	0.3700	N	1.9999	N	4.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0500	N	0.4999	N	1.0000
0020	NITRATE-N	EQ	mg/L	0.5000	3.1200	N	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	EQ	mg/L	0.5000	3.1200	N		N	
0008	IRON	EQ	mg/L	0.1000	0.0113	N		N	
0010	MANGANESE	EQ	mg/L	0.0100	0.0021	N		N	
0013	SILVER	LT	mg/L	0.1000	0.0001	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	14.1000	N		N	
0022	SULFATE	EQ	mg/L	50.0000	45.0000	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0279	N		N	
0014	SODIUM	EQ	mg/L	5.0000	25.1000	N		N	
0015	HARDNESS	EQ	mg/L	10.0000	163.0000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	459.0000	N		N	
0017	TURBIDITY	EQ	NTU	0.1000	0.1400	N		N	
0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	284.0000	N		N	
0009	LEAD	EQ	mg/L	0.0010	0.0004	N	9999.0000	N	
0023	COPPER	EQ	mg/L	0.0200	0.0019	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	
0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	EQ	mg/L	0.1000	14.8000	N		N	
0405	CALCIUM	EQ	mg/L	0.0500	40.8000	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	
0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	
0099	INACTIVATION RATIO	NA	None			N		N	
0100	RESIDUAL CHLORINE	NA	mg/L	0.2000		N		N	

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0115	ASBESTOS	NA	MFL	0.2000	N	6.9990	N	7.0000

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 18

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	IOC	105	14866	07/08/2013	pecan well prior to disb

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0004	ARSENIC	EQ	mg/L	0.0010	0.0029	N	0.0103	N	0.0104
0005	BARIUM	EQ	mg/L	0.1000	0.0127	N	1.9999	N	2.0000
0006	CADMIUM	LT	mg/L	0.0010	0.0001	N	0.0049	N	0.0050
0007	CHROMIUM	EQ	mg/L	0.0070	0.0009	N	0.0999	N	0.1000
0011	MERCURY	LT	mg/L	0.0002	0.0002	N	0.0019	N	0.0020
0012	SELENIUM	EQ	mg/L	0.0020	0.0021	N	0.0499	N	0.0500
0110	BERYLLIUM	LT	mg/L	0.0003	0.0001	N	0.0039	N	0.0040
0111	NICKEL	LT	mg/L	0.0050	0.0001	N	0.0999	N	0.1000
0112	ANTIMONY	LT	mg/L	0.0030	0.0001	N	0.0059	N	0.0060
0113	THALLIUM	EQ	mg/L	0.0010	0.0001	N	0.0019	N	0.0020
0116	CYANIDE	LT	mg/L	0.0500	0.0100	N	0.1999	N	0.2000
0019	FLUORIDE	EQ	mg/L	0.2000	0.4700	N	1.9999	N	4.0000
0114	NITRITE-N	LT	mg/L	0.1000	0.0500	N	0.4999	N	1.0000
0020	NITRATE-N	EQ	mg/L	0.5000	2.5600	N	4.9990	N	10.0000
0161	TOTAL NITRATE/NITRITE	EQ	mg/L	0.5000	2.5600	N		N	
0008	IRON	LT	mg/L	0.1000	0.0097	N		N	
0010	MANGANESE	EQ	mg/L	0.0100	0.0002	N		N	
0013	SILVER	LT	mg/L	0.1000	0.0001	N		N	
0021	CHLORIDE	EQ	mg/L	20.0000	9.8300	N		N	
0022	SULFATE	EQ	mg/L	50.0000	29.7000	N		N	
0024	ZINC	EQ	mg/L	0.2000	0.0014	N		N	
0014	SODIUM	EQ	mg/L	5.0000	15.9000	N		N	
0015	HARDNESS	EQ	mg/L	10.0000	140.0000	N		N	
0016	CONDUCTIVITY	EQ	Umhos/c	70.0000	352.0000	N		N	
0017	TURBIDITY	LT	NTU	0.1000	0.1000	N		N	
0018	COLOR	LT	CU	15.0000	4.0000	N		N	
0026	TDS-TOTAL DISSOLVED	EQ	mg/L	100.0000	202.0000	N		N	
0009	LEAD	EQ	mg/L	0.0010	0.0002	N	9999.0000	N	
0023	COPPER	EQ	mg/L	0.0200	0.0030	N	9999.0000	N	
0171	ORTHOPHOSPHATE	NA	mg/L	0.1000		N		N	
0172	SILICA	NA	mg/L	1.0000		N		N	
0402	ALUMINUM	NA	mg/L	0.0500		N		N	
0403	ALKALINITY-LAB	NA	mg/L	5.0000		N		N	
0404	MAGNESIUM	EQ	mg/L	0.1000	12.8000	N		N	
0405	CALCIUM	EQ	mg/L	0.0500	35.1000	N		N	
0406	AMMONIA	NA	mg/L	1.0000		N		N	
0407	CHLORINE DIOXIDE	NA	mg/L	0.8000		N		N	
0408	OZONE	NA	mg/L	0.2000		N		N	
0409	PH	NA	PH			N		N	
0410	CHLORAMINES	NA	mg/L			N		N	
0099	INACTIVATION RATIO	NA	None			N		N	

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0100	RESIDUAL CHLORINE	NA	mg/L	0.2000	N		N	
0115	ASBESTOS	NA	MFL	0.2000	N	6.9990	N	7.0000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Detail - NIT

Source 01 Source Status - Act Source Type - Well

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
151 04401	05/02/2022	0020	NITRATE-N	EQ	mg/L	0.50000	7.60000	Y	4.99900	N	10.00000
151 08141	05/03/2021	0020	NITRATE-N	EQ	mg/L	0.50000	7.25000	Y	4.99900	N	10.00000
151 08286	05/04/2020	0020	NITRATE-N	EQ	mg/L	0.50000	7.44000	Y	4.99900	N	10.00000
105 11853	05/14/2019	0020	NITRATE-N	EQ	mg/L	0.50000	7.32000	Y	4.99900	N	10.00000
151 11614	05/13/2019	0020	NITRATE-N	EQ	mg/L	0.50000	7.32000	Y	4.99900	N	10.00000
151 12417	05/21/2018	0020	NITRATE-N	EQ	mg/L	0.50000	7.43000	Y	4.99900	N	10.00000
151 10880	05/15/2017	0020	NITRATE-N	EQ	mg/L	0.50000	7.60000	Y	4.99900	N	10.00000
151 14782	06/06/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.70000	Y	4.99900	N	10.00000
151 06054	03/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.60000	Y	4.99900	N	10.00000
151 30876	10/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.50000	Y	4.99900	N	10.00000
105 19365	07/06/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.51000	Y	4.99900	N	10.00000
151 14548	06/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.26000	Y	4.99900	N	10.00000
151 13213	06/11/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.52000	Y	4.99900	N	10.00000
105 06445	04/08/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.98000	Y	4.99900	N	10.00000

Source 02 Source Status - Act Source Type - Well

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
151 17901	04/12/2022	0020	NITRATE-N	EQ	mg/L	0.50000	5.36000	Y	4.99900	N	10.00000
151 05984	04/05/2021	0020	NITRATE-N	EQ	mg/L	0.50000	5.09000	Y	4.99900	N	10.00000
151 07035	04/13/2020	0020	NITRATE-N	EQ	mg/L	0.50000	5.51000	Y	4.99900	N	10.00000
151 09462	04/22/2019	0020	NITRATE-N	EQ	mg/L	0.50000	5.22000	Y	4.99900	N	10.00000
105 07254	04/03/2018	0020	NITRATE-N	EQ	mg/L	0.50000	5.46000	Y	4.99900	N	10.00000
151 07112	04/02/2018	0020	NITRATE-N	EQ	mg/L	0.50000	5.66000	Y	4.99900	N	10.00000
151 08740	04/25/2017	0020	NITRATE-N	EQ	mg/L	0.50000	5.10000	Y	4.99900	N	10.00000
151 14994	06/06/2016	0020	NITRATE-N	EQ	mg/L	0.50000	5.30000	Y	4.99900	N	10.00000
151 14549	06/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	4.98000	N	4.99900	N	10.00000
151 13214	06/11/2014	0020	NITRATE-N	EQ	mg/L	0.50000	4.91000	N	4.99900	N	10.00000
105 08679	05/06/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.40000	N	4.99900	N	10.00000

Source 03 Source Status - Act Source Type - Well

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
151 31201	07/18/2022	0020	NITRATE-N	EQ	mg/L	0.50000	4.94000	N	4.99900	N	10.00000
151 08142	05/03/2021	0020	NITRATE-N	EQ	mg/L	0.50000	4.55000	N	4.99900	N	10.00000
151 08283	05/04/2020	0020	NITRATE-N	EQ	mg/L	0.50000	4.92000	N	4.99900	N	10.00000
151 11615	05/13/2019	0020	NITRATE-N	EQ	mg/L	0.50000	4.64000	N	4.99900	N	10.00000
105 09619	04/23/2019	0020	NITRATE-N	EQ	mg/L	0.50000	4.65000	N	4.99900	N	10.00000
151 12418	05/21/2018	0020	NITRATE-N	EQ	mg/L	0.50000	4.83000	N	4.99900	N	10.00000
151 10881	05/15/2017	0020	NITRATE-N	EQ	mg/L	0.50000	4.55000	N	4.99900	N	10.00000
151 14783	06/06/2016	0020	NITRATE-N	EQ	mg/L	0.50000	4.70000	N	4.99900	N	10.00000

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151 14550	06/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	4.47000	N	4.99900	N	10.00000
151 13215	06/11/2014	0020	NITRATE-N	EQ	mg/L	0.50000	4.56000	N	4.99900	N	10.00000
105 08681	05/06/2013	0020	NITRATE-N	EQ	mg/L	0.50000	4.87000	N	4.99900	N	10.00000

Source 07 **Source Status - Act** **Source Type - Well**

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
062 00041	01/10/2020	0020	NITRATE-N	EQ	mg/L	0.50000	4.90000	N	4.99900	N	10.00000
062 00042	01/10/2020	0020	NITRATE-N	EQ	mg/L	0.50000	5.00000	Y	4.99900	N	10.00000
151 00205	01/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	10.70000	Y	4.99900	1	10.00000
151 00210	01/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	10.30000	Y	4.99900	1	10.00000
151 35148	11/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.74000	Y	4.99900	N	10.00000
151 35153	11/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.28000	Y	4.99900	N	10.00000
151 32392	10/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.88000	Y	4.99900	N	10.00000
151 32397	10/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.95000	Y	4.99900	N	10.00000
151 30387	09/10/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.72000	Y	4.99900	N	10.00000
151 30388	09/10/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.28000	Y	4.99900	N	10.00000
151 25867	08/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.47000	N	4.99900	N	10.00000
151 25872	08/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.05000	Y	4.99900	N	10.00000
151 19786	07/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.30000	Y	4.99900	N	10.00000
151 19791	07/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.60000	Y	4.99900	N	10.00000
151 14123	06/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.86000	Y	4.99900	N	10.00000
151 14128	06/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.38000	Y	4.99900	N	10.00000
151 10854	05/06/2019	0020	NITRATE-N	EQ	mg/L	0.50000	10.00000	Y	4.99900	N	10.00000
151 10859	05/06/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.08000	Y	4.99900	N	10.00000
151 07251	04/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.66000	Y	4.99900	N	10.00000
151 07255	04/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.32000	Y	4.99900	N	10.00000
151 04768	03/04/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.88000	Y	4.99900	N	10.00000
151 04772	03/04/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.14000	Y	4.99900	N	10.00000
151 03129	02/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.76000	Y	4.99900	N	10.00000
151 03134	02/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.26000	Y	4.99900	N	10.00000
151 00456	01/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.60000	Y	4.99900	N	10.00000
151 00460	01/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.32000	Y	4.99900	N	10.00000
151 38739	12/17/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 38740	12/17/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.34000	Y	4.99900	N	10.00000
151 34940	11/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 34945	11/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 31618	10/01/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 31623	10/01/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.10000	Y	4.99900	N	10.00000
151 27964	09/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000
151 27966	09/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 23896	08/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.56000	Y	4.99900	N	10.00000
151 23900	08/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.04000	Y	4.99900	N	10.00000
151 19936	07/09/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 19940	07/09/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.70000	Y	4.99900	N	10.00000
151 14307	06/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.40000	Y	4.99900	N	10.00000
151 14312	06/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.11000	Y	4.99900	N	10.00000
151 10575	05/07/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.88000	Y	4.99900	N	10.00000
151 10579	05/07/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.53000	Y	4.99900	N	10.00000
151 07113	04/02/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.53000	Y	4.99900	N	10.00000
151 07117	04/02/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.87000	Y	4.99900	N	10.00000
151 04843	03/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.71000	Y	4.99900	N	10.00000
151 04845	03/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.44000	Y	4.99900	N	10.00000
151 02392	02/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.29000	Y	4.99900	N	10.00000
151 02396	02/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000
151 00492	01/08/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000

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151 00494	01/08/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.40000	Y	4.99900	N	10.00000
151 35755	12/04/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 35758	12/04/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 33601	11/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.90000	Y	4.99900	N	10.00000
151 33602	11/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.20000	Y	4.99900	N	10.00000
151 30171	10/02/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.90000	Y	4.99900	N	10.00000
151 30175	10/02/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 27354	09/11/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.40000	Y	4.99900	N	10.00000
151 27356	09/11/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.80000	Y	4.99900	N	10.00000
151 22657	08/07/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 22660	08/07/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.60000	Y	4.99900	N	10.00000
151 18878	07/10/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 18880	07/10/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 16029	06/19/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.90000	Y	4.99900	N	10.00000
151 16033	06/19/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.10000	Y	4.99900	N	10.00000
151 10884	05/15/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.20000	Y	4.99900	N	10.00000
151 10886	05/15/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 08590	04/24/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.90000	Y	4.99900	N	10.00000
151 08592	04/24/2017	0020	NITRATE-N	EQ	mg/L	0.50000	7.80000	Y	4.99900	N	10.00000
151 04277	03/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 04278	03/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.30000	Y	4.99900	N	10.00000
151 02287	02/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.50000	Y	4.99900	N	10.00000
151 02291	02/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 00521	01/09/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 00523	01/09/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.50000	Y	4.99900	N	10.00000
151 35317	12/05/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.70000	Y	4.99900	N	10.00000
151 35321	12/05/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.50000	Y	4.99900	N	10.00000
151 34095	11/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.95000	Y	4.99900	N	10.00000
151 34097	11/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 30111	10/03/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.05000	Y	4.99900	N	10.00000
151 30113	10/03/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.15000	Y	4.99900	N	10.00000
151 29146	09/26/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.00000	Y	4.99900	N	10.00000
105 27335	09/12/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 21641	08/01/2016	0020	NITRATE-N	EQ	mg/L	0.50000	6.95000	Y	4.99900	N	10.00000
151 21643	08/01/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.15000	Y	4.99900	N	10.00000
151 19129	07/11/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.00000	Y	4.99900	N	10.00000
151 19132	07/11/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 14997	06/06/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 14998	06/06/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 07736	04/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.20000	Y	4.99900	N	10.00000
151 07737	04/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.80000	Y	4.99900	N	10.00000
151 06049	03/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.70000	Y	4.99900	N	10.00000
151 06051	03/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 02906	02/08/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.50000	Y	4.99900	N	10.00000
151 02909	02/08/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.90000	Y	4.99900	N	10.00000
151 00032	01/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.72000	Y	4.99900	N	10.00000
151 00033	01/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.96000	Y	4.99900	N	10.00000
151 36570	12/07/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.42000	Y	4.99900	N	10.00000
151 36571	12/07/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.84000	Y	4.99900	N	10.00000
151 30873	10/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.18000	Y	4.99900	N	10.00000
151 30877	10/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	6.84000	Y	4.99900	N	10.00000
151 26336	09/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.94000	Y	4.99900	N	10.00000
151 26350	09/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	6.96000	Y	4.99900	N	10.00000
151 22485	08/03/2015	0020	NITRATE-N	EQ	mg/L	0.50000	6.96000	Y	4.99900	N	10.00000
151 22488	08/03/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.82000	Y	4.99900	N	10.00000
105 19364	07/06/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.62000	Y	4.99900	N	10.00000
105 19367	07/06/2015	0020	NITRATE-N	EQ	mg/L	0.50000	6.78000	Y	4.99900	N	10.00000

