

**CHAPTER 4 - WATER
RESOURCE ANALYSIS &
WATER USE EFFICIENCY
(WUE)**

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 Department of Health 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 is 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 Department of Health 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

Selah's current Water Conservation Program, or Water Use Efficiency (WUE) Program, was prepared in April 2013 and replaced the previous Water Conservation Program provided in the *2007 Comprehensive Water Plan*. As part of this *2013 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 2007 to 2012. Further information on historical water use is provided in CHAPTER 2 of this Plan. Since 2008, total system annual water consumption has been reduced by over 15%. Annual residential demand and demand per service per day has also decreased since 2007.

TABLE 4-2 WATER CONSUMPTION INFORMATION 2007-2012						
Year	Population*	Total Water Services	Annual Water Consumption (MG)	Annual Residential Consumption (MG)	Residential Water Services	Residential Avg. Day Consumption per service (gal/service/day)
2007	6,740	2,289	751.858	331.064	1,972	460
2008	7,063	2,342	870.588	339.979	2,023	459
2009	7,158	2,385	838.662	315.937	2,056	421
2010	7,147	2,413	743.997	276.797	2,083	364
2011	7,205	2,442	753.492	278.572	2,114	361
2012	7,290	2,447	755.624	288.863	2,116	373

Note: Residential water services represents residential user category only, residential (outside) not included.
 * From Washington State OFM population estimates.

The City's 2013 *Water Use Efficiency Program* included a goal to reduce the current residential per capita use by five (5) gallons per service per day over the next two years. Since 2007, the City has already reduced single-family residential water consumption by 87 gallons per service per day as shown in Table 4-2. Overall, there has been a 12.7% reduction in annual residential consumption and a 18.9% reduction in residential demand per service since 2007.

Since 2007, the City has replaced several water service lines, valves, and distribution mains that were suspected to be leaking. In addition, the City has rehabilitated several reservoirs during this period, including crack sealing. 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 ground work for more efficient use of water. The City of Selah has observed reductions in single-family residential consumption per service through past conservation measures. Therefore, the City of Selah adopted the following WUE goal for their water system in 2013:

Reduce the current residential per capita use by five (5) gallons per service per day over the next two years.

It is anticipated that the reduction in residential use of five gallons per service per day could save approximately 3.86 million gallons annually over this two-year period.

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.

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 Selah.

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 (Current requirement based on DOH calculated active connections on City's Water Facilities Inventory)
10,000 – 49,999	9
Greater than 50,000	12

A discussion of the demand side measures that the City of Selah 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 Bill Notifications – Currently, monthly water bills show the previous and present meter readings to provide user consumption total for the month. Though consumers can see the total volume of water used, there is no direct message with regard to water use efficiency. The City of Selah plans to place notices on their customer's monthly bills to encourage customers to check for leaks and be aware of excessive water use due to leaks. This measure will further educate the public on the purpose of water conservation and the benefits of reducing excessive and/or unnecessary water use. Minimal costs associated with this measure include preparing the notification language and updating the billing software to print the selected message. The low cost of implementing this measure makes it an effective way to accomplish the specified efficiency goal for specific customer classes.

WUE Measure Cost Estimate: \$500 for preparation of materials

Estimated Water Savings: Unknown; however, it is anticipated that educating customers on the need to identify and repair potential leaks will contribute significantly to the goal of reducing single-family residential consumption.

WUE Measure Action Status: Scheduled for implementation in 2015.

City Webpage – The City’s current webpage includes a page devoted to the domestic water system, which provides a brief overview of the system components, water quality information, and has a link to the City’s Consumer Confidence Report (CCR). The City plans to add information to this webpage regarding the City’s Water Use Efficiency Program. Information will include conservation tips.

WUE Measure Cost Estimate: \$500 for updating webpage.

Estimated Water Savings: Unknown.

WUE Measure Action Status: Scheduled for implementation in 2016.