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151 14551	06/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.14000	Y	4.99900	N	10.00000
151 14554	06/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.14000	Y	4.99900	N	10.00000
151 10808	05/04/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.84000	Y	4.99900	N	10.00000
151 10811	05/04/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.84000	Y	4.99900	N	10.00000
151 07937	04/06/2015	0020	NITRATE-N	EQ	mg/L	0.50000	9.60000	Y	4.99900	N	10.00000
151 07939	04/06/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.90000	Y	4.99900	N	10.00000
151 04420	03/02/2015	0020	NITRATE-N	EQ	mg/L	0.50000	9.90000	Y	4.99900	N	10.00000
151 04422	03/02/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 02159	02/02/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.22000	Y	4.99900	N	10.00000
151 02160	02/02/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.78000	Y	4.99900	N	10.00000
151 00052	01/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000
151 00054	01/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.08000	Y	4.99900	N	10.00000
151 30452	12/01/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.42000	Y	4.99900	N	10.00000
151 30453	12/01/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.34000	Y	4.99900	N	10.00000
151 28572	11/03/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.42000	Y	4.99900	N	10.00000
151 28575	11/03/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.95000	Y	4.99900	N	10.00000
151 26145	10/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.05000	Y	4.99900	N	10.00000
151 26148	10/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.15000	Y	4.99900	N	10.00000
151 22211	09/02/2014	0020	NITRATE-N	EQ	mg/L	0.50000	6.82000	Y	4.99900	N	10.00000
151 22214	09/02/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.71000	Y	4.99900	N	10.00000
151 18873	08/04/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.14000	Y	4.99900	N	10.00000
151 18874	08/04/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.04000	Y	4.99900	N	10.00000
151 16086	07/08/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.22000	Y	4.99900	N	10.00000
151 16088	07/08/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.32000	Y	4.99900	N	10.00000
151 11761	06/02/2014	0020	NITRATE-N	EQ	mg/L	0.50000	6.98000	Y	4.99900	N	10.00000
151 11762	06/02/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.02000	Y	4.99900	N	10.00000
151 08701	05/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.30000	Y	4.99900	N	10.00000
151 08702	05/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	0.64000	N	4.99900	N	10.00000
151 05996	04/01/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.72000	Y	4.99900	N	10.00000
151 05997	04/01/2014	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 03838	03/03/2014	0020	NITRATE-N	EQ	mg/L	0.50000	6.68000	Y	4.99900	N	10.00000
151 03840	03/03/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.26000	Y	4.99900	N	10.00000
151 02267	02/10/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.15000	Y	4.99900	N	10.00000
151 02268	02/10/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.94000	Y	4.99900	N	10.00000
151 00109	01/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	6.62000	Y	4.99900	N	10.00000
151 00110	01/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 28489	12/02/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.04000	Y	4.99900	N	10.00000
151 28491	12/02/2013	0020	NITRATE-N	EQ	mg/L	0.50000	8.28000	Y	4.99900	N	10.00000
151 26715	11/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	6.40000	Y	4.99900	N	10.00000
151 26716	11/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.96000	Y	4.99900	N	10.00000
151 24038	10/01/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.58000	Y	4.99900	N	10.00000
151 24041	10/01/2013	0020	NITRATE-N	EQ	mg/L	0.50000	6.88000	Y	4.99900	N	10.00000
151 20826	09/03/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.66000	Y	4.99900	N	10.00000
151 20828	09/03/2013	0020	NITRATE-N	EQ	mg/L	0.50000	6.90000	Y	4.99900	N	10.00000
151 17893	08/05/2013	0020	NITRATE-N	EQ	mg/L	0.50000	6.96000	Y	4.99900	N	10.00000
151 17896	08/05/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.80000	Y	4.99900	N	10.00000
151 14259	07/01/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.82000	Y	4.99900	N	10.00000
151 14260	07/01/2013	0020	NITRATE-N	EQ	mg/L	0.50000	6.94000	Y	4.99900	N	10.00000
105 11288	06/03/2013	0020	NITRATE-N	EQ	mg/L	0.50000	8.57000	Y	4.99900	N	10.00000
105 11289	06/03/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.57000	Y	4.99900	N	10.00000
105 08682	05/06/2013	0020	NITRATE-N	EQ	mg/L	0.50000	8.81000	Y	4.99900	N	10.00000
105 08684	05/06/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.51000	Y	4.99900	N	10.00000
105 06073	04/02/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.50000	Y	4.99900	N	10.00000
105 06074	04/02/2013	0020	NITRATE-N	EQ	mg/L	0.50000	9.09000	Y	4.99900	N	10.00000
151 04787	03/18/2013	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 04789	03/18/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.92000	Y	4.99900	N	10.00000
105 02119	02/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	9.19000	Y	4.99900	N	10.00000

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105 02120	02/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.93000	Y	4.99900	N	10.00000
105 00464	01/07/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.12000	Y	4.99900	N	10.00000
105 00465	01/07/2013	0020	NITRATE-N	EQ	mg/L	0.50000	8.24000	Y	4.99900	N	10.00000
105 26545	12/03/2012	0020	NITRATE-N	EQ	mg/L	0.50000	6.93000	Y	4.99900	N	10.00000
105 26546	12/03/2012	0020	NITRATE-N	EQ	mg/L	0.50000	8.17000	Y	4.99900	N	10.00000
105 24772	11/05/2012	0020	NITRATE-N	EQ	mg/L	0.50000	6.45000	Y	4.99900	N	10.00000
105 24774	11/05/2012	0020	NITRATE-N	EQ	mg/L	0.50000	7.48000	Y	4.99900	N	10.00000
105 22264	10/02/2012	0020	NITRATE-N	EQ	mg/L	0.50000	7.75000	Y	4.99900	N	10.00000
105 22265	10/02/2012	0020	NITRATE-N	EQ	mg/L	0.50000	6.75000	Y	4.99900	N	10.00000

Source 10 **Source Status - Act** **Source Type - Well**

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
105 08901	09/07/2022	0020	NITRATE-N	EQ	mg/L	0.50000	0.30900	N	4.99900	N	10.00000
151 12301	08/08/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 05801	07/05/2022	0020	NITRATE-N	EQ	mg/L	0.50000	2.72000	N	4.99900	N	10.00000
151 05901	07/05/2022	0020	NITRATE-N	EQ	mg/L	0.50000	10.00000	Y	4.99900	N	10.00000
151 05601	06/06/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 05901	06/06/2022	0020	NITRATE-N	EQ	mg/L	0.50000	2.17000	N	4.99900	N	10.00000
151 04601	05/02/2022	0020	NITRATE-N	EQ	mg/L	0.50000	2.64000	N	4.99900	N	10.00000
151 04701	05/02/2022	0020	NITRATE-N	EQ	mg/L	0.50000	0.69000	N	4.99900	N	10.00000
151 02001	04/04/2022	0020	NITRATE-N	EQ	mg/L	0.50000	0.12000	N	4.99900	N	10.00000
151 02101	04/04/2022	0020	NITRATE-N	EQ	mg/L	0.50000	8.70000	Y	4.99900	N	10.00000
151 02101	03/01/2022	0020	NITRATE-N	EQ	mg/L	0.50000	9.23000	Y	4.99900	N	10.00000
151 02105	03/01/2022	0020	NITRATE-N	EQ	mg/L	0.50000	2.31000	N	4.99900	N	10.00000
151 00701	02/01/2022	0020	NITRATE-N	EQ	mg/L	0.50000	9.54000	Y	4.99900	N	10.00000
151 00703	02/01/2022	0020	NITRATE-N	EQ	mg/L	0.50000	1.98000	N	4.99900	N	10.00000
151 00041	01/04/2022	0020	NITRATE-N	EQ	mg/L	0.50000	9.05000	Y	4.99900	N	10.00000
151 00043	01/04/2022	0020	NITRATE-N	EQ	mg/L	0.50000	2.39000	N	4.99900	N	10.00000
151 24730	12/06/2021	0020	NITRATE-N	EQ	mg/L	0.50000	1.93000	N	4.99900	N	10.00000
151 24733	12/06/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.32000	N	4.99900	N	10.00000
151 24295	11/30/2021	0020	NITRATE-N	EQ	mg/L	0.50000	1.60000	N	4.99900	N	10.00000
151 23024	11/08/2021	0020	NITRATE-N	EQ	mg/L	0.50000	9.15000	Y	4.99900	N	10.00000
151 20356	10/04/2021	0020	NITRATE-N	EQ	mg/L	0.50000	9.05000	Y	4.99900	N	10.00000
151 18728	09/13/2021	0020	NITRATE-N	EQ	mg/L	0.50000	9.15000	Y	4.99900	N	10.00000
151 18729	09/13/2021	0020	NITRATE-N	EQ	mg/L	0.50000	9.05000	Y	4.99900	N	10.00000
151 13057	07/06/2021	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 13060	07/06/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.85000	N	4.99900	N	10.00000
151 10776	06/07/2021	0020	NITRATE-N	EQ	mg/L	0.50000	3.78000	N	4.99900	N	10.00000
151 10780	06/07/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.58000	N	4.99900	N	10.00000
151 08143	05/03/2021	0020	NITRATE-N	EQ	mg/L	0.50000	8.70000	Y	4.99900	N	10.00000
151 08145	05/03/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.55000	N	4.99900	N	10.00000
151 05986	04/05/2021	0020	NITRATE-N	EQ	mg/L	0.50000	8.20000	Y	4.99900	N	10.00000
151 05987	04/05/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.85000	N	4.99900	N	10.00000
151 03673	03/01/2021	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 03674	03/01/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.32000	N	4.99900	N	10.00000
151 01854	02/01/2021	0020	NITRATE-N	EQ	mg/L	0.50000	8.36000	Y	4.99900	N	10.00000
151 01856	02/01/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.74000	N	4.99900	N	10.00000
151 00020	01/04/2021	0020	NITRATE-N	EQ	mg/L	0.50000	8.95000	Y	4.99900	N	10.00000
151 00022	01/04/2021	0020	NITRATE-N	EQ	mg/L	0.50000	3.06000	N	4.99900	N	10.00000
151 25363	12/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.90000	Y	4.99900	N	10.00000
151 25365	12/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.10000	Y	4.99900	N	10.00000
151 24070	11/09/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.35000	Y	4.99900	N	10.00000
151 24071	11/09/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.58000	N	4.99900	N	10.00000
151 22015	10/12/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.96000	Y	4.99900	N	10.00000
151 22017	10/12/2020	0020	NITRATE-N	EQ	mg/L	0.50000	1.99000	N	4.99900	N	10.00000

151 18418	09/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 18421	09/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.94000	N	4.99900	N	10.00000
151 15677	08/03/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.15000	Y	4.99900	N	10.00000
151 15679	08/03/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.61000	N	4.99900	N	10.00000
151 14155	07/14/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.78000	N	4.99900	N	10.00000
151 13240	07/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.90000	Y	4.99900	N	10.00000
151 10400	06/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 10402	06/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.79000	N	4.99900	N	10.00000
151 08285	05/04/2020	0020	NITRATE-N	EQ	mg/L	0.50000	9.04000	Y	4.99900	N	10.00000
151 08287	05/04/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.69000	N	4.99900	N	10.00000
151 06365	04/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.70000	Y	4.99900	N	10.00000
151 06368	04/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.67000	N	4.99900	N	10.00000
151 04005	03/02/2020	0020	NITRATE-N	EQ	mg/L	0.50000	1.81000	N	4.99900	N	10.00000
151 04007	03/02/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.64000	N	4.99900	N	10.00000
151 01937	02/03/2020	0020	NITRATE-N	EQ	mg/L	0.50000	9.08000	Y	4.99900	N	10.00000
151 01939	02/03/2020	0020	NITRATE-N	EQ	mg/L	0.50000	1.05000	N	4.99900	N	10.00000
151 00207	01/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	9.08000	Y	4.99900	N	10.00000
151 00209	01/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.76000	N	4.99900	N	10.00000
151 35150	11/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 35152	11/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.75000	N	4.99900	N	10.00000
151 32394	10/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.75000	Y	4.99900	N	10.00000
151 32396	10/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.86000	N	4.99900	N	10.00000
151 30386	09/10/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.32000	Y	4.99900	N	10.00000
151 29590	09/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.76000	N	4.99900	N	10.00000
151 25869	08/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	10.20000	Y	4.99900	1	10.00000
151 25871	08/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.66000	N	4.99900	N	10.00000
151 19788	07/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	10.10000	Y	4.99900	1	10.00000
151 19790	07/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.63000	N	4.99900	N	10.00000
151 14125	06/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.74000	Y	4.99900	N	10.00000
151 14127	06/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.44000	N	4.99900	N	10.00000
151 10857	05/06/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 10858	05/06/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.42000	N	4.99900	N	10.00000
151 07252	04/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.44000	Y	4.99900	N	10.00000
151 07256	04/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	3.86000	N	4.99900	N	10.00000
151 04770	03/04/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.86000	Y	4.99900	N	10.00000
151 04773	03/04/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.41000	N	4.99900	N	10.00000
151 03131	02/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.76000	Y	4.99900	N	10.00000
151 03133	02/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.49000	N	4.99900	N	10.00000
151 00458	01/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.48000	Y	4.99900	N	10.00000
151 00461	01/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.50000	N	4.99900	N	10.00000
151 37287	12/03/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.60000	Y	4.99900	N	10.00000
151 37292	12/03/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.47000	N	4.99900	N	10.00000
151 34941	11/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000
151 34944	11/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.46000	N	4.99900	N	10.00000
151 31621	10/01/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 31622	10/01/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.38000	N	4.99900	N	10.00000
151 27962	09/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.60000	Y	4.99900	N	10.00000
151 27967	09/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.50000	N	4.99900	N	10.00000
151 23898	08/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.88000	Y	4.99900	N	10.00000
151 23901	08/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.60000	N	4.99900	N	10.00000
151 19939	07/09/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.60000	Y	4.99900	N	10.00000
151 19941	07/09/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.40000	N	4.99900	N	10.00000
151 14308	06/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.55000	Y	4.99900	N	10.00000
151 14311	06/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.32000	N	4.99900	N	10.00000
151 10576	05/07/2018	0020	NITRATE-N	EQ	mg/L	0.50000	7.78000	Y	4.99900	N	10.00000
151 10580	05/07/2018	0020	NITRATE-N	EQ	mg/L	0.50000	0.47000	N	4.99900	N	10.00000
151 07114	04/02/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.37000	Y	4.99900	N	10.00000

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151 07118	04/02/2018	0020	NITRATE-N	EQ	mg/L	0.50000	7.32000	Y	4.99900	N	10.00000
151 04711	03/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.26000	Y	4.99900	N	10.00000
151 04713	03/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	5.46000	Y	4.99900	N	10.00000
151 02393	02/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.03000	Y	4.99900	N	10.00000
151 02397	02/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	6.13000	Y	4.99900	N	10.00000
151 00493	01/08/2018	0020	NITRATE-N	EQ	mg/L	0.50000	5.13000	Y	4.99900	N	10.00000
151 00495	01/08/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 35754	12/04/2017	0020	NITRATE-N	EQ	mg/L	0.50000	1.19000	N	4.99900	N	10.00000
151 35756	12/04/2017	0020	NITRATE-N	EQ	mg/L	0.50000	7.80000	Y	4.99900	N	10.00000
151 33600	11/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	5.25000	Y	4.99900	N	10.00000
151 33603	11/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.90000	Y	4.99900	N	10.00000
151 30172	10/02/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.90000	Y	4.99900	N	10.00000
151 30176	10/02/2017	0020	NITRATE-N	EQ	mg/L	0.50000	4.10000	N	4.99900	N	10.00000
151 27351	09/11/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.25000	Y	4.99900	N	10.00000
151 27355	09/11/2017	0020	NITRATE-N	EQ	mg/L	0.50000	3.74000	N	4.99900	N	10.00000
151 22658	08/07/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 22661	08/07/2017	0020	NITRATE-N	EQ	mg/L	0.50000	3.99000	N	4.99900	N	10.00000
151 18879	07/10/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.83000	N	4.99900	N	10.00000
151 18881	07/10/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 16030	06/19/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.70000	Y	4.99900	N	10.00000
151 16034	06/19/2017	0020	NITRATE-N	EQ	mg/L	0.50000	4.27000	N	4.99900	N	10.00000
151 10882	05/15/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.20000	Y	4.99900	N	10.00000
151 10887	05/15/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.35000	N	4.99900	N	10.00000
151 08591	04/24/2017	0020	NITRATE-N	EQ	mg/L	0.50000	7.80000	Y	4.99900	N	10.00000
151 08593	04/24/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.06000	N	4.99900	N	10.00000
151 06403	03/29/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 06404	03/29/2017	0020	NITRATE-N	EQ	mg/L	0.50000	7.80000	Y	4.99900	N	10.00000
151 02288	02/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000
151 02292	02/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.30000	Y	4.99900	N	10.00000
151 00520	01/09/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000
151 00524	01/09/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 35318	12/05/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.70000	Y	4.99900	N	10.00000
151 35322	12/05/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.20000	Y	4.99900	N	10.00000
151 34096	11/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.85000	Y	4.99900	N	10.00000
151 34098	11/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.30000	Y	4.99900	N	10.00000
151 30112	10/03/2016	0020	NITRATE-N	EQ	mg/L	0.50000	4.03000	N	4.99900	N	10.00000
151 30115	10/03/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 29145	09/26/2016	0020	NITRATE-N	EQ	mg/L	0.50000	5.84000	Y	4.99900	N	10.00000
105 27336	09/12/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 21640	08/01/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 21645	08/01/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.05000	Y	4.99900	N	10.00000
151 19128	07/11/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 19130	07/11/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 14995	06/06/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 14999	06/06/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.20000	Y	4.99900	N	10.00000
151 07734	04/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 07738	04/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 06050	03/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.10000	Y	4.99900	N	10.00000
151 06055	03/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 02913	02/08/2016	0020	NITRATE-N	EQ	mg/L	0.50000	6.12000	Y	4.99900	N	10.00000
151 02914	02/08/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 00036	01/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 00037	01/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	6.64000	Y	4.99900	N	10.00000
151 36572	12/07/2015	0020	NITRATE-N	EQ	mg/L	0.50000	9.10000	Y	4.99900	N	10.00000
151 36575	12/07/2015	0020	NITRATE-N	EQ	mg/L	0.50000	6.20000	Y	4.99900	N	10.00000
151 30872	10/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	5.00000	Y	4.99900	N	10.00000
151 30874	10/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.84000	Y	4.99900	N	10.00000

151 26338	09/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	9.17000	Y	4.99900	N	10.00000
151 22487	08/03/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.96000	Y	4.99900	N	10.00000
151 14552	06/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.66000	Y	4.99900	N	10.00000
151 10810	05/04/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.94000	Y	4.99900	N	10.00000
151 07936	04/06/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.84000	Y	4.99900	N	10.00000
151 04419	03/02/2015	0020	NITRATE-N	EQ	mg/L	0.50000	9.05000	Y	4.99900	N	10.00000
151 02162	02/02/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.74000	Y	4.99900	N	10.00000
151 00051	01/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	9.20000	Y	4.99900	N	10.00000
151 30455	12/01/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.16000	Y	4.99900	N	10.00000
151 28574	11/03/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000
151 26147	10/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	9.25000	Y	4.99900	N	10.00000
151 22213	09/02/2014	0020	NITRATE-N	EQ	mg/L	0.50000	9.03000	Y	4.99900	N	10.00000
151 18875	08/04/2014	0020	NITRATE-N	EQ	mg/L	0.50000	9.26000	Y	4.99900	N	10.00000
151 16087	07/08/2014	0020	NITRATE-N	EQ	mg/L	0.50000	9.44000	Y	4.99900	N	10.00000
151 11764	06/02/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.58000	Y	4.99900	N	10.00000
151 08704	05/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.44000	Y	4.99900	N	10.00000
151 05999	04/01/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.94000	Y	4.99900	N	10.00000
151 03839	03/03/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.44000	Y	4.99900	N	10.00000
151 02270	02/10/2014	0020	NITRATE-N	EQ	mg/L	0.50000	9.18000	Y	4.99900	N	10.00000
151 00112	01/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.88000	Y	4.99900	N	10.00000
151 28490	12/02/2013	0020	NITRATE-N	EQ	mg/L	0.50000	8.86000	Y	4.99900	N	10.00000
151 26717	11/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	8.86000	Y	4.99900	N	10.00000
151 24040	10/01/2013	0020	NITRATE-N	EQ	mg/L	0.50000	8.92000	Y	4.99900	N	10.00000
151 20825	09/03/2013	0020	NITRATE-N	EQ	mg/L	0.50000	8.92000	Y	4.99900	N	10.00000
151 17895	08/05/2013	0020	NITRATE-N	EQ	mg/L	0.50000	9.24000	Y	4.99900	N	10.00000
151 14258	07/01/2013	0020	NITRATE-N	EQ	mg/L	0.50000	9.04000	Y	4.99900	N	10.00000
105 11290	06/03/2013	0020	NITRATE-N	EQ	mg/L	0.50000	9.34000	Y	4.99900	N	10.00000
105 08680	05/06/2013	0020	NITRATE-N	EQ	mg/L	0.50000	9.05000	Y	4.99900	N	10.00000
105 06075	04/02/2013	0020	NITRATE-N	EQ	mg/L	0.50000	9.08000	Y	4.99900	N	10.00000
105 03893	03/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	9.09000	Y	4.99900	N	10.00000
105 02122	02/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	9.80000	Y	4.99900	N	10.00000
105 00466	01/07/2013	0020	NITRATE-N	EQ	mg/L	0.50000	8.87000	Y	4.99900	N	10.00000
105 26544	12/03/2012	0020	NITRATE-N	EQ	mg/L	0.50000	9.01000	Y	4.99900	N	10.00000
105 24771	11/05/2012	0020	NITRATE-N	EQ	mg/L	0.50000	8.56000	Y	4.99900	N	10.00000
105 22266	10/02/2012	0020	NITRATE-N	EQ	mg/L	0.50000	9.11000	Y	4.99900	N	10.00000

Source 11 **Source Status - Act** **Source Type - Well**

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
151 05601	07/05/2022	0020	NITRATE-N	EQ	mg/L	0.50000	8.58000	Y	4.99900	N	10.00000
151 02201	04/04/2022	0020	NITRATE-N	EQ	mg/L	0.50000	8.15000	Y	4.99900	N	10.00000
151 31401	03/21/2022	0020	NITRATE-N	EQ	mg/L	0.50000	8.46000	Y	4.99900	N	10.00000
151 02102	03/01/2022	0020	NITRATE-N	EQ	mg/L	0.50000	8.06000	Y	4.99900	N	10.00000
151 20357	10/04/2021	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 13058	07/06/2021	0020	NITRATE-N	EQ	mg/L	0.50000	8.45000	Y	4.99900	N	10.00000
151 06780	04/13/2021	0020	NITRATE-N	EQ	mg/L	0.50000	8.15000	Y	4.99900	N	10.00000
151 03670	03/01/2021	0020	NITRATE-N	EQ	mg/L	0.50000	7.96000	Y	4.99900	N	10.00000
151 21253	10/05/2020	0020	NITRATE-N	EQ	mg/L	0.50000	7.85000	Y	4.99900	N	10.00000
151 14155	07/14/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.78000	N	4.99900	N	10.00000
151 13241	07/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 06367	04/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	7.90000	Y	4.99900	N	10.00000
151 05178	03/17/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.14000	Y	4.99900	N	10.00000
151 06084	03/19/2019	0020	NITRATE-N	EQ	mg/L	0.50000	7.90000	Y	4.99900	N	10.00000
151 05908	03/19/2018	0020	NITRATE-N	EQ	mg/L	0.50000	5.24000	Y	4.99900	N	10.00000
151 37370	12/21/2017	0020	NITRATE-N	EQ	mg/L	0.50000	7.80000	Y	4.99900	N	10.00000
105 07710	04/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.70000	Y	4.99900	N	10.00000

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151 06053	03/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.60000	Y	4.99900	N	10.00000
151 15646	06/08/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.38000	Y	4.99900	N	10.00000
151 13216	06/11/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.80000	Y	4.99900	N	10.00000
105 06444	04/08/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.63000	Y	4.99900	N	10.00000

Source 13 **Source Status - Act** **Source Type - Well**

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
105 08801	09/07/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.07000	N	4.99900	N	10.00000
105 08901	09/07/2022	0020	NITRATE-N	EQ	mg/L	0.50000	0.30900	N	4.99900	N	10.00000
151 12301	08/08/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 12401	08/08/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 05701	07/05/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 05901	07/05/2022	0020	NITRATE-N	EQ	mg/L	0.50000	10.00000	Y	4.99900	N	10.00000
151 05701	06/06/2022	0020	NITRATE-N	EQ	mg/L	0.50000	8.65000	Y	4.99900	N	10.00000
151 05901	06/06/2022	0020	NITRATE-N	EQ	mg/L	0.50000	2.17000	N	4.99900	N	10.00000
151 04501	05/02/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 04701	05/02/2022	0020	NITRATE-N	EQ	mg/L	0.50000	0.69000	N	4.99900	N	10.00000
151 02001	04/04/2022	0020	NITRATE-N	EQ	mg/L	0.50000	0.12000	N	4.99900	N	10.00000
151 02301	04/04/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 02103	03/01/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 02105	03/01/2022	0020	NITRATE-N	EQ	mg/L	0.50000	2.31000	N	4.99900	N	10.00000
151 00702	02/01/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 00703	02/01/2022	0020	NITRATE-N	EQ	mg/L	0.50000	1.98000	N	4.99900	N	10.00000
151 00042	01/04/2022	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 00043	01/04/2022	0020	NITRATE-N	EQ	mg/L	0.50000	2.39000	N	4.99900	N	10.00000
151 24731	12/06/2021	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 24733	12/06/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.32000	N	4.99900	N	10.00000
151 24294	11/30/2021	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 24295	11/30/2021	0020	NITRATE-N	EQ	mg/L	0.50000	1.60000	N	4.99900	N	10.00000
151 18729	09/13/2021	0020	NITRATE-N	EQ	mg/L	0.50000	9.05000	Y	4.99900	N	10.00000
151 13059	07/06/2021	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 13060	07/06/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.85000	N	4.99900	N	10.00000
151 10777	06/07/2021	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 10780	06/07/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.58000	N	4.99900	N	10.00000
151 08144	05/03/2021	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 08145	05/03/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.55000	N	4.99900	N	10.00000
151 05985	04/05/2021	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 05987	04/05/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.85000	N	4.99900	N	10.00000
151 03671	03/01/2021	0020	NITRATE-N	EQ	mg/L	0.50000	0.12000	N	4.99900	N	10.00000
151 03674	03/01/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.32000	N	4.99900	N	10.00000
151 01855	02/01/2021	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 01856	02/01/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.74000	N	4.99900	N	10.00000
151 00021	01/04/2021	0020	NITRATE-N	EQ	mg/L	0.50000	0.13000	N	4.99900	N	10.00000
151 00022	01/04/2021	0020	NITRATE-N	EQ	mg/L	0.50000	3.06000	N	4.99900	N	10.00000
151 25364	12/01/2020	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 25365	12/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	8.10000	Y	4.99900	N	10.00000
151 24071	11/09/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.58000	N	4.99900	N	10.00000
151 24072	11/09/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.13000	N	4.99900	N	10.00000
151 22016	10/12/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.12000	N	4.99900	N	10.00000
151 22017	10/12/2020	0020	NITRATE-N	EQ	mg/L	0.50000	1.99000	N	4.99900	N	10.00000
151 18419	09/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.12000	N	4.99900	N	10.00000
151 18421	09/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.94000	N	4.99900	N	10.00000
151 15678	08/03/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.12000	N	4.99900	N	10.00000
151 15679	08/03/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.61000	N	4.99900	N	10.00000
151 13242	07/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.13000	N	4.99900	N	10.00000

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151 10401	06/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.10000	N	4.99900	N	10.00000
151 10402	06/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.79000	N	4.99900	N	10.00000
151 08953	05/11/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.12000	N	4.99900	N	10.00000
151 08287	05/04/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.69000	N	4.99900	N	10.00000
151 06366	04/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.13000	N	4.99900	N	10.00000
151 06368	04/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.67000	N	4.99900	N	10.00000
151 04006	03/02/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.14000	N	4.99900	N	10.00000
151 04007	03/02/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.64000	N	4.99900	N	10.00000
151 01938	02/03/2020	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 01939	02/03/2020	0020	NITRATE-N	EQ	mg/L	0.50000	1.05000	N	4.99900	N	10.00000
151 00208	01/06/2020	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 00209	01/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.76000	N	4.99900	N	10.00000
151 35151	11/05/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 35152	11/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.75000	N	4.99900	N	10.00000
151 32395	10/01/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 32396	10/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.86000	N	4.99900	N	10.00000
151 29586	09/03/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 29590	09/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.76000	N	4.99900	N	10.00000
151 25870	08/05/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 25871	08/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.66000	N	4.99900	N	10.00000
151 19789	07/01/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 19790	07/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.63000	N	4.99900	N	10.00000
151 14126	06/03/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 14127	06/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.44000	N	4.99900	N	10.00000
105 11854	05/14/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 10856	05/06/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 10858	05/06/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.42000	N	4.99900	N	10.00000
151 07256	04/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	3.86000	N	4.99900	N	10.00000
151 04771	03/04/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 04772	03/04/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.14000	Y	4.99900	N	10.00000
151 04773	03/04/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.41000	N	4.99900	N	10.00000
151 03132	02/07/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 03133	02/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.49000	N	4.99900	N	10.00000
151 00459	01/07/2019	0020	NITRATE-N	GT	mg/L	0.50000	0.05000	Y	4.99900	N	10.00000
151 00461	01/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.50000	N	4.99900	N	10.00000
151 37288	12/03/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 37292	12/03/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.47000	N	4.99900	N	10.00000
151 34942	11/05/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 34944	11/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.46000	N	4.99900	N	10.00000
151 31620	10/01/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 31622	10/01/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.38000	N	4.99900	N	10.00000
151 27963	09/04/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 27967	09/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.50000	N	4.99900	N	10.00000
151 23899	08/06/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 23901	08/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.60000	N	4.99900	N	10.00000
151 19937	07/09/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 19941	07/09/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.40000	N	4.99900	N	10.00000
151 14310	06/04/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.07000	N	4.99900	N	10.00000
151 14311	06/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.32000	N	4.99900	N	10.00000
151 10577	05/07/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.07000	N	4.99900	N	10.00000
151 10580	05/07/2018	0020	NITRATE-N	EQ	mg/L	0.50000	0.47000	N	4.99900	N	10.00000
151 07115	04/02/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.07000	N	4.99900	N	10.00000
151 07118	04/02/2018	0020	NITRATE-N	EQ	mg/L	0.50000	7.32000	Y	4.99900	N	10.00000
151 04712	03/05/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.07000	N	4.99900	N	10.00000
151 04713	03/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	5.46000	Y	4.99900	N	10.00000
151 02394	02/05/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.07000	N	4.99900	N	10.00000
151 02397	02/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	6.13000	Y	4.99900	N	10.00000

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151 00493	01/08/2018	0020	NITRATE-N	EQ	mg/L	0.50000	5.13000	Y	4.99900	N	10.00000
151 00496	01/08/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 35754	12/04/2017	0020	NITRATE-N	EQ	mg/L	0.50000	1.19000	N	4.99900	N	10.00000
151 35757	12/04/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 33600	11/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	5.25000	Y	4.99900	N	10.00000
151 33604	11/06/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 30173	10/02/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 30176	10/02/2017	0020	NITRATE-N	EQ	mg/L	0.50000	4.10000	N	4.99900	N	10.00000
151 27353	09/11/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 27355	09/11/2017	0020	NITRATE-N	EQ	mg/L	0.50000	3.74000	N	4.99900	N	10.00000
151 22659	08/07/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 22661	08/07/2017	0020	NITRATE-N	EQ	mg/L	0.50000	3.99000	N	4.99900	N	10.00000
151 18879	07/10/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.83000	N	4.99900	N	10.00000
151 18882	07/10/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 16031	06/19/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 16034	06/19/2017	0020	NITRATE-N	EQ	mg/L	0.50000	4.27000	N	4.99900	N	10.00000
151 10883	05/15/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 10887	05/15/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.35000	N	4.99900	N	10.00000
151 08589	04/24/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 08593	04/24/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.06000	N	4.99900	N	10.00000
151 06403	03/29/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 06405	03/29/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
105 02289	02/06/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.10000	N	4.99900	N	10.00000
151 02292	02/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.30000	Y	4.99900	N	10.00000
151 00519	01/09/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 00524	01/09/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 35319	12/05/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 35322	12/05/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.20000	Y	4.99900	N	10.00000
151 34096	11/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.85000	Y	4.99900	N	10.00000
151 34099	11/14/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 30112	10/03/2016	0020	NITRATE-N	EQ	mg/L	0.50000	4.03000	N	4.99900	N	10.00000
151 30116	10/03/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 29143	09/26/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 29145	09/26/2016	0020	NITRATE-N	EQ	mg/L	0.50000	5.84000	Y	4.99900	N	10.00000
151 21640	08/01/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 21644	08/01/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 19128	07/11/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 19131	07/11/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 14993	06/06/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 14999	06/06/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.20000	Y	4.99900	N	10.00000
151 07733	04/04/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 07738	04/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	9.00000	Y	4.99900	N	10.00000
151 06050	03/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.10000	Y	4.99900	N	10.00000
151 06056	03/14/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 02912	02/08/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 02913	02/08/2016	0020	NITRATE-N	EQ	mg/L	0.50000	6.12000	Y	4.99900	N	10.00000
151 00035	01/04/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 00037	01/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	6.64000	Y	4.99900	N	10.00000
151 36573	12/07/2015	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 36575	12/07/2015	0020	NITRATE-N	EQ	mg/L	0.50000	6.20000	Y	4.99900	N	10.00000
151 30872	10/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	5.00000	Y	4.99900	N	10.00000
151 30875	10/05/2015	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000

Source 14 **Source Status - Act** **Source Type - Well**

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value

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151 10778	06/07/2021	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 06369	04/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.13000	N	4.99900	N	10.00000
151 29587	09/03/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 20793	07/08/2019	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
105 28960	09/11/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 28740	09/10/2018	0020	NITRATE-N	LT	mg/L	0.50000	0.07000	N	4.99900	N	10.00000
151 30005	09/29/2017	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 27331	09/12/2016	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 26339	09/01/2015	0020	NITRATE-N	LT	mg/L	0.50000	0.07000	N	4.99900	N	10.00000
151 24188	09/17/2014	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
151 21435	09/09/2013	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000