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	Projected Water Savings
Water Bill Notifications – Single-Family	\$100	2015	Unknown
Water Bill Notifications – Outside Single-Family	\$100	2015	Unknown
Water Bill Notifications – Apartment	\$100	2015	Unknown
Water Bill Notifications – Mobile Home Court	\$100	2015	Unknown
Water Bill Notifications – Irrigation Only	\$100	2015	Unknown
City Webpage	\$500	2016	Unknown

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 the 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 six years to reduce the system’s current DSL percentage and satisfy the City’s Water Loss Control Action plan objective. The estimated cost of these measures and anticipated water savings are also provided.

Source Meter Calibration – To obtain more accurate water production information and potentially reduce the City’s current DSL percentage, Selah will begin calibrating all source meters every two years. The City plans to budget to have its flow meters calibrated in 2015 and recalibrated roughly every two years after that. 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 4.20 million gallons, considering that approximately 840 million gallons were pumped into the system in 2012. 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 for a spare source meter and \$3,000 annually for calibration of three source meters.

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

WUE Measure Action Status: To be implemented in 2015.

Service Meter Replacement – In 2008, Selah began budgeting to upgrade all existing service meters to automatic radio-read meters. Installation of all service meters is anticipated to occur when funds are available. Radio-read meters will reduce the time Selah spends reading meters, and will potentially reduce inaccuracies from older worn or malfunctioning meters. Replacing the meters will allow the City to identify sources of excessive usage and possible leakage on the customer side of the meter. With use of radio-read meters, customers can easily be alerted of their excessive use and work with the City to eliminate the leakage. Installation of new radio-read meters will potentially decrease the difference between production and consumption volumes as well as overall water consumption within the City.

WUE Measure Cost Estimate: \$18,000 annually.

Estimated Water Savings: Unknown.

WUE Measure Action Status: Annual budgeting began in 2008.

Reservoir Cleaning and Inspection – The City periodically cleans and inspects its reservoirs for cracking and any other deficiencies. Cracking 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 cracking and potential DSL. The North Reservoirs, especially the smaller of the two, are known to have cracking and subsequent leaking. The approximate cost of inspecting and cleaning each reservoir is generally \$5,000, assuming no significant repairs are necessary.

WUE Measure Cost Estimate: Approximately \$5,000 per reservoir.

Estimated Water Savings: Unknown.

WUE Measure Action Status: Annual budgeting and inspection schedule.

TABLE 4-5 SUMMARY OF SUPPLY SIDE WUE MEASURES			
Measure Description	Implementation Cost	Year of Implementation	Projected Water Savings
Source Meter Calibration	\$3,000	2015	Unknown
Service Meter Replacement	\$18,000/annually	Began budgeting for in 2008	Unknown
Reservoir Cleaning and Inspection	\$15,000 per reservoir	2015	Unknown

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 of 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
Water Bill Notifications	\$500	2015	Unknown
City Webpage	\$500	2016	Unknown
Source Meter Calibration	\$3,000	2015	Unknown
Service Meter Replacement	\$18,000/annually	Began budgeting for in 2008	Unknown
Reservoir Cleaning and Inspection	\$5,000 per reservoir	2015	Unknown

The City plans to budget funds each year for the next six-year period to fund the WUE measures listed above in Table 4-6. These budget amounts are reflected in the proposed City of Selah financial plan in CHAPTER 9 of this Plan 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. Selah currently publicizes its water conservation program in its annual *Consumer Confidence Report* to inform customers of the City's conservation efforts. In the future, the City plans to provide additional conservation information to customers in their annual *Consumer Confidence Report*, to further educate the public on the purpose of using water more efficiently.

Customer education programs that Selah 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 *Consumer Confidence 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, Selah intends to initiate program promotion in 2015 through the use of its annual *Consumer Confidence Report* and water bill notifications.
- Speakers Bureaus – Speakers 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.
- 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.
- Theme Shows and Fairs – This activity involves preparation of a portable display of water conservation devices and selected written material, and making this display available at local area theme festivals and activities.

At this time, Selah 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 Department of Health (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.

Selah 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 *Consumer Confidence Report*, which will be published on the City's website. WUE Program effectiveness will also be evaluated every six 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.

4.2 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 fire fighting, 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 Selah's water sources are metered, and these source meters are read daily. All services in Selah's distribution system are metered and read monthly. Table 4-7 presents Selah's water production and water consumption values for the last four years and most recent three-year average (2010 through 2012).