Source 16 **Source Status - Act** **Source Type - Well**

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
151 12652	06/29/2021	0020	NITRATE-N	LT	mg/L	0.50000	0.05000	N	4.99900	N	10.00000
062 00041	01/10/2020	0020	NITRATE-N	EQ	mg/L	0.50000	4.90000	N	4.99900	N	10.00000
062 00042	01/10/2020	0020	NITRATE-N	EQ	mg/L	0.50000	5.00000	Y	4.99900	N	10.00000
151 00206	01/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	0.42000	N	4.99900	N	10.00000
151 00210	01/06/2020	0020	NITRATE-N	EQ	mg/L	0.50000	10.30000	Y	4.99900	1	10.00000
151 35149	11/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	0.45000	N	4.99900	N	10.00000
151 35153	11/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.28000	Y	4.99900	N	10.00000
151 32393	10/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	0.39000	N	4.99900	N	10.00000
151 32397	10/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.95000	Y	4.99900	N	10.00000
151 30388	09/10/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.28000	Y	4.99900	N	10.00000
151 29584	09/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	0.40000	N	4.99900	N	10.00000
151 25868	08/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	0.07000	N	4.99900	N	10.00000
151 25872	08/05/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.05000	Y	4.99900	N	10.00000
151 19787	07/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	0.40000	N	4.99900	N	10.00000
151 19791	07/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.60000	Y	4.99900	N	10.00000
105 15729	06/11/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000
151 14124	06/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	0.38000	N	4.99900	N	10.00000
151 14128	06/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.38000	Y	4.99900	N	10.00000
151 10855	05/06/2019	0020	NITRATE-N	EQ	mg/L	0.50000	0.42000	N	4.99900	N	10.00000
151 10859	05/06/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.08000	Y	4.99900	N	10.00000
151 02754	04/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	0.37000	N	4.99900	N	10.00000
151 07255	04/01/2019	0020	NITRATE-N	EQ	mg/L	0.50000	9.32000	Y	4.99900	N	10.00000
151 04769	03/04/2019	0020	NITRATE-N	EQ	mg/L	0.50000	0.39000	N	4.99900	N	10.00000
151 03130	02/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	1.98000	N	4.99900	N	10.00000
151 03134	02/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.26000	Y	4.99900	N	10.00000
151 00457	01/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	2.08000	N	4.99900	N	10.00000
151 00460	01/07/2019	0020	NITRATE-N	EQ	mg/L	0.50000	8.32000	Y	4.99900	N	10.00000
151 38740	12/17/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.34000	Y	4.99900	N	10.00000
151 37290	12/03/2018	0020	NITRATE-N	EQ	mg/L	0.50000	1.41000	N	4.99900	N	10.00000
151 34943	11/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	0.21000	N	4.99900	N	10.00000
151 34945	11/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 31619	10/01/2018	0020	NITRATE-N	EQ	mg/L	0.50000	0.38000	N	4.99900	N	10.00000
151 31623	10/01/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.10000	Y	4.99900	N	10.00000
151 27965	09/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.72000	N	4.99900	N	10.00000
151 27966	09/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 23897	08/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	0.42000	N	4.99900	N	10.00000
151 23900	08/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.04000	Y	4.99900	N	10.00000
151 19938	07/09/2018	0020	NITRATE-N	EQ	mg/L	0.50000	1.88000	N	4.99900	N	10.00000
151 19940	07/09/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.70000	Y	4.99900	N	10.00000
151 14309	06/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	1.62000	N	4.99900	N	10.00000
151 14312	06/04/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.11000	Y	4.99900	N	10.00000

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151 10578	05/07/2018	0020	NITRATE-N	EQ	mg/L	0.50000	1.59000	N	4.99900	N	10.00000
151 10579	05/07/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.53000	Y	4.99900	N	10.00000
151 07116	04/02/2018	0020	NITRATE-N	EQ	mg/L	0.50000	0.15000	N	4.99900	N	10.00000
151 07117	04/02/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.87000	Y	4.99900	N	10.00000
151 04844	03/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	1.04000	N	4.99900	N	10.00000
151 04845	03/06/2018	0020	NITRATE-N	EQ	mg/L	0.50000	9.44000	Y	4.99900	N	10.00000
151 02395	02/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	0.38000	N	4.99900	N	10.00000
151 02396	02/05/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000
151 00492	01/08/2018	0020	NITRATE-N	EQ	mg/L	0.50000	8.80000	Y	4.99900	N	10.00000
151 00497	01/08/2018	0020	NITRATE-N	EQ	mg/L	0.50000	0.35000	N	4.99900	N	10.00000
151 35755	12/04/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 35759	12/04/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.37000	N	4.99900	N	10.00000
151 33601	11/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.90000	Y	4.99900	N	10.00000
151 33605	11/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.35000	N	4.99900	N	10.00000
151 30174	10/02/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.43000	N	4.99900	N	10.00000
151 30175	10/02/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 27352	09/11/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.38000	N	4.99900	N	10.00000
151 27356	09/11/2017	0020	NITRATE-N	EQ	mg/L	0.50000	9.80000	Y	4.99900	N	10.00000
151 22656	08/07/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.43000	N	4.99900	N	10.00000
151 22660	08/07/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.60000	Y	4.99900	N	10.00000
151 18878	07/10/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 18883	07/10/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.38000	N	4.99900	N	10.00000
151 16032	06/19/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.40000	N	4.99900	N	10.00000
151 16033	06/19/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.10000	Y	4.99900	N	10.00000
151 10885	05/15/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.26000	N	4.99900	N	10.00000
151 10886	05/15/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 08588	04/24/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.27000	N	4.99900	N	10.00000
151 08592	04/24/2017	0020	NITRATE-N	EQ	mg/L	0.50000	7.80000	Y	4.99900	N	10.00000
151 04277	03/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 04279	03/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.48000	N	4.99900	N	10.00000
105 02290	02/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.38000	N	4.99900	N	10.00000
151 02291	02/06/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.30000	Y	4.99900	N	10.00000
151 00522	01/09/2017	0020	NITRATE-N	EQ	mg/L	0.50000	0.46000	N	4.99900	N	10.00000
151 00523	01/09/2017	0020	NITRATE-N	EQ	mg/L	0.50000	8.50000	Y	4.99900	N	10.00000
151 35320	12/05/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.42000	N	4.99900	N	10.00000
151 35321	12/05/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.50000	Y	4.99900	N	10.00000
151 34095	11/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.95000	Y	4.99900	N	10.00000
151 34100	11/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.89000	N	4.99900	N	10.00000
151 30111	10/03/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.05000	Y	4.99900	N	10.00000
151 30114	10/03/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.53000	N	4.99900	N	10.00000
151 29144	09/26/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.52000	N	4.99900	N	10.00000
151 29146	09/26/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.00000	Y	4.99900	N	10.00000
151 21641	08/01/2016	0020	NITRATE-N	EQ	mg/L	0.50000	6.95000	Y	4.99900	N	10.00000
151 21642	08/01/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.53000	N	4.99900	N	10.00000
151 19129	07/11/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.00000	Y	4.99900	N	10.00000
151 19133	07/11/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.56000	N	4.99900	N	10.00000
151 14996	06/06/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.57000	N	4.99900	N	10.00000
151 14998	06/06/2016	0020	NITRATE-N	EQ	mg/L	0.50000	8.40000	Y	4.99900	N	10.00000
151 07735	04/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.54000	N	4.99900	N	10.00000
151 07737	04/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.80000	Y	4.99900	N	10.00000
151 06049	03/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.70000	Y	4.99900	N	10.00000
151 06052	03/14/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.68000	N	4.99900	N	10.00000
151 02906	02/08/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.50000	Y	4.99900	N	10.00000
151 02910	02/08/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.57000	N	4.99900	N	10.00000
151 00032	01/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	7.72000	Y	4.99900	N	10.00000
151 00034	01/04/2016	0020	NITRATE-N	EQ	mg/L	0.50000	0.53000	N	4.99900	N	10.00000
151 36570	12/07/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.42000	Y	4.99900	N	10.00000

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151 36574	12/07/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.58000	N	4.99900	N	10.00000
151 30871	10/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.68000	N	4.99900	N	10.00000
151 30877	10/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	6.84000	Y	4.99900	N	10.00000
151 26337	09/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.47000	N	4.99900	N	10.00000
151 26350	09/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	6.96000	Y	4.99900	N	10.00000
151 22485	08/03/2015	0020	NITRATE-N	EQ	mg/L	0.50000	6.96000	Y	4.99900	N	10.00000
151 22486	08/03/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.54000	N	4.99900	N	10.00000
105 19366	07/06/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.50000	N	4.99900	N	10.00000
105 19367	07/06/2015	0020	NITRATE-N	EQ	mg/L	0.50000	6.78000	Y	4.99900	N	10.00000
151 14553	06/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.49000	N	4.99900	N	10.00000
151 14554	06/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.14000	Y	4.99900	N	10.00000
151 10809	05/04/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.52000	N	4.99900	N	10.00000
151 10811	05/04/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.84000	Y	4.99900	N	10.00000
151 07938	04/06/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.40000	N	4.99900	N	10.00000
151 07939	04/06/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.90000	Y	4.99900	N	10.00000
151 04421	03/02/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.55000	N	4.99900	N	10.00000
151 04422	03/02/2015	0020	NITRATE-N	EQ	mg/L	0.50000	8.00000	Y	4.99900	N	10.00000
151 02159	02/02/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.22000	Y	4.99900	N	10.00000
151 02161	02/02/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.95000	N	4.99900	N	10.00000
151 00053	01/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	0.79000	N	4.99900	N	10.00000
151 00054	01/05/2015	0020	NITRATE-N	EQ	mg/L	0.50000	7.08000	Y	4.99900	N	10.00000
151 30452	12/01/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.42000	Y	4.99900	N	10.00000
151 30454	12/01/2014	0020	NITRATE-N	EQ	mg/L	0.50000	0.53000	N	4.99900	N	10.00000
151 28572	11/03/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.42000	Y	4.99900	N	10.00000
151 28573	11/03/2014	0020	NITRATE-N	EQ	mg/L	0.50000	0.54000	N	4.99900	N	10.00000
151 26146	10/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	0.60000	N	4.99900	N	10.00000
151 26148	10/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.15000	Y	4.99900	N	10.00000
151 22211	09/02/2014	0020	NITRATE-N	EQ	mg/L	0.50000	6.82000	Y	4.99900	N	10.00000
151 22212	09/02/2014	0020	NITRATE-N	EQ	mg/L	0.50000	0.58000	N	4.99900	N	10.00000
151 18873	08/04/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.14000	Y	4.99900	N	10.00000
151 18876	08/04/2014	0020	NITRATE-N	EQ	mg/L	0.50000	0.69000	N	4.99900	N	10.00000
151 16086	07/08/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.22000	Y	4.99900	N	10.00000
151 16089	07/08/2014	0020	NITRATE-N	EQ	mg/L	0.50000	0.67000	N	4.99900	N	10.00000
151 11761	06/02/2014	0020	NITRATE-N	EQ	mg/L	0.50000	6.98000	Y	4.99900	N	10.00000
151 11763	06/02/2014	0020	NITRATE-N	EQ	mg/L	0.50000	0.60000	N	4.99900	N	10.00000
151 08701	05/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.30000	Y	4.99900	N	10.00000
151 08703	05/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	8.44000	Y	4.99900	N	10.00000
151 05996	04/01/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.72000	Y	4.99900	N	10.00000
151 05998	04/01/2014	0020	NITRATE-N	EQ	mg/L	0.50000	0.64000	N	4.99900	N	10.00000
151 03838	03/03/2014	0020	NITRATE-N	EQ	mg/L	0.50000	6.68000	Y	4.99900	N	10.00000
151 03841	03/03/2014	0020	NITRATE-N	EQ	mg/L	0.50000	1.02000	N	4.99900	N	10.00000
151 02267	02/10/2014	0020	NITRATE-N	EQ	mg/L	0.50000	7.15000	Y	4.99900	N	10.00000
151 02269	02/10/2014	0020	NITRATE-N	EQ	mg/L	0.50000	0.91000	N	4.99900	N	10.00000
151 00109	01/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	6.62000	Y	4.99900	N	10.00000
151 00111	01/06/2014	0020	NITRATE-N	EQ	mg/L	0.50000	1.18000	N	4.99900	N	10.00000
151 28489	12/02/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.04000	Y	4.99900	N	10.00000
151 28492	12/02/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.88000	N	4.99900	N	10.00000
151 26715	11/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	6.40000	Y	4.99900	N	10.00000
151 26718	11/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	1.12000	N	4.99900	N	10.00000
151 24039	10/01/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.70000	N	4.99900	N	10.00000
151 24041	10/01/2013	0020	NITRATE-N	EQ	mg/L	0.50000	6.88000	Y	4.99900	N	10.00000
151 20827	09/03/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.71000	N	4.99900	N	10.00000
151 20828	09/03/2013	0020	NITRATE-N	EQ	mg/L	0.50000	6.90000	Y	4.99900	N	10.00000
151 17893	08/05/2013	0020	NITRATE-N	EQ	mg/L	0.50000	6.96000	Y	4.99900	N	10.00000
151 17894	08/05/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.74000	N	4.99900	N	10.00000
151 14257	07/01/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.73000	N	4.99900	N	10.00000
151 14260	07/01/2013	0020	NITRATE-N	EQ	mg/L	0.50000	6.94000	Y	4.99900	N	10.00000

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105 11287	06/03/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.76000	N	4.99900	N	10.00000
105 11289	06/03/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.57000	Y	4.99900	N	10.00000
105 08683	05/06/2013	0020	NITRATE-N	EQ	mg/L	0.50000	1.01000	N	4.99900	N	10.00000
105 08684	05/06/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.51000	Y	4.99900	N	10.00000
105 06073	04/02/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.50000	Y	4.99900	N	10.00000
105 06076	04/02/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.73000	N	4.99900	N	10.00000
151 04788	03/18/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.87000	N	4.99900	N	10.00000
151 04789	03/18/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.92000	Y	4.99900	N	10.00000
105 02120	02/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.93000	Y	4.99900	N	10.00000
105 02121	02/04/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.94000	N	4.99900	N	10.00000
105 00463	01/07/2013	0020	NITRATE-N	EQ	mg/L	0.50000	0.87000	N	4.99900	N	10.00000
105 00464	01/07/2013	0020	NITRATE-N	EQ	mg/L	0.50000	7.12000	Y	4.99900	N	10.00000
105 26545	12/03/2012	0020	NITRATE-N	EQ	mg/L	0.50000	6.93000	Y	4.99900	N	10.00000
105 26547	12/03/2012	0020	NITRATE-N	EQ	mg/L	0.50000	0.89000	N	4.99900	N	10.00000
105 24772	11/05/2012	0020	NITRATE-N	EQ	mg/L	0.50000	6.45000	Y	4.99900	N	10.00000
151 24773	11/05/2012	0020	NITRATE-N	EQ	mg/L	0.50000	0.79000	N	4.99900	N	10.00000
105 22263	10/02/2012	0020	NITRATE-N	EQ	mg/L	0.50000	0.81000	N	4.99900	N	10.00000
105 22265	10/02/2012	0020	NITRATE-N	EQ	mg/L	0.50000	6.75000	Y	4.99900	N	10.00000

Source 17 **Source Status - Act** **Source Type - Well**

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
105 08802	09/07/2022	0020	NITRATE-N	EQ	mg/L	0.50000	2.99000	N	4.99900	N	10.00000
151 05801	06/06/2022	0020	NITRATE-N	EQ	mg/L	0.50000	3.47000	N	4.99900	N	10.00000
151 02104	03/01/2022	0020	NITRATE-N	EQ	mg/L	0.50000	3.11000	N	4.99900	N	10.00000
151 24732	12/06/2021	0020	NITRATE-N	EQ	mg/L	0.50000	4.52000	N	4.99900	N	10.00000
151 10779	06/07/2021	0020	NITRATE-N	EQ	mg/L	0.50000	2.03000	N	4.99900	N	10.00000
151 03672	03/01/2021	0020	NITRATE-N	EQ	mg/L	0.50000	4.44000	N	4.99900	N	10.00000
151 25362	12/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	3.23000	N	4.99900	N	10.00000
151 18420	09/01/2020	0020	NITRATE-N	EQ	mg/L	0.50000	3.67000	N	4.99900	N	10.00000
151 10597	06/02/2020	0020	NITRATE-N	EQ	mg/L	0.50000	3.32000	N	4.99900	N	10.00000
151 05177	03/17/2020	0020	NITRATE-N	EQ	mg/L	0.50000	3.29000	N	4.99900	N	10.00000
151 04004	03/02/2020	0020	NITRATE-N	EQ	mg/L	0.50000	3.29000	N	4.99900	N	10.00000
151 36990	12/02/2019	0020	NITRATE-N	EQ	mg/L	0.50000	4.81000	N	4.99900	N	10.00000
151 34722	10/28/2019	0020	NITRATE-N	EQ	mg/L	0.50000	4.20000	N	4.99900	N	10.00000
151 29588	09/03/2019	0020	NITRATE-N	EQ	mg/L	0.50000	3.25000	N	4.99900	N	10.00000
151 15569	06/10/2019	0020	NITRATE-N	EQ	mg/L	0.50000	3.83000	N	4.99900	N	10.00000
105 06085	03/19/2019	0020	NITRATE-N	EQ	mg/L	0.50000	3.12000	N	4.99900	N	10.00000

Source 18 **Source Status - Act** **Source Type - Well**

Lab/Sample Number	Sample Collect Date	Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
151 22101	07/12/2022	0020	NITRATE-N	EQ	mg/L	0.50000	2.70000	N	4.99900	N	10.00000
151 18241	09/07/2021	0020	NITRATE-N	EQ	mg/L	0.50000	3.30000	N	4.99900	N	10.00000
151 20664	09/24/2020	0020	NITRATE-N	EQ	mg/L	0.50000	2.45000	N	4.99900	N	10.00000
151 29796	09/04/2019	0020	NITRATE-N	EQ	mg/L	0.50000	3.16000	N	4.99900	N	10.00000
151 28741	09/10/2018	0020	NITRATE-N	EQ	mg/L	0.50000	2.64000	N	4.99900	N	10.00000
151 30006	09/29/2017	0020	NITRATE-N	EQ	mg/L	0.50000	2.63000	N	4.99900	N	10.00000
151 27332	09/12/2016	0020	NITRATE-N	EQ	mg/L	0.50000	2.64000	N	4.99900	N	10.00000
151 26340	09/01/2015	0020	NITRATE-N	EQ	mg/L	0.50000	2.58000	N	4.99900	N	10.00000
151 24189	09/17/2014	0020	NITRATE-N	EQ	mg/L	0.50000	2.56000	N	4.99900	N	10.00000

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105 14866	07/08/2013	0020	NITRATE-N	EQ	mg/L	0.50000	2.56000	N	4.99900	N	10.00000	

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

ARSENIC

Detail - Arsenic

Source	Source Type	Source Use	Lab/Sample Number	Sample Collect Date	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
01	Well	P	105 11853	05/14/2019	EQ	mg/L	0.00100	0.00353	N	0.01030	N	0.01040
02	Well	P	105 07254	04/03/2018	EQ	mg/L	0.00100	0.00262	N	0.01030	N	0.01040
03	Well	P	105 09619	04/23/2019	EQ	mg/L	0.00100	0.00283	N	0.01030	N	0.01040
06	Well	E	081 51191	12/23/1997	LT	mg/L	0.00100	0.01000	N	0.01030	N	0.01040
07	Well	E	105 27335	09/12/2016	EQ	mg/L	0.00100	0.00285	N	0.01030	N	0.01040
10	Well	P	105 27336	09/12/2016	EQ	mg/L	0.00100	0.00172	N	0.01030	N	0.01040
11	Well	P	105 27672	08/13/2019	EQ	mg/L	0.00100	0.00302	N	0.01030	N	0.01040
13	Well	P	105 11854	05/14/2019	EQ	mg/L	0.00100	0.00013	N	0.01030	N	0.01040
14	Well	P	105 28960	09/11/2018	EQ	mg/L	0.00100	0.00017	N	0.01030	N	0.01040
16	Well	E	105 15729	06/11/2019	EQ	mg/L	0.00100	0.00302	N	0.01030	N	0.01040
17	Well	P	105 18001	04/12/2022	EQ	mg/L	0.00100	0.00405	N	0.01030	N	0.01040
18	Well	P	105 22101	07/12/2022	EQ	mg/L	0.00100	0.00342	N	0.01030	N	0.01040

VOLATILE ORGANIC CHEMICALS (VOC)

History - VOC - Analyte Group

Src Num	Source Name	Source Type	Source Status	Source Use	Lab / Sample Num	Collect Date	Test Panel	Analytes Tested
01	W. Main Well	W	Act	P	089 01829	04/13/2021	VOC1	58 of 64
01	W. Main Well	W	Act	P	089 74894	04/06/2015	VOC1	46 of 64
02	Balcom Well	W	Act	P	089 01830	04/13/2021	VOC1	58 of 64
02	Balcom Well	W	Act	P	089 74897	04/06/2015	VOC1	46 of 64
03	Velma Well	W	Act	P	089 01831	04/13/2021	VOC1	58 of 64
03	Velma Well	W	Act	P	089 74896	04/06/2015	VOC1	46 of 64
07	Olmstead (A) Well	W	Act	E	089 74895	04/06/2015	VOC1	46 of 64
10	North Willoughby Well	W	Act	P	089 06745	09/21/2021	VOC1	58 of 64
10	North Willoughby Well	W	Act	P	089 77360	10/16/2017	VOC1	46 of 64
10	North Willoughby Well	W	Act	P	089 76526	10/04/2016	VOC1	46 of 64
10	North Willoughby Well	W	Act	P	089 75562	10/12/2015	VOC1	46 of 64
10	North Willoughby Well	W	Act	P	089 74300	10/02/2014	VOC1	46 of 64
10	North Willoughby Well	W	Act	P	089 72615	07/09/2013	VOC1	46 of 64
11	Highland Well	W	Act	P	089 01832	04/13/2021	VOC1	58 of 64
11	Highland Well	W	Act	P	089 74891	04/06/2015	VOC1	46 of 64
13	South Willoughby Well	W	Act	P	089 03215	06/07/2022	VOC1	58 of 64
13	South Willoughby Well	W	Act	P	089 01401	03/21/2022	VOC1	58 of 64

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VOLATILE ORGANIC CHEMICALS (VOC)

History - VOC - Analyte Group

Src Num	Source Name	Source Type	Source Status	Source Use	Lab / Sample Num	Collect Date	Test Panel	Analytes Tested
13	South Willoughby Well	W	Act	P	089 08634	12/13/2021	VOC1	58 of 64
13	South Willoughby Well	W	Act	P	089 01833	04/13/2021	VOC1	58 of 64
13	South Willoughby Well	W	Act	P	089 76838	04/03/2017	VOC1	46 of 64
13	South Willoughby Well	W	Act	P	089 76527	10/04/2016	VOC1	46 of 64
13	South Willoughby Well	W	Act	P	089 76092	06/29/2016	VOC1	46 of 64
14	Butternut Well	W	Act	P	089 01838	04/13/2021	VOC1	58 of 64
14	Butternut Well	W	Act	P	089 74892	04/06/2015	VOC1	46 of 64
16	Olmstead (B) Well	W	Act	E	089 01834	04/13/2021	VOC1	58 of 64
16	Olmstead (B) Well	W	Act	E	089 74893	04/06/2015	VOC1	46 of 64
17	Ashael Curtis Well - AAS242	W	Act	P	089 78367	03/19/2019	VOC1	58 of 64
18	Pecan Well - AAS161	W	Act	P	089 05167	04/23/2019	VOC1	58 of 64
18	Pecan Well - AAS161	W	Act	P	089 72422	04/23/2013	VOC1	46 of 64

Detail - VOC

Source 02

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	VOC1	089	01830	04/13/2021	balcom & moe

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0029	DIBROMOCHLOROMETHANE	EQ	ug/L	0.5000	0.8800	N	9,999.0000	N	
0031	TOTAL TRIHALOMETHANE	EQ	ug/L		0.8800	N	60.4000	N	80.4000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 10

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	VOC1	089	06745	09/21/2021	601 n willoughby main discharge

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0028	BROMODICHLOROMETHANE	EQ	ug/L	0.5000	0.9400	N	9,999.0000	N	
0029	DIBROMOCHLOROMETHANE	EQ	ug/L	0.5000	2.1000	N	9,999.0000	N	
0030	BROMOFORM	EQ	ug/L	0.5000	1.8400	N	9,999.0000	N	
0031	TOTAL TRIHALOMETHANE	EQ	ug/L		4.8800	N	60.4000	N	80.4000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 11

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	VOC1	089	01832	04/13/2021	highland well

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0029	DIBROMOCHLOROMETHANE	EQ	ug/L	0.5000	0.5700	N	9,999.0000	N	

0031	TOTAL TRIHALOMETHANE	EQ	ug/L		0.5700	N	60.4000	N	80.4000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 13

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	VOC1	089	03215	06/07/2022	601 n willoughby

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0027	CHLOROFORM	EQ	ug/L	0.5000	0.5000	N	9,999.0000	N	
0028	BROMODICHLOROMETHANE	EQ	ug/L	0.5000	1.0900	N	9,999.0000	N	
0029	DIBROMOCHLOROMETHANE	EQ	ug/L	0.5000	1.6300	N	9,999.0000	N	
0030	BROMOFORM	EQ	ug/L	0.5000	0.7200	N	9,999.0000	N	
0031	TOTAL TRIHALOMETHANE	EQ	ug/L		3.9400	N	60.4000	N	80.4000
0053	CHLOROMETHANE	EQ	ug/L	0.5000	30.2300	Y	0.5000	N	
0054	BROMOMETHANE	EQ	ug/L	0.5000	7.7100	Y	0.5000	N	

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 14

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	VOC1	089	01838	04/13/2021	butternut well

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0028	BROMODICHLOROMETHANE	EQ	ug/L	0.5000	0.5100	N	9,999.0000	N	
0029	DIBROMOCHLOROMETHANE	EQ	ug/L	0.5000	0.6900	N	9,999.0000	N	
0031	TOTAL TRIHALOMETHANE	EQ	ug/L		1.2000	N	60.4000	N	80.4000

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

Source 16

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	VOC1	089	01834	04/13/2021	olmstead well

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0027	CHLOROFORM	EQ	ug/L	0.5000	47.6400	N	9,999.0000	N	
0028	BROMODICHLOROMETHANE	EQ	ug/L	0.5000	32.2500	N	9,999.0000	N	
0029	DIBROMOCHLOROMETHANE	EQ	ug/L	0.5000	33.0600	N	9,999.0000	N	
0030	BROMOFORM	EQ	ug/L	0.5000	20.6300	N	9,999.0000	N	
0031	TOTAL TRIHALOMETHANE	EQ	ug/L		133.5800	Y	60.4000	1	80.4000
0064	DIBROMOMETHANE	EQ	ug/L	0.5000	1.7700	Y	0.5000	N	
0086	BROMOCHLOROMETHANE	EQ	ug/L	0.5000	0.7100	Y	0.5000	N	

Result Range:

EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND - No Detect

SYNTHETIC ORGANIC CHEMICALS (SOC)

History - SOC - Analyte Group

Src Num	Source Name	Source Type	Source Status	Source Use	Lab / Sample Num	Collect Date	Test Panel	Analytes Tested
01	W. Main Well	W	Act	P	089 85052	07/11/2016	HERB1	13 of 18
01	W. Main Well	W	Act	P	089 85052	07/11/2016	PEST1	31 of 67

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SYNTHETIC ORGANIC CHEMICALS (SOC)

History - SOC - Analyte Group

Src Num	Source Name	Source Type	Source Status	Source Use	Lab / Sample Num	Collect Date	Test Panel	Analytes Tested
02	Balcom Well	W	Act	P	089 01889	04/12/2022	PEST1	50 of 67
02	Balcom Well	W	Act	P	089 85538	04/25/2017	HERB1	13 of 18
02	Balcom Well	W	Act	P	089 82132	04/23/2013	PEST1	31 of 67
03	Velma Well	W	Act	P	089 84997	06/06/2016	HERB1	13 of 18
03	Velma Well	W	Act	P	089 84997	06/06/2016	PEST1	31 of 67
07	Olmstead (A) Well	W	Act	E	089 85268	09/12/2016	HERB1	13 of 18
07	Olmstead (A) Well	W	Act	E	089 85268	09/12/2016	PEST1	31 of 67
10	North Willoughby Well	W	Act	P	089 85051	07/11/2016	HERB1	13 of 18
10	North Willoughby Well	W	Act	P	089 85051	07/11/2016	PEST1	31 of 67
11	Highland Well	W	Act	P	089 01836	04/13/2021	HERB1	14 of 18
11	Highland Well	W	Act	P	089 84190	05/18/2015	PEST1	31 of 67
13	South Willoughby Well	W	Act	P	089 86741	09/11/2018	HERB1	14 of 18
13	South Willoughby Well	W	Act	P	089 86741	09/11/2018	PEST1	51 of 67
14	Butternut Well	W	Act	P	089 86155	04/03/2018	HERB1	13 of 18
14	Butternut Well	W	Act	P	089 86155	04/03/2018	PEST1	31 of 67
16	Olmstead (B) Well	W	Act	E	089 85269	09/12/2016	HERB1	13 of 18
16	Olmstead (B) Well	W	Act	E	089 85269	09/12/2016	PEST1	31 of 67
17	Ashael Curtis Well - AAS242	W	Act	P	089 11283	10/30/2019	HERB1	14 of 18
17	Ashael Curtis Well - AAS242	W	Act	P	089 11283	10/30/2019	PEST1	50 of 67
17	Ashael Curtis Well - AAS242	W	Act	P	089 87149	03/19/2019	HERB1	14 of 18
17	Ashael Curtis Well - AAS242	W	Act	P	089 87149	03/19/2019	PEST1	49 of 67
18	Pecan Well - AAS161	W	Act	P	089 84895	04/04/2016	HERB1	13 of 18
18	Pecan Well - AAS161	W	Act	P	089 84895	04/04/2016	PEST1	31 of 67
18	Pecan Well - AAS161	W	Act	P	089 84878	03/14/2016	HERB1	13 of 18
18	Pecan Well - AAS161	W	Act	P	089 84878	03/14/2016	PEST1	31 of 67

Halo Acetic Acids (HAA5)

History - DBP - Analyte Group

Src Num	Lab / Sample Num	Collect Date	Test Panel	AnalytesName	Result Range	Result Qty
Dist	125 98501	07/19/2022	HAA5	DIBROMOACETIC ACID	LT	1.00000
Dist	125 98501	07/19/2022	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	125 98501	07/19/2022	HAA5	HAA(5)	LT	1.00000
Dist	125 98501	07/19/2022	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	125 98501	07/19/2022	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	125 98501	07/19/2022	HAA5	TRICHLOROACETIC ACID	LT	1.00000
Dist	089 03821	06/29/2021	HAA5	DIBROMOACETIC ACID	EQ	1.06000
Dist	089 03821	06/29/2021	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	089 03821	06/29/2021	HAA5	HAA(5)	EQ	1.06000
Dist	089 03821	06/29/2021	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	089 03821	06/29/2021	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	089 03821	06/29/2021	HAA5	TRICHLOROACETIC ACID	LT	1.00000

Dist	089 03822	06/29/2021	HAA5	DIBROMOACETIC ACID	EQ	1.63000
Dist	089 03822	06/29/2021	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	089 03822	06/29/2021	HAA5	HAA(5)	EQ	3.16000
Dist	089 03822	06/29/2021	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	089 03822	06/29/2021	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	089 03822	06/29/2021	HAA5	TRICHLOROACETIC ACID	EQ	1.53000
Dist	046 78987	11/19/2020	HAA5	BROMOCHLOROACETIC ACID	LT	1.00000
Dist	046 78987	11/19/2020	HAA5	DIBROMOACETIC ACID	LT	1.00000
Dist	046 78987	11/19/2020	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	046 78987	11/19/2020	HAA5	HAA(5)	EQ	1.30000
Dist	046 78987	11/19/2020	HAA5	MONOBROMOACETIC ACID	EQ	1.30000
Dist	046 78987	11/19/2020	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	046 78987	11/19/2020	HAA5	TRICHLOROACETIC ACID	LT	1.00000
Dist	046 78988	11/19/2020	HAA5	BROMOCHLOROACETIC ACID	LT	1.00000
Dist	046 78988	11/19/2020	HAA5	DIBROMOACETIC ACID	LT	1.00000
Dist	046 78988	11/19/2020	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	046 78988	11/19/2020	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	046 78988	11/19/2020	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	046 78988	11/19/2020	HAA5	TRICHLOROACETIC ACID	LT	1.00000
Dist	046 36141	06/09/2020	HAA5	BROMOCHLOROACETIC ACID	LT	1.00000
Dist	046 36141	06/09/2020	HAA5	DIBROMOACETIC ACID	EQ	1.00000
Dist	046 36141	06/09/2020	HAA5	DICHLOROACETIC ACID	EQ	1.60000
Dist	046 36141	06/09/2020	HAA5	HAA(5)	EQ	2.60000
Dist	046 36141	06/09/2020	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	046 36141	06/09/2020	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	046 36141	06/09/2020	HAA5	TRICHLOROACETIC ACID	LT	1.00000
Dist	046 36142	06/09/2020	HAA5	BROMOCHLOROACETIC ACID	LT	1.00000
Dist	046 36142	06/09/2020	HAA5	DIBROMOACETIC ACID	LT	1.00000
Dist	046 36142	06/09/2020	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	046 36142	06/09/2020	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	046 36142	06/09/2020	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	046 36142	06/09/2020	HAA5	TRICHLOROACETIC ACID	LT	1.00000
Dist	089 02538	06/02/2020	HAA5	DIBROMOACETIC ACID	EQ	1.29000
Dist	089 02538	06/02/2020	HAA5	DICHLOROACETIC ACID	EQ	1.03000
Dist	089 02538	06/02/2020	HAA5	HAA(5)	EQ	2.32000
Dist	089 02538	06/02/2020	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	089 02538	06/02/2020	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	089 02538	06/02/2020	HAA5	TRICHLOROACETIC ACID	LT	1.00000
Dist	089 02539	06/02/2020	HAA5	DIBROMOACETIC ACID	EQ	1.09000
Dist	089 02539	06/02/2020	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	089 02539	06/02/2020	HAA5	HAA(5)	EQ	1.09000
Dist	089 02539	06/02/2020	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	089 02539	06/02/2020	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	089 02539	06/02/2020	HAA5	TRICHLOROACETIC ACID	LT	1.00000