Year	Water Production (gallons)	Water Consumption (gallons)	DSL (percent)
2007	819,365,000	751,858,184	8.24%
2008	915,296,000	870,587,850	4.88%
2009	899,882,000	838,662,088	6.80%
2010	829,198,000	743,997,452	10.28%
2011	825,952,000	753,624,364	8.77%
2012	840,323,000	755,624,364	10.08%
Total	5,130,016,000	4,714,221,754	8.11%
3-Year Average (2010-2012)	831,824,333	751,037,877	9.71%

Selah currently meets the 10% DSL standard when considering the current three-year average DSL, which is equal to 9.71%. 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.

4.3 WATER LOSS CONTROL ACTION PLAN

As discussed above, the City's current three-year average DSL percentage does not exceed the 10% threshold by DOH. Therefore, the City is not required to develop a Water Loss Control Action Plan (WLCAP) to achieve the primary objective of reducing DSL to meet the 10% standard.

4.4 SOURCE OF SUPPLY ANALYSIS

If 20-year water use projections forecast that demand will exceed existing water rights, the purveyor is required to conduct a *Source of Supply Analysis*. The purpose of the *Source of Supply Analysis* is to evaluate opportunities to obtain or optimize the use of existing sources already developed and to evaluate other innovative methods to meet water needs. Selah's 20-year water demand projections will not exceed their existing certified and permitted authorizations, but the following *Source of Supply Analysis* may be valuable in the future as projected growth occurs. A *Source of Supply Analysis* for the City of Selah is presented below.

The *Source of Supply Analysis* includes evaluation and discussion of the following items:

1. Enhanced Conservation Measures
2. Water Rights Changes
3. Interties
4. Artificial Recharge
5. Water Reclamation / Reuse Opportunities
6. Treatment

4.4.1 Enhanced Conservation Measures

Small systems (serving between 3,300 and 10,000 people) are required by the *USEPA Water Conservation Plan Guidelines* to implement basic guidelines and Level 1 measures. These measures include universal metering, water accounting and loss control, costing and pricing, and information and education. These measures are already addressed in the City's current WUE Program.

4.4.2 Water Rights Changes

This measure involves examining opportunities to utilize existing water rights via change(s) in water right parameters (change in place of use, change in purpose of use, change in point of diversion or additional points of diversion or withdrawal).

As Selah continues to grow and serve areas within their future service area, they will pursue the acquisition of the water rights/permitted uses associated with each newly annexed property. In some cases, the City may need to apply for a change in type of use, or change in point of use of the particular water right. These acquisitions may include:

- Permitted domestic or industrial ground or surface water rights associated with the annexed property;
- Permitted irrigation ground or surface water rights associated with the annexed property (these may include those portions supplied by an irrigation district or company); and
- Ground water rights associated with individual residential property (the domestic exemption water rights).

In addition, residential areas currently served by existing small water systems within Selah's Urban Growth Area may, in the future, become annexed by the City. Selah should acquire the water rights associated with those existing water systems if they become annexed. These include:

- Selandia Water System
- High Valley Water System
- New Horizons Water System
- Friday Point Water System

4.4.3 Interties

This measure involves exploring opportunities for interties with neighboring systems, their feasibility, and pursuing such opportunities if deemed more cost-effective and viable than new source development. Interties are possible with the following water systems:

- Selandia Water System
- High Valley Water System
- New Horizons Water System
- Friday Point Water System

4.4.4 Artificial Recharge

Artificial recharge is the injection or infiltration of available surface water (usually from high winter flows) or other available water into an aquifer and its subsequent withdrawal. However, Selah has no surface water right to use for artificial recharge. Selah may acquire a surface water right through some future annexation, but the City would most likely put such a right to direct use rather than using it for artificial recharge.

4.4.5 Water Reclamation / Reuse Opportunities

This measure involves exploring opportunities for reclaimed water, reuse, non-potable water, and greywater as an approach to providing additional water supply. For Selah, such sources of reclaimed or reused water include the Selah wastewater treatment plant, Tree Top, SunRype, Larson Fruit, and Matson Fruit.

Reclaim and reuse of wastewater from the City's wastewater treatment plant would be very expensive, and would have very limited uses (seasonal irrigation of the City parks and green strips along South First Street), and would conflict with the Department of Ecology's desire to enhance flows in Selah Ditch using wastewater treatment plant effluent. However, there may be possible reuses for some industrial water such as non-contact cooling waters. Use of such waters for irrigation of City parks and green strips, although seasonal, would reduce annual water demand, and lower demand during the critical summer period. Selah will begin investigating the technical, environmental, legal, and economic issues involved in reusing some industrial waters.

4.4.6 Treatment

For Selah, water treatment sources are the same as previously discussed in water reuse and reclamation, such as the Selah wastewater treatment plant, Tree Top, SunRype, Larson Fruit, and Matson Fruit.

4.5 WATER RIGHT STATUS SUMMARY

The City of Selah currently maintains certified water rights from the State of Washington Department of Ecology (WDOE) for the appropriation of ground water from Well Nos. 1 through 5 and Well No. 7. Well No. 6 has replaced Well Nos. 1 and 2, and Well No. 8 is used in rotation with Wells 3 and 4. A copy of the City's water right certificates, claims, permits and applications, and any associated reports of examination (ROE) and water right correspondence documents are provided in CHAPTER 10 of this Plan.

Selah's total combined certificated and claimed water rights is equal to 4,760 acre-feet per year and a maximum instantaneous withdrawal rate of 5,500 GPM.

Well Nos. 1 and 2

Selah's Certificate of Ground Water Right 359-D for Well No. 1 is for a maximum annual withdrawal volume of 147 acre-feet per year and a maximum instantaneous flow rate of 300 GPM. The priority date is 1920 and the certificate was confirmed on July 11, 1947. Selah's Certificate of Ground Water Right 360-D for Well No. 2 is for a maximum annual withdrawal volume of 171 acre-feet per year less any water withdrawn from the City's other sources and a maximum instantaneous flow rate of 350 GPM. The priority date is 1927 and was confirmed on July 11, 1947. Wells were located in the block bounded by 5th

Street, Speyers Road, and Bartlett Avenue at 46° 39' 04" N., 120° 32' 09" W. Well Nos. 1 and 2 are no longer in service.

Well Nos. 3, 4, and 8

Well Nos. 3 and 4 share a joint flow meter. As a result, water withdrawn from these two sources is recorded as a combined volume. Selah's Certificate of Ground Water Right 361-D for Well No. 3 is for a maximum annual withdrawal volume of 195 acre-feet per year and a maximum instantaneous flow rate of 400 GPM. The priority date is December 1944 and the certificate was confirmed on July 11, 1947. Selah's Certificate of Ground Water Right 1050-A for Well No. 4 is for a maximum annual withdrawal volume of 350 acre-feet per year and a maximum instantaneous flow rate of 750 GPM. The certificate was issued April 24, 1952 and was confirmed on January 20, 1987. Both wells are located approximately 1400 feet west and 300 feet north of the SE corner of Section 35, at 46° 39' 04" N., 120° 32' 10" W. Well No. 8 was constructed in 2010 as an additional well under Certificate Nos. 361-D and 1050-A, and is in the same location. The volume from Wells 3, 4, 5, and 8 together are not to exceed a withdrawal volume of 890 acre-feet per year. The maximum instantaneous withdrawal rate and total annual volume from Well Nos. 3, 4, 5, 6, and 8 shall not exceed 3,500 GPM and 1,600 acre-feet.

Well No. 5

Selah's Certificate of Ground Water Right 1348-A for Well No. 5 is for a maximum annual withdrawal volume of 525 acre-feet per year and a maximum instantaneous flow rate of 700 GPM. The priority date is November 16, 1951 and the certificate was confirmed on January 23, 1953. The well is located on the NW corner of the intersection of South Railroad Avenue and East 1st Avenue, at 46° 39' 11" N., 120° 31' 33" W. The volume from Wells 3, 4, 5, and 8 together are not to exceed 890 acre-feet. The maximum instantaneous withdrawal rate and total annual volume from Well Nos. 3, 4, 5, 6, and 8 shall not exceed 3,500 GPM and 1,600 acre-feet.