Dist	089 06631	06/18/2019	HAA5	DIBROMOACETIC ACID	EQ	1.28000
Dist	089 06631	06/18/2019	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	089 06631	06/18/2019	HAA5	HAA(5)	EQ	1.28000
Dist	089 06631	06/18/2019	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	089 06631	06/18/2019	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	089 06631	06/18/2019	HAA5	TRICHLOROACETIC ACID	LT	1.00000
Dist	089 06632	06/18/2019	HAA5	DIBROMOACETIC ACID	LT	1.00000
Dist	089 06632	06/18/2019	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	089 06632	06/18/2019	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	089 06632	06/18/2019	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	089 06632	06/18/2019	HAA5	TRICHLOROACETIC ACID	LT	1.00000
Dist	125 07915	06/19/2018	HAA5	BROMOCHLOROACETIC ACID	LT	1.00000
Dist	125 07915	06/19/2018	HAA5	DIBROMOACETIC ACID	LT	1.00000
Dist	125 07915	06/19/2018	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	125 07915	06/19/2018	HAA5	HAA(5)	LT	6.00000
Dist	125 07915	06/19/2018	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	125 07915	06/19/2018	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	125 07915	06/19/2018	HAA5	TRICHLOROACETIC ACID	LT	1.00000
Dist	125 07917	06/19/2018	HAA5	BROMOCHLOROACETIC ACID	LT	1.00000
Dist	125 07917	06/19/2018	HAA5	DIBROMOACETIC ACID	LT	1.00000
Dist	125 07917	06/19/2018	HAA5	DICHLOROACETIC ACID	LT	1.00000
Dist	125 07917	06/19/2018	HAA5	HAA(5)	LT	6.00000
Dist	125 07917	06/19/2018	HAA5	MONOBROMOACETIC ACID	LT	1.00000
Dist	125 07917	06/19/2018	HAA5	MONOCHLOROACETIC ACID	LT	2.00000
Dist	125 07917	06/19/2018	HAA5	TRICHLOROACETIC ACID	LT	1.00000
						112.62000

Total Trihalomethane (THM)

History - DBP - Analyte Group

Src Num	Lab / Sample Num	Collect Date	Test Panel	AnalytesName	Result Range	Result Qty	TrigInd
Dist	112 98501	07/19/2022	THM	BROMOFORM	EQ	0.56000	N
Dist	112 98501	07/19/2022	THM	CHLOROFORM	EQ	0.26000	N
Dist	112 98501	07/19/2022	THM	DIBROMOCHLOROMETHANE	EQ	0.57000	N
Dist	112 98501	07/19/2022	THM	TOTAL TRIHALOMETHANE	EQ	1.39000	N
Dist	089 03821	06/29/2021	THM	BROMODICHLOROMETHANE	EQ	1.11000	N
Dist	089 03821	06/29/2021	THM	BROMOFORM	EQ	1.15000	N
Dist	089 03821	06/29/2021	THM	DIBROMOCHLOROMETHANE	EQ	1.60000	N
Dist	089 03821	06/29/2021	THM	TOTAL TRIHALOMETHANE	EQ	3.86000	N
Dist	089 03822	06/29/2021	THM	BROMODICHLOROMETHANE	EQ	2.66000	N
Dist	089 03822	06/29/2021	THM	BROMOFORM	EQ	9.70000	N
Dist	089 03822	06/29/2021	THM	CHLOROFORM	EQ	1.12000	N
Dist	089 03822	06/29/2021	THM	DIBROMOCHLOROMETHANE	EQ	6.26000	N
Dist	089 03822	06/29/2021	THM	TOTAL TRIHALOMETHANE	EQ	19.74000	N

Dist	046 78987	11/19/2020	THM	TOTAL TRIHALOMETHANE	ND		N
Dist	046 78988	11/19/2020	THM	TOTAL TRIHALOMETHANE	ND		N
Dist	046 36141	06/09/2020	THM	BROMODICHLOROMETHANE	EQ	2.70000	N
Dist	046 36141	06/09/2020	THM	BROMOFORM	EQ	11.70000	N
Dist	046 36141	06/09/2020	THM	CHLOROFORM	EQ	1.30000	N
Dist	046 36141	06/09/2020	THM	DIBROMOCHLOROMETHANE	EQ	7.90000	N
Dist	046 36141	06/09/2020	THM	TOTAL TRIHALOMETHANE	EQ	23.60000	N
Dist	046 36142	06/09/2020	THM	BROMODICHLOROMETHANE	EQ	1.90000	N
Dist	046 36142	06/09/2020	THM	BROMOFORM	EQ	1.00000	N
Dist	046 36142	06/09/2020	THM	CHLOROFORM	EQ	0.90000	N
Dist	046 36142	06/09/2020	THM	DIBROMOCHLOROMETHANE	EQ	2.40000	N
Dist	046 36142	06/09/2020	THM	TOTAL TRIHALOMETHANE	EQ	6.20000	N
Dist	089 02538	06/02/2020	THM	BROMODICHLOROMETHANE	EQ	1.43000	N
Dist	089 02538	06/02/2020	THM	BROMOFORM	EQ	2.21000	N
Dist	089 02538	06/02/2020	THM	CHLOROFORM	EQ	0.70000	N
Dist	089 02538	06/02/2020	THM	DIBROMOCHLOROMETHANE	EQ	1.99000	N
Dist	089 02538	06/02/2020	THM	TOTAL TRIHALOMETHANE	EQ	6.33000	N
Dist	089 02539	06/02/2020	THM	BROMODICHLOROMETHANE	EQ	2.67000	N
Dist	089 02539	06/02/2020	THM	BROMOFORM	EQ	12.34000	N
Dist	089 02539	06/02/2020	THM	CHLOROFORM	EQ	0.99000	N
Dist	089 02539	06/02/2020	THM	DIBROMOCHLOROMETHANE	EQ	7.11000	N
Dist	089 02539	06/02/2020	THM	TOTAL TRIHALOMETHANE	EQ	23.11000	N
Dist	089 06631	06/18/2019	THM	BROMODICHLOROMETHANE	EQ	2.26000	N
Dist	089 06631	06/18/2019	THM	BROMOFORM	EQ	10.18000	N
Dist	089 06631	06/18/2019	THM	CHLOROFORM	EQ	1.00000	N
Dist	089 06631	06/18/2019	THM	DIBROMOCHLOROMETHANE	EQ	6.49000	N
Dist	089 06631	06/18/2019	THM	TOTAL TRIHALOMETHANE	EQ	19.93000	N
Dist	089 06632	06/18/2019	THM	BROMODICHLOROMETHANE	EQ	0.98000	N
Dist	089 06632	06/18/2019	THM	BROMOFORM	EQ	1.50000	N
Dist	089 06632	06/18/2019	THM	DIBROMOCHLOROMETHANE	EQ	1.95000	N
Dist	089 06632	06/18/2019	THM	TOTAL TRIHALOMETHANE	EQ	4.43000	N
Dist	089 77772	06/19/2018	THM	TOTAL TRIHALOMETHANE	ND		N
Dist	089 77773	06/19/2018	THM	BROMODICHLOROMETHANE	EQ	1.31000	N
Dist	089 77773	06/19/2018	THM	BROMOFORM	EQ	6.51000	N
Dist	089 77773	06/19/2018	THM	CHLOROFORM	EQ	0.58000	N
Dist	089 77773	06/19/2018	THM	DIBROMOCHLOROMETHANE	EQ	3.85000	N
Dist	089 77773	06/19/2018	THM	TOTAL TRIHALOMETHANE	EQ	12.25000	N

RADIONUCLIDES (RAD)

History - RAD - Analyte Group

Src Num	Source Name	Source Type	Source Status	Source Use	Lab / Sample Num	Collect Date	Test Panel	Analytes Tested
01	W. Main Well	W	Act	P	163 08529	05/05/2020	RAD	2 of 13
01	W. Main Well	W	Act	P	028 51549	06/06/2016	RAD	2 of 13

02	Balcom Well	W	Act	P	163 08530	05/05/2020	RAD	2 of 13
02	Balcom Well	W	Act	P	163 29797	09/04/2019	RAD	1 of 13
02	Balcom Well	W	Act	P	163 27718	04/03/2018	RAD	1 of 13
03	Velma Well	W	Act	P	163 10598	06/02/2020	RAD	2 of 13
03	Velma Well	W	Act	P	028 49636	05/11/2015	RAD	1 of 13
03	Velma Well	W	Act	P	028 48348	06/11/2014	RAD	1 of 13
07	Olmstead (A) Well	W	Act	E	028 53776	05/30/2017	RAD	1 of 13
07	Olmstead (A) Well	W	Act	E	028 53305	03/29/2017	RAD	1 of 13
07	Olmstead (A) Well	W	Act	E	028 50225	09/01/2015	RAD	3 of 13
10	North Willoughby Well	W	Act	P	163 08531	05/05/2020	RAD	2 of 13
10	North Willoughby Well	W	Act	P	028 53874	06/12/2017	RAD	2 of 13
10	North Willoughby Well	W	Act	P	028 49478	04/06/2015	RAD	1 of 13
10	North Willoughby Well	W	Act	P	028 48347	06/11/2014	RAD	3 of 13
11	Highland Well	W	Act	P	163 08532	05/05/2020	RAD	2 of 13
11	Highland Well	W	Act	P	163 12552	05/22/2018	RAD	2 of 13
11	Highland Well	W	Act	P	028 50226	09/01/2015	RAD	1 of 13
11	Highland Well	W	Act	P	028 48982	05/15/2015	RAD	3 of 13
11	Highland Well	W	Act	P	028 49584	05/04/2015	RAD	2 of 13
13	South Willoughby Well	W	Act	P	028 51548	06/06/2016	RAD	2 of 13
14	Butternut Well	W	Act	P	163 29401	04/19/2022	RAD	1 of 13
14	Butternut Well	W	Act	P	028 51214	04/04/2016	RAD	2 of 13
16	Olmstead (B) Well	W	Act	E	028 53434	04/17/2017	RAD	1 of 13
16	Olmstead (B) Well	W	Act	E	028 50071	08/03/2015	RAD	1 of 13
17	Ashael Curtis Well - AAS242	W	Act	P	163 06086	03/19/2019	RAD	3 of 13
18	Pecan Well - AAS161	W	Act	P	028 51547	06/06/2016	RAD	2 of 13

Detail - RAD

Source 01

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	RAD	163	08529	05/05/2020	s01 west main

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0165	GROSS ALPHA	EQ	pCi/L	3.0000	4.9100	N	14.9999	N	

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND -- No Detect

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Source 02

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	RAD	163	08530	05/05/2020	s02 balcom & moe

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0165	GROSS ALPHA	EQ	pCi/L	3.0000	3.9200	N	14.9999	N	
0166	RADIUM 228	EQ	pCi/L	1.0000	0.4620	N	4.9999	N	5.0000

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND -- No Detect

Source 03

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	RAD	163	10598	06/02/2020	velma well s03

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0165	GROSS ALPHA	EQ	pCi/L	3.0000	3.1600	N	14.9999	N	

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND -- No Detect

Source 07

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	RAD	028	53776	05/30/2017	s07 olmstead

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0165	GROSS ALPHA	EQ	pCi/L	3.0000	7.2400	N	14.9999	N	

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND -- No Detect

Source 10

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	RAD	163	08531	05/05/2020	s10 n willoughby

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0165	GROSS ALPHA	EQ	pCi/L	3.0000	2.2200	N	14.9999	N	

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND -- No Detect

Source 11

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	RAD	163	08532	05/05/2020	s11 highland

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0165	GROSS ALPHA	EQ	pCi/L	3.0000	3.6400	N	14.9999	N	
0166	RADIUM 228	EQ	pCi/L	1.0000	0.4480	N	4.9999	N	5.0000

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND -- No Detect

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As Of: 9/26/2022

Source 14

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	RAD	163	29401	04/19/2022	butternut well 607 butternut

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0165	GROSS ALPHA	EQ	pCi/L	3.0000	2.1000	N	14.9999	N	

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND -- No Detect

Source 16

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	RAD	028	53434	04/17/2017	s16 olmstead well

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0040	RADIUM 226 + 228	EQ	pCi/L		1.3500	N	4.9999	N	5.0000

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND -- No Detect

Source 17

Source Status	Source Type	Test Panel	Lab Number	Sample Number	Collect Date	Sample Location
Act	Well	RAD	163	06086	03/19/2019	s17 asahel curtis

Analyte DOH #	Analyte Name	Result Range	Units	SRL	Result Qty	Trigger Ind	Trigger Value	MCL Ind	MCL Value
0165	GROSS ALPHA	EQ	pCi/L	3.0000	2.8100	N	14.9999	N	

Result Range:
EQ - Equal To LT - Less Than GT - Greater Than NA - Not Analyzed ND -- No Detect

LEAD AND COPPER (LCR)

Monitoring Level	Start	End	Pb 90th	Pb Hi	Cu 90th	Cu Hi	Sam Reqt	Sam Taken	AL Pb Inc	AL Cu Inc	Mon Inc
Second6Mo	01/1993	06/1993					40	40			
Base3Y	01/2012	12/2014	.0008	.0011	.1240	.1750	30	30			
Base3Y	01/2006	12/2008	.0008	.0016	.1690	.2800	20	20			
Second6Mo	07/1995	12/1995					20	40			
Base3Y	01/2018	12/2020	.0008	.0022	.0444	.0783	30	31			
First6Mo	07/1992	12/1992					40	40			
Base3Y	01/2021	12/2023					30	0			
Base3Y	01/2003	12/2005	.0015	.0036	.0415	.0672	20	20			
Base3Y	01/2015	12/2017	.0013	.0026	.1080	.1860	30	30			
Base3Y	01/2009	12/2011	.0009	.0015	.0981	.1920	20	30			
AnnualRed	01/1996	12/1996	.0040	.0040	.1300	.1300	20	19			
Base3Y	01/1997	12/1999					20	0			
Base3Y	01/2000	12/2002	.0040	.0060	.2000	.2000	20	20			

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Sanitary Survey Data Report / Packet

As Of: 9/26/2022

***** End Of Report *****

Assigned Sanitary Survey - Short Version

Report Run Date: 9/26/2022

Region	County	Assigned Surveyor	Next SS Due	WS ID	WS Name	WS Group	WS Type	WS Status	Total Connections
EA	YAKIMA	ANDRES CERVANTES	2025	28970	GRANDVIEW CITY OF	A	Comm	Active	3334

Sanitary Survey Compliance Report

Report Date: 09/26/2022

Water System

WS ID:	28970	**WS Name:**	GRANDVIEW CITY OF	**Group:**	A	**Type:**	Comm
SMA Number:		**SMA Name:**		**Status:**	Active	**Total Connections:**	3334
Next Survey Date:	2025	**Certified Operator:**	Castulo Arteaga	**Region:**	EA	**County:**	YAKIMA

Sanitary Survey

Survey Date:	07/30/2020	**Survey Type:**	DOH Surveyor	**Survey Letter Date:**	04/26/2021
Surveyor A:	DOH Surveyor	**Surveyor B:**	ANDRES CERVANTES	**# of Days since Letter:**	518

Comments:

Associated Compliance Actions

Compliance Action Type	Issued Date	Status	DW Reference Number

Deficiencies (CAP = Corrective Action Plan)

Category	Directive	Comply By	CAP Received	CAP Due Date	Completed	Out of Compliance	Days Out of Compliance
Significant Deficiency	Sll - Seal around the small diameter poly tube within the conduit watcrtight.	06/10/2021			07/02/2021	No	
Significant Deficiency	S17 - Seal or confirm the conduit / junction box is watertight.	06/10/2021			07/02/2021	No	
Significant Finding	Complete an inspection of the reservoir roof and components. R	06/10/2021			07/02/2021	No	

Sanitary Survey Compliance Report

Report Date: 09/26/2022

Water System

WS ID:	28970	**WS Name:**	GRANDVIEW CITY OF	**Group:**	A	**Type:**	Comm
SMA Number:		**SMA Name:**		**Status:**	Active	**Total Connections:**	3334
Next Survey Date:	2025	**Certified Operator:**	Castulo Arteaga	**Region:**	EA	**County:**	YAKIMA

Sanitary Survey

Survey Date:	05/19/2015	**Survey Type:**	DOH Surveyor	**Survey Letter Date:**	12/22/2015
Surveyor A:	ANDRES CERVANTES	**Surveyor B:**		**# of Days since Letter:**	2470

Comments:

Associated Compliance Actions

Compliance Action Type	Issued Date	Status	DW Reference Number
Directive	12/22/2015	Completed	2016-DIR-0080

Deficiencies (CAP = Corrective Action Plan)

Category	Directive	Comply By	CAP Received	CAP Due Date	Completed	Out of Compliance	Days Out of Compliance

Sanitary Survey Compliance Report

Report Date: 09/26/2022

Water System

WS ID:	28970	**WS Name:**	GRANDVIEW CITY OF	**Group:**	A	**Type:**	Comm
SMA Number:		**SMA Name:**		**Status:**	Active	**Total Connections:**	3334
Next Survey Date:	2025	**Certified Operator:**	Castulo Arteaga	**Region:**	EA	**County:**	YAKIMA

Sanitary Survey

Survey Date:	05/17/2010	**Survey Type:**	DOH Surveyor	**Survey Letter Date:**	06/16/2010
Surveyor A:	ANDRES CERVANTES	**Surveyor B:**		**# of Days since Letter:**	4485

Comments:

Associated Compliance Actions

Compliance Action Type	Issued Date	Status	DW Reference Number
Directive	06/16/2010	Completed	2010-DIR-0429

Deficiencies (CAP = Corrective Action Plan)

Category	Directive	Comply By	CAP Received	CAP Due Date	Completed	Out of Compliance	Days Out of Compliance

Sanitary Survey Compliance Report

Report Date: 09/26/2022

Water System

WS ID:	28970	**WS Name:**	GRANDVIEW CITY OF	**Group:**	A	**Type:**	Comm
SMA Number:		**SMA Name:**		**Status:**	Active	**Total Connections:**	3334
Next Survey Date:	2025	**Certified Operator:**	Castulo Arteaga	**Region:**	EA	**County:**	YAKIMA

Sanitary Survey

Survey Date:	03/04/2005	**Survey Type:**	DOH Surveyor	**Survey Letter Date:**	04/04/2005
Surveyor A:	ANDRES CERVANTES	**Surveyor B:**		**# of Days since Letter:**	6384

Comments:

No HPHR

Associated Compliance Actions

Compliance Action Type	Issued Date	Status	DW Reference Number

Deficiencies (CAP = Corrective Action Plan)

Category	Directive	Comply By	CAP Received	CAP Due Date	Completed	Out of Compliance	Days Out of Compliance

CITY OF GRANDVIEW

30.
NITRATE TREATMENT ALTERNATIVES REPORT

HLA
Engineering and Land Surveying, Inc.