Well No. 6

Selah's Certificate of Ground Water Right 4003-A for Well No. 6 is for a maximum annual withdrawal volume of 1,600 acre-feet per year and a maximum instantaneous flow rate of 1,000 GPM. The priority date is May 11, 1959 and the certificate was confirmed on September 12, 1961. Well No. 6 replaced Wells 1 and 2, and is located in the block bounded by 5th Street, Speyers Road, and Bartlett Avenue, at 46° 39' 04" N., 120° 32' 09" W. The maximum instantaneous withdrawal rate and total annual volume from Well Nos. 3, 4, 5, 6, and 8 shall not exceed 3,500 GPM and 1,600 acre-feet.

Well No. 7

Selah's Certificate of Ground Water Right G4-30642P for Well No. 7 is for a maximum annual withdrawal volume of 3,160 acre-feet per year and a maximum instantaneous flow rate of 2,000 GPM. The priority date is March 15, 1991. The well is located in the NE quadrant of the NW quadrant of Section 36 of Township 14N of Range 18E, at 46° 39' 54" N., 120° 31' 22" W.

The status of Selah's water rights as compared to their existing and future water system demands is shown in Table 4-8, Table 4-9, and Table 4-10. The excess and/or deficiencies in the City's water rights are also shown in these tables. It can be seen that the existing and future water right statuses for the City is adequate to satisfy current demands, but will fail to meet well capacities for the future.

TABLE 4-8 WATER RIGHT SELF-ASSESSMENT: EXISTING WATER RIGHT(S) STATUS (YEAR 2012)

Permit Certificate or Claim #	Name of Right holder or Claimant	Priority Date	Source Name/No.	Primary or Supplemental	Existing Water Rights		Existing Water Production From Sources (Year 2009) ^a		Existing Water Right Status Excess (Deficiency)	
					Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)
Permits/Certificates										
1. 359-D	Selah	1920	Well No. 1	Primary	300	147		0		147
2. 360-D	Selah	1927	Well No. 2	Primary	350	171		0		171
3. 361-D ^{b,c}	Selah	Dec 1944	Well No. 3, S01 Well No. 8, S06 ^e	Primary	400	195		846		(301)
4. 1050-A ^{b,c}	Selah	4/08/1947	Well No. 4, S02 Well No. 8, S06 ^e	Primary	750	350				
5. 1348-A ^{b,c}	Selah	11/16/1951	Well No. 5, S03	Primary	700	525		403		122
6. 4003-A ^c	Selah	5/11/1959	Well No. 6, S04	Alternate/Primary	1,000	890/710		975		(85)
7. G4-30642P	Selah	3/15/1991	Well No. 7, S05	Primary	2,000	3,160		538		2,622
Claims										
1.										
TOTAL					5,500	4,760	3,282	2,762	2,218	1,998
Intertie Name – Identifier		Name of Purveyor Providing Water			Existing Limits on Intertie Water Use		Existing Consumption Through Intertie		Existing Intertie Supply Status Excess (Deficiency)	
					Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)
1.										
TOTAL										
Pending Water Right Application	Name on Permit	Date Submitted	Primary or Supplemental	Pending Water Rights						
				Maximum Instantaneous Flow Rate (Qi) REQUESTED		Maximum Annual Volume (Qa) REQUESTED				
1.										
<p>^a Calculated from the maximum day of production from all wells between 2007 and 2012 (August 4, 2009). Exceeds actual year 2012 maximum day production. The total instantaneous withdrawal rate was calculated from values provided in Chapter 2 as the City does not currently have the capability to record historic instantaneous withdrawal rates. However, well capacities limit production at individual wells to not exceed certificated water rights.</p> <p>^b The volume from Well Nos. 3, 4, 5, and 8 are not to exceed 890 acre-feet.</p> <p>^c The maximum instantaneous withdrawal rate and total annual volume from Well Nos. 3, 4, 5, 6, and 8 shall not exceed 3,500 GPM and 1,600 acre-feet.</p> <p>^d Well Nos. 3 and 4 share a joint flow meter and Well No. 8 shares the water rights of Well Nos. 3 and 4. As a result, water withdrawn from these three sources is shown as a combined volume.</p> <p>^e Well No. 8 was completed in 2010 as an additional well under certificate Nos. 361-D and 1050-A with a capacity of 1,150 gpm.</p>										