CITY OF GRANDVIEW

NITRATE TREATMENT ALTERNATIVES

Project Report

HLA PROJECT NO. 21046E

SEPTEMBER 2022

HLA
Engineering and Land Surveying, Inc.

CITY OF GRANDVIEW

NITRATE TREATMENT ALTERNATIVES

Project Report

Prepared by:

HLA
Engineering and Land Surveying, Inc.

PROJECT NO. 21046E

OCTOBER 2022

1.0 INTRODUCTION

The City of Grandview water system is supplied from 13 primary source wells, including two City-owned emergency wells. The City conducts annual monitoring for Nitrate and Nitrite on all well sources, and monthly monitoring on four of its wells, including Olmstead A Well (DOH Source S07), Olmstead B Well (DOH Source S16), North Willoughby Well (DOH Source S10), and South Willoughby Well (DOH Source S13). The maximum contaminant levels (MCL) for nitrate and nitrite are 10.0 mg/L and 1.0 mg/L, respectively. Nitrates exceeding this concentration in drinking water can be a health hazard, especially to infants below six months of age. All source wells are tested individually, though some sources are blended prior to entering the distribution system.

The Olmstead Wells (S07 and S16) and Willoughby Wells (S10 and S13) are currently blended to address high nitrate levels in Wells S07 and S10. However, as addressed in the 2022 *Water System Plan*, the City's groundwater sources have experienced a steady decrease in capacity over time, and there are concerns that insufficient low-nitrate blending water may be available at times to allow the high-capacity, high-nitrate wells to operate without creating a risk of exceeding the nitrate MCL. The declining source capacity of the City's wells has exacerbated this issue, as additional wells are required to operate to meet water demand, and the high nitrate wells would not be otherwise required to operate if the low nitrate wells could meet water demand. The City is also anticipating rapid growth in upcoming years, further increasing the need for all City wells to be available.

This Project Report (Report) is intended to summarize historical nitrate concentration data and provide recommendations for future improvements to address the situation.

2.0 EXISTING WATER SYSTEM DESCRIPTION AND BACKGROUND

2.1 Source No. S07 (Olmstead A Well)

This well is located at 580 Olmstead Road, at the intersection of Stover Road and Olmstead Road along the Sunnyside Canal, as shown on Figure 1. Originally drilled in 1963 to a depth of 112 feet, the well has a 12-inch casing from the surface to a depth of 36 feet. The well is equipped with an ITT Goulds 2-stage submersible 20 hp, 460-volt pump (Model No. 7WAHC) with an initial design capacity of 245 gpm at 225 feet TDH. The pump was installed in 2004, and its current capacity has declined to 165 gpm. A 2-inch air release valve, two 4-inch butterfly valves, and a 6-inch gate valve are installed on the discharge piping as well as a 6-inch McCrometer flow meter. Water pumped from this well was blended with Well S16 to reduce nitrate levels below the maximum contaminant level until January 2020 when it was taken offline due to concerns about Well S16's declining capacity.

2.2 Source No. S10 (North Willoughby Well)

This well is located east of the North Elm Street and Willoughby Road intersection, adjacent to the City's 3.0 MG storage reservoir, as shown on Figure 1. Drilled in 1978 to a depth of 610 feet, the well has a 12-inch casing from the surface to a depth of 155 feet, and an 8-inch casing from 155 feet to 610 feet. The well is equipped with a Peabody Floway 10 DKM 9-stage deepwell turbine with a 60 hp, three phase, 460-volt, 1,800 rpm motor. The pump was installed in 1978, and the well's initial capacity was 525 gpm. The pump was reconditioned in 1992, and the well's current capacity is 315 gpm. The discharge piping is equipped with a 2-inch deep well vertical turbine air/vacuum valve with throttling device and 1/2-inch automatic air relief valve, a 6-inch electromagnetic flow meter with integral transmitter, and a 6-inch silent wafer check valve.

SOURCE WELL S16
OLMSTEAD B
DEPTH 623 FT
20 GPM CAPACITY

SOURCE WELL S07
OLMSTEAD A
DEPTH 112 FT
180 GPM CAPACITY

N
W
E
S

0 750 1500

SOURCE WELL S10
NORTH WILLOUGHBY
DEPTH 610 FT
315 GPM CAPACITY

STANDPIPE RESERVOIR
TOTAL CAPACITY 3.0 MG
OVERFLOW ELEV. 941.6 FT

SOURCE WELL S13
SOUTH WILLOUGHBY
DEPTH 1,200 FT
1,000 GPM CAPACITY

CITY OF GRANDVIEW

Nitrate Treatment Alternatives Project Report

WELL LOCATION MAP

LEGEND

- CITY LIMITS
- FUTURE SERVICE AREA
- WATER MAINS (10" AND LARGER)
- STORAGE RESERVOIR
- GROUNDWATER WELL - SADDLE MOUNTAIN BASALT AQUIFER
- GROUNDWATER WELL - WANAPUM BASALT AQUIFER

HLA Engineering and Land Surveying, Inc.
2803 River Road
Yakima, WA 98902
509.966.7000
Fax 509.965.3800
www.hlacivil.com

PRINTED: 8/25/2022
P:\Projects\2021\21046\Grandview Nitrate Study Figure.dwg

FIGURE 1

The well is housed in a 13-foot by 21-foot concrete block, plywood, and sheet metal pumphouse. Within the pumphouse is a separate 8-foot by 6-foot chlorine room which houses a Capital Control Advance 200 series gas chlorinator for disinfection, and a Wallace Tiernan AcuTec 35 gas detection system. The well is equipped with a Hercules auxiliary gas engine drive unit for emergency operation. Water from this well discharges into the adjacent storage reservoir to blend with water from Well S13 prior to discharge to the distribution system.

2.3 Source No. S13 (South Willoughby Well)

This well is located at 601 N. Willoughby Road, along the east side of North Willoughby Road approximately 350 feet south of Well S10, as shown on Figure 1. Originally drilled in 1982 to a depth of 954 feet, the well was drilled deeper in 2007 to a depth of 1,200 feet. The well has a 16-inch casing from the surface to a depth of 683 feet and a 12-inch casing from 676 feet to a depth of 1,200 feet. The well is equipped with an ITT Goulds 6-stage, submersible pump, Model 14RJMC, powered by a 250 hp, 3-phase, 460-volt, 1,730 rpm motor. The well's initial capacity was 1,980 gpm, but current capacity is 1,000 gpm. A 2-inch air release valve, 12-inch check valve, and a 12-inch butterfly valve are installed on the discharge piping as well as a 4-inch electromagnetic flow meter.

The well is housed in a 38-foot 4-inch by 21-foot 7-inch concrete block and sheet metal pumphouse. Within the pumphouse is a separate 19-foot 4-inch by 10-foot chlorine room which houses a Wallace Tiernan chlorinator, a Scaletron digital scale, and a Wallace Tiernan AcuTec 35 gas detection system. The well is equipped with an Onan 1800 rpm auxiliary diesel generator for emergency operation. Water from this well discharges into the adjacent storage reservoir to blend with water from Well S10 prior to discharge to the distribution system.

Well S13 historically had an arsenic concentration sample of 12.7 ppb, which is greater than the MCL of 10 ppb. However, recent testing has not indicated that this was a representative sample.

2.4 Source No. S16 (Olmstead B Well)

This well is located at 380 Olmstead Road, at the intersection of Stover Road and Olmstead Road along the Sunnyside Canal, as shown on Figure 1. Drilled in 2004 to a depth of 623 feet, the well has a 16-inch casing from the surface to a depth of 230 feet, and a 12-inch casing from 219 feet to 623 feet. The well is equipped with an ITT Goulds 5-stage submersible 20 hp, 460-volt pump (Model No. 7RAHC) with a design capacity of 80 GPM at 510 feet TDH. However, the well's current capacity is 40 gpm upon startup, after which it declines to approximately 20 gpm after extended operation. A 1/2-inch air release valve, 3-inch gate valve, and 2-inch flow control valve are installed on the discharge piping as well as a 3-inch Ex 80 Series Insertion Electromagnetic flow meter. Water pumped from this well was blended with Well S07 to reduce nitrate levels below the maximum contaminant level until January 2020, when it was taken offline due to concerns about its declining capacity and inability to provide an acceptable blended nitrate concentration.

Well S16 historically had an arsenic concentration sample of 12.6 ppb, which is greater than the MCL of 10 ppb. However, recent testing has not indicated that this was a representative sample. It also has a high H_2S content, and the City limits its production for aesthetic reasons.

2.5 Nitrate Concentrations

Table 1 summarizes historical nitrate concentrations for the four wells between 2015 and 2022. The two wells with significant nitrate concentrations are S07 and S10. Water quality data was obtained from the Washington State Department of Health SENTRY Database. To be conservative, it is assumed for system analysis that the nitrate concentration for each well is equal to its historical average plus half of a standard deviation. This accounts for the variability of nitrate concentrations between samples and current trend of nitrate concentration increasing over time.

TABLE 1 GRANDVIEW WELL NITRATE DATA 2015-2022

Category	Well S07	Well S10	Well S13	Well S16
Average Nitrate Concentration (mg/L)	8.80	8.20	0.50	0.60
Minimum Nitrate Concentration (mg/L)	5.00	1.60	0.10	0.10
Maximum Nitrate Concentration (mg/L)	10.70	10.20	5.00	2.70
Standard Deviation (mg/L)	0.80	2.00	0.70	0.50
Pump Capacity (gpm)	165	315	1,000	40
Nitrate Concentration for Analysis (mg/L)	9.20	9.20	0.85	0.85

3.0 WATER QUALITY REQUIREMENTS

The MCL for nitrate is 10 mg/L, which is higher than the nitrate concentrations for each well considered for this analysis. However, both Well S07 and S10 have had measured nitrate concentrations above 10 mg/L in the past and failure to plan conservatively could result in potable water being provided to the customers of Grandview's water utility with a nitrate concentration above the MCL. For this reason, a target nitrate concentration of 7.5 mg/L will be used for identifying reasonable operating conditions and design criteria for recommended projects. This will provide a sufficient safety factor to account for potential nitrate concentration increases over time and prevent outlier nitrate concentration testing results from causing MCL violations.

3.1 Sources S07 and S16

Based upon the pump capacities and nitrate concentrations identified in Table 1, Well S07 and Well S16 are expected to approximately meet the blended target concentration of 7.5 mg/L, as calculated below:

$$(Q_{S07})(C_{S07}) + (Q_{S16})(C_{S16}) = (Q_{BLEND})(C_{BLEND})$$
$$(165\ gpm)(9.20\ mg/L) + (40\ gpm)(0.85\ mg/L) = (205\ gpm)(\mathbf{7.57\ mg/L})$$

However, this blending calculation is dependent upon a pump capacity of 40 gpm for Well S16. As addressed above, the City's recent experience has been that Well S16's capacity declines as it operates. The cause of this operating issue is unknown, and the City believes it is likely a combination of well drawdown and screen blinding due to biofouling. As calculated below, the resulting nitrate concentration in the blended water is significantly above the target concentration of 7.5 mg/L when capacity depression occurs:

$$(Q_{S07})(C_{S07}) + (Q_{S16})(C_{S16}) = (Q_{BLEND})(C_{BLEND})$$
$$(165\ gpm)(9.20\ mg/L) + (20\ gpm)(0.85\ mg/L) = (185\ gpm)(\mathbf{8.30\ mg/L})$$

Using these criteria, Well S07 cannot be safely operated at this time due to the capacity depression of Well S16. This conclusion is consistent with recent operational experience.

3.2 Sources S10 and S13

Based upon the pump capacities and nitrate concentrations identified in Table 1, Well S10 and Well S13 are expected to meet the blended target concentration of 7.5 mg/L when operated simultaneously, as calculated herein:

$(Q_{S10})(C_{S10}) + (Q_{S13})(C_{S13}) = (Q_{BLEND})(C_{BLEND})$
(315 gpm)(9.20 mg/L) + (1,000 gpm)(0.85 mg/L) = (1,315 gpm)(**2.85 mg/L**)

Wells S10 and S13 each discharge into a 3.0 MG reservoir, which allows Well S10 to operate independently from Well S13, unlike the combination of S07 and S16 that discharge directly into the distribution system. However, the City will need to take care to operate Well S13 sufficiently to prevent the nitrate concentration in the reservoir from elevating over time. As calculated below, Well S13 is only required to operate for 8% of the hours that Well S10 is operated in order to maintain the target nitrate concentration in the 3.0 MG reservoir.

$(V_{S10})(C_{S10})(100\%) + (V_{S13})(C_{S13})(x\%) = (V_{S10} + xV_{S13})(C_{BLEND})$
(315 gal)(9.20 mg/L) + (1,000 gal)(0.85 mg/L)(**8.0%**) = (315 +**80**)(7.5 mg/L)

4.0 WATER TREATMENT ALTERNATIVES

Despite having a significant nitrate concentration, Well S10 does not present an operating issue at this time, provided that Well S13 is also operated often enough to reduce the nitrate concentration within the 3.0 MG reservoir. This is primarily because Well S13 has a significantly greater capacity and is the low nitrate well in that well pairing. However, Well S07 is the high flow well in its pair, resulting in current difficulties.

Various alternatives for addressing the Well S07 nitrate concentration are presented below.

4.1 Alternative 1 - Decommission Well S07

Alternative 1 consists of the current practice of not operating Well S07. During the development of the *2022 Water System Plan*, the City's Water Facilities Inventory (WFI) Form was updated to address the declining capacities of the various City wells. The City currently estimates that the total capacity of its various non-emergency wells is 3,299 gpm, which is insufficient for future requirements. To address this, the City has included the development of two new wells in its capital improvement program. The City anticipates that the first well will be developed within the next ten years, with a target capacity of 1,500 gpm.

This is the least cost alternative, as no further action is necessary on the City's part. However, it also further reduces the source capacity of the water system and puts additional pressure on its other wells to meet system demands. As City growth occurs, it would likely become necessary to pursue one of the other alternatives to reclaim the capacity of Well S07.

4.2 Alternative 2 – Investigate and Clean Well S16

As addressed above, the practice of blending Well S07 and S16 has not been feasible in recent years due to Well S16's capacity decreasing over time as it operates. To address this, a video investigation would be undertaken to review the condition of the screens and confirm the City's assumption that the likely cause is biofouling blinding the screens and reducing water intake. The screens would be chemically cleaned or replaced, along with any other components that video investigation suggests are contributing to the capacity decrease.

The estimated cost to perform this work is $334,600, as summarized in Appendix A.

4.3 Alternative 3 – Redevelop Well S16

Alternative 3 is like Alternative 2 in that it seeks to continue the original practice of blending Wells S07 and S16. However, this alternative would be undertaken with the understanding that the existing Well S16 will not be used due to the likelihood of ongoing maintenance cleanings and materials replacement. Instead, a replacement well in the nearby vicinity would be developed, ideally with a greater capacity and with fewer maintenance concerns.

The estimated cost to perform this work is $2,248,800, as summarized in Appendix A.

4.4 Alternative 4 – Well S07 Treatment

Alternative 4 consists of constructing a nitrate treatment facility at the Well S07 site to treat a fraction of the well discharge and blend it with the remaining untreated portion. For estimation purposes, a capacity of 30 gpm has been assumed for sizing equipment. This would result in 135 gpm of untreated water blending with 30 gpm of treated water to produce 165 gpm of water with a nitrate concentration of 7.5 mg/L. In this scenario, Well S16 would no longer be needed, but could be operated if the City chose to do so.

A variety of nitrate treatment technologies are available, although ion exchange and reverse osmosis are the most commonly used technologies in the State of Washington. If this alternative were to be chosen, pilot study of one or more technologies would be undertaken to provide a better understanding of process conditions for full scale buildout. The presence of water constituents such as iron, manganese, sulfate, alkalinity, and pH have an impact on these technologies and may require chemical addition or other processes to condition the water for proper treatment. The processes also create a brine or concentrate byproduct that must be managed, which results in additional costs and other maintenance concerns. A state waste discharge permit would be required for disposal, as the City's sewer system does not currently extend to the Well S07 site, and the brine would be considered a potential source of groundwater contamination. Rather than construct a nitrate treatment system for the reject wastewater, a small pump station would be constructed to discharge the wastewater to the City's sewer system. Alternately, a double-lined geomembrane pond could be used to store and evaporate the brine, although doing so would limit operation throughout the course of the year to a volume where evaporation rates could adequately dispose of the brine. A 0.5-acre lagoon 6 feet deep has been assumed.

Based upon an average net evaporation (annual evaporation – annual precipitation) of approximately 40 inches throughout the year, a 0.5-acre lagoon could evaporate 543,000 gallons of brine waste per year. Conversations with treatment process manufacturers have indicated that during typical treatment, a target recovery rate of 75% can be assumed, which would be equal to an equivalent reject rate of 7.5 gpm (30 gpm * 25%) for the total flow of 165 gpm. Therefore, Well S07 could operate for approximately 72,400 minutes (1,200 hours) per year, as summarized below.