TABLE 4-9 WATER RIGHT SELF-ASSESSMENT: 6-YEAR FORECASTED WATER RIGHT(S) STATUS

Permit Certificate or Claim #	Name of Right holder or Claimant	Priority Date	Source Name/No.	Primary or Supplemental	Existing Water Rights		Forecasted Water Production From Sources (Year 2018)		Forecasted Water Right Status Excess (Deficiency)	
					Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)
Permits/Certificates										
1. 359-D	Selah	1920	Well No. 1	Primary	300	147				
2. 360-D	Selah	1927	Well No. 2	Primary	350	171				
3. 361-D ^{b,c}	Selah	Dec 1944	Well No. 3, S01 Well No. 8, S06 ^e	Primary	400	195				
4. 1050-A ^{b,c}	Selah	4/08/1947	Well No. 4, S02 Well No. 8, S06 ^e	Primary	750	350				
5. 1348-A ^{b,c}	Selah	11/16/1951	Well No. 5, S03	Primary	700	525				
6. 4003-A ^c	Selah	5/11/1959	Well No. 6, S04	Alternate/Primary	1,000	890/710				
7. G4-30642P	Selah	3/15/1991	Well No. 7, S05	Primary	2,000	3,160				
Claims										
1.										
TOTAL					5,500	4,760	3,523 ^a	2,713 ^a	1,977	2,047
Intertie Name – Identifier		Name of Purveyor Providing Water			Existing Limits on Intertie Water Use		Existing Consumption Through Intertie		Existing Intertie Supply Status Excess (Deficiency)	
					Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)
1.										
TOTAL										
Pending Water Right Application	Name on Permit	Date Submitted	Primary or Supplemental	Pending Water Rights						
				Maximum Instantaneous Flow Rate (Qi) REQUESTED		Maximum Annual Volume (Qa) REQUESTED				
1.										

^a The total future instantaneous withdrawal rate and annual volume are calculated from values provided in Chapter 2. Future withdrawals from each source well will be tracked by the City to ensure instantaneous and annual withdrawals do not exceed authorized quantities.

^b The volume from Well Nos. 3, 4, 5, and 8 are not to exceed 890 acre-feet.

^c The maximum instantaneous withdrawal rate and total annual volume from Well Nos. 3, 4, 5, 6, and 8 shall not exceed 3,500 GPM and 1,600 acre-feet.

^d Well Nos. 3 and 4 share a joint flow meter and Well No. 8 shares the water rights of Well Nos. 3 and 4. As a result, water withdrawn from these three sources is shown as a combined volume.

^e Well No. 8 was completed in 2010 as an additional well under certificate Nos. 361-D and 1050-A with a capacity of 1,150 gpm.