Total Brine Production: (72,400 minutes)(7.5 gpm) = 543,000 gal
Total Evaporation: (0.5 ac)(43,560 ft^2/ac)(40 in)(1 ft/12 in)(7.48 gal/ft^3) = 543,000 gal

Ion exchange uses a pressure vessel containing resin to bind nitrate ions and release chloride ions, similar to how a water softener operates. Periodically, a regeneration process is required to purge the nitrate from the system, resulting in a nitrate-rich brine wastewater that must be disposed of. This technology also risks high nitrate discharges from the system if regeneration does not occur often enough. Pretreatment is required upstream of the ion exchange to remove any constituents that would otherwise compete for binding sites on the resin and reduce the capability of removing nitrate.

Reverse osmosis is a physical process in which contaminants are removed by applying pressure to the raw water to move it through a semi-permeable membrane, allowing water molecules to pass through while retaining nitrate. Reverse osmosis is extremely expensive when compared to other technologies due to the high pressures required and the low ratio of finished water compared to reject water flowrates.

The estimated cost to perform this work is $3,158,200 for the pump station brine disposal alternative and $2,412,100 for the evaporation pond disposal alternative, as summarized in Appendix A. The costs assume a reverse osmosis treatment process based upon preliminary equipment quotes. Additional capital improvements may be necessary after completion of pilot testing to include chemical feed or other water pretreatment processes required to utilize the treatment technologies.

4.5 Alternative 5 – Three Well Blending

Alternative 5 consists of modifying the City's water distribution system to discharge Well S07 into a transmission main that enters the 3.0 MG reservoir adjacent to Well S10, with no water services connected to it. This would allow the Well S07 water to be blended with Well S10 and Well S13 water. In this scenario, Well S16 would no longer be needed, but could be operated if the City chose to do so. The water main would consist of an approximately 3,960 LF new 6-inch PVC transmission main piping within the existing Sunnyside Valley Irrigation District (SVID) canal right-of-way, then down N. Willoughby Road to the 3.0 MG reservoir.

This alternative would require that Well S13 operate longer than if it were only to be blended with Well S10. As calculated below, during the worst-case scenario where Wells S07 and S10 were operated continuously, Well S13 would be required to operate 12.2% of the time:

$$(V_{S07})(C_{S07})(100\%) + (V_{S10})(C_{S10})(100\%) + (V_{S13})(C_{S13})(x\%) = (V_{S07} + V_{S10} + xV_{S13})(C_{BLEND})$$

(165 gal)(9.2 mg/L) + (315 gal)(9.2 mg/L) + (1,000 gal)(0.85 mg/L)(**12.2%**) = (165 + 315 +**122**)(7.5 mg/L)

The estimated cost to perform this work is $726,600, as summarized in Appendix A.

4.6 Alternative 6 – Three Well Treatment

Alternative 6 is a combination of Alternatives 4 and 5. Rather than relying upon Well S13 to operate as a means of reducing nitrate in the system, a treatment system would be constructed at the 3.0 MG reservoir site. This would allow either Well S07 or S10 to operate independently of Well S13 operation and would also construct the treatment system in a location with sewer system access to address the need for brine disposal. The treatment system would be designed with a capacity of 100 gpm. This would allow both Well S07 and S10 to operate simultaneously (480 gpm) with 380 gpm bypassing treatment and blending with the 100-gpm treated flow, for a blended nitrate concentration of approximately 7.5 mg/L.

The estimated cost to perform this work is $3,161,600, as summarized in Appendix A. The costs assume a reverse osmosis treatment process based upon preliminary equipment quotes. Additional capital improvements may be required after completion of pilot testing to include chemical feed or other water pretreatment processes required to utilize the treatment technologies.

5.0 CONCLUSION AND RECOMMENDATIONS

Alternative 1 is the "do nothing" alternative and represents current operations. The City is experiencing reduced capacity in its wells in conjunction with rapid population growth and cannot afford to limit the use of its sources if operation or treatment solutions are available. Many reasonable alternatives exist that would allow for Well S07 to be placed back into operation at a lower cost than developing new equivalent source capacity, therefore one of these alternatives should be selected.

Alternative 2 may be a worthwhile short-term solution, but it is assumed that the decrease in Well S16 capacity is likely to be a chronic problem that may require repeated ongoing treatment steps, which would be expensive to perform. Depending on the City's timeline for undertaking one of the other major capital projects identified herein, this alternative may be a reasonable choice for bringing Well S07 back into service as soon as possible while budgeting or otherwise preparing for a longer-term solution.

Alternative 3 is not recommended, as it is one of the more expensive alternatives and if the City is going to be constructing new sources, it should be focusing on higher capacity sources instead of replacing a 40-gpm source in-kind.

Alternative 4 is not recommended because it is similar in scope and approach to Alternative 6 but provides a smaller benefit. If gravity sewer were available in the vicinity of Well S07, this approach would be reasonable, but the need to construct additional infrastructure to manage the brine waste stream increases the capital cost. Constructing a brine evaporation pond reduces capital cost, but with a tradeoff of reducing the number of hours that the well can be operated within a year. The brine pump station option requires pipe be constructed between Well S07 and Well S10, and Alternatives 5 and 6 also require a pipe between the sources, but in a more effective manner. Rather than convey wastewater, the pipe would be used to either blend water and reduce the need for treatment entirely or convey untreated water to a central treatment location where multiple wells can undergo treatment, rather than a single well, thereby addressing multiple nitrate problems.

It is recommended the City pursue Alternative 5 to blend the three well sources. This alternative is lower cost than many of the alternatives and provides the City with the option of upgrading to Alternative 6 and constructing a treatment system in the future if blending does not adequately address the nitrate problems due to H_2S production in Well S13.

6.0 NITRATE BLENDING PLAN

During the development of the 2022 *Water System Plan*, the Department of Health requested that the City develop a Nitrate Blending Plan to assist in managing the nitrate concentration of its drinking water and addressing potential MCL violations. The completed Nitrate Blending Plan can be found in Chapter 10. The City manages its nitrate through a combination of daily monitoring activities, monthly monitoring procedures, and following the provisions of its *Emergency Response Plan*.

6.1 Daily Monitoring

The City has routine tasks including daily reviews of each of the wells, including checking oil in pumps, checking the chlorine systems and telemetry to identify alarms or other conditions that must be addressed, and recoding flow meter readings. To address Department of Health's (DOH) request, City staff will also use a handheld nitrate analyzer to check blended nitrate concentrations at both the Well S07/S16 site and in the 3.0 MG reservoir adjacent to Wells S10 and S13. This is not expected to replace the precision of the quarterly laboratory nitrate testing that is performed, but to verify that the City's blending strategy is maintaining acceptable water quality, as nitrate levels have varied significantly in the past, and nitrate spikes could still potentially lead to MCL violations.

If blended nitrate concentrations exceed 8 mg/L, the wells will be taken offline and City staff will perform follow up checks to determine whether the elevated nitrate concentration is due to nitrate concentration being higher than expected in one of the wells, or if it is due to flowrate being higher or lower than expected in either well. Appropriate follow up actions will be taken to resolve the situation and return the sources to service.

6.2 Monthly Monitoring

The City's routine tasks include monthly monitoring and recording of well draw down levels. The City will also review monthly operating hours of Wells S10 and S13 to determine if telemetry changes are necessary to maintain the appropriate ratio of operating hours between these sources. The daily nitrate checks at the 3.0 MG reservoir are expected to provide evidence that Well S13 needs to be operated more, as nitrate concentration will increase over time in the reservoir if the operating hours have not been properly balanced.

6.3 Emergency Response Provisions

If water quality exceeds any MCL, the City is required to notify DOH and take follow-up action. When a primary MCL violations occurs, the City will Notify DOH and issue a public notice within 24 hours, as identified in Chapter 6 of the 2022 *Water System Plan*. This shall include:

- Notices in English and Spanish providing a clear, concise, and simple explanation of the violation. Notice shall be a combination of water notices on customer doors, signs on main travel routes through the City, statements to media, and notices displayed at prominent locations such as schools, government buildings, and/or stores
- Discussion of any potential health effects and any segment of the population which may be at higher risk
- Mandatory health effects information
- List of steps the City is taking or planning to remedy the situation
- List of steps the consumer should take including advice on seeking an alternative water supply if necessary
- The Water Department's contact name(s) and phone number

After an MCL violation is confirmed by laboratory test, the City will also confirm that the water quality has returned to an acceptable level with laboratory tests from throughout the distribution system and issue a statement to customers confirming that water quality has been restored using the same mechanisms as used to initially notify the public.

APPENDIX

APPENDIX DOCUMENTS INDEX

1. Cost Estimates

Alternative 2: Investigate and Clean Well S16

No.	ITEM	Quantity	Unit	Unit Price	Amount
1	Mobilization	1	LS	$ 18,000	$ 18,000
2	Well Pump Testing	1	LS	$ 20,000	$ 20,000
3	Well Video Inspection	1	LS	$ 3,000	$ 3,000
4	Mechanical Well Cleaning	1	LS	$ 26,000	$ 26,000
5	Chemical Well Cleaning	1	LS	$ 56,000	$ 56,000
6	Pump Maintenance and Rehabilitation	1	LS	$ 55,000	$ 55,000
7	Meter Upgrades	1	LS	$ 20,000	$ 20,000

Subtotal	**$ 198,000**
Construction Contingency (20%):	$ 39,600
Construction Subtotal	**$ 237,600**
Sales Tax (8.0%):	$ 19,000
Construction Total:	**$ 256,600**
Design Engineering (15%):	$ 39,000
Construction Engineering and Administration (15%):	$ 39,000
Total Estimated Project Cost	**$ 334,600**

Alternative 3: Redevelop Well S16

No.	ITEM	Quantity	Unit	Unit Price	Amount
1	Mobilization	1	LS	$ 121,300	$ 121,300
2	Drill and Install 16-Inch Surface Casing	230	LF	$ 450	$ 103,500
3	Drill and Install 12-Inch Chamber Casing	400	LF	$ 550	$ 220,000
4	Drill and Install 8-Inch Well Screen	300	LF	$ 900	$ 270,000
5	Well Development and Testing	1	LS	$ 78,100	$ 78,100
6	Clearing and Grubbing	1	LS	$ 10,000	$ 10,000
7	Shoring or Extra Excavation	1	LS	$ 1,000	$ 1,000
8	Well Building	500	SF	$ 500	$ 250,000
9	Relocate Well Pump and Motor	1	LS	$ 5,000	$ 5,000
10	Electrical and Control System	1	LS	$ 150,000	$ 150,000
11	Site Piping, Fittings, and Valves	1	LS	$ 75,000	$ 75,000
12	Site Improvements, Grading, Drainage, and Fencing	1	LS	$ 50,000	$ 50,000

Subtotal	**$**	**1,333,900**
Construction Contingency (20%):	$	266,800
Construction Subtotal	**$**	**1,600,700**
Sales Tax (8.0%):	$	128,100
Construction Total:	**$**	**1,728,800**
Design Engineering (15%):	$	260,000
Construction Engineering and Administration (15%):	$	260,000
Total Estimated Project Cost	**$**	**2,248,800**

Alternative 4A: Well S07 Treatment with Brine Pump Station

No.	ITEM	Quantity	Unit	Unit Price	Amount
1	Mobilization	1	LS	$ 165,000	$ 165,000
2	Brine Pump Station	1	LS	$ 200,000	$ 200,000
3	Shoring or Extra Excavation	3960	LF	$ 1	$ 3,960
4	Temporary Traffic Control	1	LS	$ 5,000	$ 5,000
5	4-Inch C900 PVC Force Main	3960	LF	$ 60	$ 237,600
6	HMA Surface Repair	840	LF	$ 60	$ 50,400
7	Gravel Surface Repair	270	LS	$ 40	$ 10,800
8	Treatment Equipment Building and Piping	400	SF	$ 500	$ 200,000
9	Reverse Osmosis Treatment Skid	1	LS	$ 676,500	$ 676,500
10	Site Piping	1	LS	$ 50,000	$ 50,000
11	Electrical and Control System	1	LS	$ 215,300	$ 215,300

Subtotal	**$**	**1,815,000**
Construction Contingency (20%):	$	363,000
Construction Subtotal	**$**	**2,178,000**
Sales Tax (8.0%):	$	174,200
Construction Total:	**$**	**2,352,200**
Design Engineering (15%):	$	353,000
Construction Engineering and Administration (15%):	$	353,000
Pilot Study:	$	100,000
Total Estimated Project Cost	**$**	**3,158,200**

Alternative 4B: Well S07 Treatment with Evapoarative Pond

No.	ITEM	Quantity	Unit	Unit Price	Amount	
1	Mobilization	1	LS	$ 124,700	$ 124,700	
2	4-Inch PVC Gravity Sewer	250	LF	$ 60	$ 15,000	
3	Geomembrane Liner, 60 mil, installed	22,000	SF	$ 1.50	$ 33,000	
4	Geomembrane Liner, 40 mil, installed	22,000	SF	$ 1.25	$ 27,500	
5	Geocomposite Spacer, installed	22,000	SF	$ 0.50	$ 11,000	
6	Leak Detection Manhole	1	LS	$ 10,000	$ 10,000	
7	Excavation	4,900	CY	$ 10	$ 49,000	Assumes 4 feet deep + 2 feet freeboard
8	Treatment Equipment Building and Piping	400	SF	$ 500	$ 200,000	
9	Reverse Osmosis Treatment Skid	1	LS	$ 676,500	$ 676,500	
10	Site Piping	1	LS	$ 50,000	$ 50,000	
11	Electrical and Control System	1	LS	$ 175,300	$ 175,300	

Subtotal	**$ 1,372,000**
Construction Contingency (20%):	$ 274,400
Construction Subtotal	**$ 1,646,400**
Sales Tax (8.0%):	$ 131,700
Construction Total:	**$ 1,778,100**
Design Engineering (15%):	$ 267,000
Construction Engineering and Administration (15%):	$ 267,000
Pilot Study:	$ 100,000
Total Estimated Project Cost	**$ 2,412,100**

Alternative 5: Three Well Blending

No.	ITEM	Quantity	Unit	Unit Price	Amount
1	Mobilization	1	LS	$ 39,200	$ 39,200
2	Shoring or Extra Excavation	3,960	LF	$ 1	$ 3,960
3	Temporary Traffic Control	1	LS	$ 5,000	$ 5,000
4	6-Inch C900 Water Main	3,960	LF	$ 80	$ 316,800
5	6-inch Gate Valve	2	EA	$ 2,500	$ 5,000
6	HMA Surface Repair	840	SY	$ 60	$ 50,400
7	Gravel Surface Repair	270	SY	$ 40	$ 10,800

Subtotal	**$ 431,000**
Construction Contingency (20%):	$ 86,200
Construction Subtotal	**$ 517,200**
Sales Tax (8.0%):	$ 41,400
Construction Total:	**$ 558,600**
Design Engineering (15%):	$ 84,000
Construction Engineering and Administration (15%):	$ 84,000
Total Estimated Project Cost	**$ 726,600**

Alternative 6: Three Well Treatment

No.	ITEM	Quantity	Unit	Unit Price	Amount
1	Mobilization	1	LS	$ 165,100	$ 165,100
2	Shoring or Extra Excavation	3,960	LF	$ 1	$ 3,960
3	Temporary Traffic Control	1	LS	$ 5,000	$ 5,000
4	6-Inch C900 Water Main	3,960	LF	$ 80	$ 316,800
5	6-inch Gate Valve	2	EA	$ 2,500	$ 5,000
6	HMA Surface Repair	840	SY	$ 60	$ 50,400
7	Gravel Surface Repair	270	SY	$ 40	$ 10,800
8	Treatment Equipment Building and Piping	500	SF	$ 500	$ 250,000
9	Reverse Osmosis Treatment Skid	1	LS	$ 757,500	$ 757,500
10	Site Piping	1	LS	$ 50,000	$ 50,000
11	Electrical Control System	1	LS	$ 201,500	$ 201,500

Subtotal	**$ 1,816,000**
Construction Contingency (20%):	$ 363,200
Construction Subtotal	**$ 2,179,300**
Sales Tax (8.0%):	$ 174,300
Construction Total:	**$ 2,353,600**
Design Engineering (15%):	$ 354,000
Construction Engineering and Administration (15%):	$ 354,000
Pilot Study:	$ 100,000
Total Estimated Project Cost	**$ 3,161,600**

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MAP A

CITY OF GRANDVIEW

EXISTING WATER SYSTEM

LEGEND

- EXISTING SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE SERVICE AREA BOUNDARY (UGA)
- EXISTING WATERMAIN
- FIRE HYDRANT
- WATER VALVE
- WELL/PUMP STATION
- RESERVOIR

CITY OF GRANDVIEW

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Yakima, WA 98902
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MAP B

CITY OF GRANDVIEW

WATER SYSTEM HYDRAULIC ANALYSIS NODE MAP

LEGEND

- EXISTING SERVICE AREA BOUNDARY (CITY LIMITS)
- FUTURE SERVICE AREA BOUNDARY (UGA)
- HYDRAULIC ANALYSIS PIPE
- HYDRAULIC ANALYSIS JUNCTION NODE

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