TABLE 4-10 WATER RIGHT SELF-ASSESSMENT: 20-YEAR FORECASTED WATER RIGHT(S) STATUS

Permit Certificate or Claim #	Name of Right holder or Claimant	Priority Date	Source Name/No.	Primary or Supplemental	Existing Water Rights		Forecasted Water Production From Sources (Year 2032)		Forecasted Water Right Status Excess (Deficiency)	
					Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm) ^a	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)
Permits/Certificates										
1. 359-D	Selah	1920	Well No. 1	Primary	300	147				
2. 360-D	Selah	1927	Well No. 2	Primary	350	171				
3. 361-D ^{b,c}	Selah	Dec 1944	Well No. 3, S01 Well No. 8, S06 ^e	Primary	400	195				
4. 1050-A ^{b,c}	Selah	4/08/1947	Well No. 4, S02 Well No. 8, S06 ^e	Primary	750	350				
5. 1348-A ^{b,c}	Selah	11/16/1951	Well No. 5, S03	Primary	700	525				
6. 4003-A ^c	Selah	5/11/1959	Well No. 6, S04	Alternate/Primary	1,000	890/710				
7. G4-30642P	Selah	3/15/1991	Well No. 7, S05	Primary	2,000	3,160				
Claims										
1.										
TOTAL					5,500	4,760	4,193 ^a	3,225 ^a	1,307	1,535
Intertie Name – Identifier		Name of Purveyor Providing Water			Existing Limits on Intertie Water Use		Existing Consumption Through Intertie		Existing Intertie Supply Status Excess (Deficiency)	
					Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)	Maximum Instantaneous Flow Rate (Qi) (gpm)	Maximum Annual Volume (Qa) (acre-feet)
1.										
TOTAL										
Pending Water Right Application	Name on Permit	Date Submitted	Primary or Supplemental	Pending Water Rights						
				Maximum Instantaneous Flow Rate (Qi) REQUESTED		Maximum Annual Volume (Qa) REQUESTED				
1.										

^a The total future instantaneous withdrawal rate and annual volume are calculated from values provided in Chapter 2. Future withdrawals from each source well will be tracked by the City to ensure instantaneous and annual withdrawals do not exceed authorized quantities.

^b The volume from Well Nos. 3, 4, 5, and 8 are not to exceed 890 acre-feet.

^c The maximum instantaneous withdrawal rate and total annual volume from Well Nos. 3, 4, 5, 6, and 8 shall not exceed 3,500 GPM and 1,600 acre-feet.

^d Well Nos. 3 and 4 share a joint flow meter and Well No. 8 shares the water rights of Well Nos. 3 and 4. As a result, water withdrawn from these three sources is shown as a combined volume.

^e Well No. 8 was completed in 2010 as an additional well under certificate Nos. 361-D and 1050-A with a capacity of 1,150 gpm.

4.6 WATER SUPPLY RELIABILITY ANALYSIS

4.6.1 Source Reliability

The single most important aspect of a water utility is its domestic water supply source. The City of Selah's water supply is dependent on ground water sources. As previously discussed in this Plan, the City utilizes six source wells. The locations of these wells within the water system are shown in Map A enclosed in the back of this Plan. All six City wells are located on property owned by the City and have protective covenants (except Well No. 6) establishing a 100-foot sanitary radius. Copies of the property deeds and protective covenants for each well are provided in CHAPTER 10 of this Plan.

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

Selah has taken steps to protect its aquifers through implementation of its *Wellhead Protection Plan* and participation in a regional wellhead protection plan. Completed in October 2000, the *Upper Yakima Valley Regional Wellhead Protection Plan*, which includes Selah's *Wellhead Protection Plan*, is intended to protect Selah's aquifers through a combination of regulatory measures, best management practices, and public education and awareness. Details of Selah's *Wellhead Protection Program* are provided in CHAPTER 5 of this Plan, and a copy of the Plan is provided in CHAPTER 10.

The City of Selah's wells are all housed within secure and lockable structures and visited by City personnel daily. Should a water quality problem occur, the City's routine monitoring program, in accordance with the Washington State Department of Health requirements, will provide a timely warning mechanism and will assist in identifying the source contamination.

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 Ronda, Wapum, and Saddle Mountain Units (made up primarily of basalts of the same name, but also include sedimentary interbeds), and the Overburden Unit.

The Grande Ronda, Wapum, 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 Ronda, Wapum, and Saddle Mountain Units.

Five of Selah's existing City wells (Wells No. 3, 4, 5, 6, and 8) penetrate and withdraw water from overburden materials of the Ellensburg Formation. The local Ellensburg Formation overburden is a distinct aquifer which is utilized by many municipalities for domestic supply. This overburden material consists of alluvial, unconsolidated, and consolidated sedimentary deposits and minor basalt and andesite. Review of the well logs of each source provided in CHAPTER 10 of this Plan show layers of sand, gravel, clay, shale, sandstone, and basalt consistent with the geologic definition of overburden materials. Well No. 7 withdraws water from the Wapum Basalt Formation aquifer. The Wapum Basalt Formation is composed mostly of basalt and sedimentary interbeds, lying beneath the overburden.

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 Selah 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 not noticed a decline in well capacity as a result of declining groundwater levels. The City will begin to track static and drawdown water levels in the future as a recommended system improvement to establish a record of water levels and have the ability to anticipate any potential source deficiencies.

Provided below in Table 4-11 is a brief description of each of the six Selah wells. Copies of the well logs, susceptibility assessment surveys, and protective well covenants are included in CHAPTER 10 of this Plan.

TABLE 4-11 SOURCE WELLS INFORMATION SUMMARY						
	Well No. 3	Well No. 4	Well No. 5	Well No. 6	Well No. 7	Well No. 8
Year Drilled	1944	1947	1951	1960	1994	2009
DOE Well Tag ID Number	AFK978	AFK968	AFK982	AFK967	AFK967	AAS171
Ground Elevation	1,118 ft.	1,125 ft.	1,110 ft.	1,156 ft.	1,116 ft.	1,120
Well Depth	430 ft.	448 ft.	578 ft.	966 ft.	1,020 ft.	670 ft.
Casing Diameter / Depth	16"/316 ft. 12"/376 ft. 10"/430 ft.	20"/107 ft. 12"/448 ft.	24"/70 ft. 16"/555 ft.	20"/526 ft. 16"/537 ft. 10"/819 ft. 8"/918 ft.	26"/293 ft. 16"/594 ft. 12"/745 ft.	16"/304 ft. 10"/670 ft.
Static Water Level at Time of Drilling (below ground surface)	Artesian				Artesian	Artesian
Initial Flow & Drawdown	85 GPM @ Artesian	1,430 GPM @ 97 ft.	1,400 GPM @ 150 ft.	1,500 GPM @ 110 ft.	1,100 GPM @ Artesian	1,100 GPM @ 183 ft.
1976 Flow & Drawdown	360 GPM @ 100 ft.	400 GPM @ 60 ft.	775 GPM @ 170 ft.	750 GPM @ 70 ft.		
1976 Static Level	40 ft.	60 ft.		30 ft.		
1986 Flow & Drawdown			900 GPM @ 215 ft.			
1986 Static Level			15 ft.			
1992 Flow & Drawdown	550 GPM @ 120 ft.					
1992 Static Level	10 ft.					
Current Capacity	400 GPM	400 GPM	700 GPM	1,800 GPM	1,950 GPM	1,100 GPM

4.6.2 Water Right Adequacy

Selah's total combined certificated water rights of 5,500 GPM and 4,760 acre-feet per year discussed earlier in CHAPTER 4, are adequate to satisfy the current maximum annual demand but not enough to meet the capacity of the source wells. Selah will pursue water conservation measures, continue its annual review of water production and consumption data, and evaluate the possibility of alternative and/or additional sources of supply if necessary in the future.

4.6.3 Facility Reliability

Selah's major water system components have been properly operated and maintained. Table 4-12 provides a list of the City's well and booster station pumps, their age, and the year the pumps were installed.

TABLE 4-12 WELL PUMP AND BOOSTER STATION AGE SUMMARY		
Well No. / Booster Station	Pump Age (From 2012)	Year Installed
Well No. 3	19 years	1993
Well No. 4	19 years	1993
Well No. 5	2 years	2012
Well No. 6	3 years	2009
Well No. 7	18 years	1994
Well No. 8	2 years	2010
Hospital Hill Booster Station	19 years	1993
Palm Park Booster Station ^a	45 years	1967
Brader Hill Booster Station	7 years	2005
Well No. 6 Booster Station	3 years	2009
Valhalla Booster Station	3 years	2009

^a Standby Booster Station.

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.

4.6.4 Water Shortage Response Planning

As part of the City Water Code, Selah has a water conservation provision which allows for water rationing to deal with short-term water shortages. However, the provision contains no specifics and very little detail regarding specific measures and/or alert stages and actions that could be implemented during water-shortage periods. The following are examples of alert stages that may be contained within a water conservation and rationing ordinance:

1. Stage 1 - When consumption reaches 85% of production capacity, the public is requested to voluntarily make every effort to conserve water through a variety of means, such as reducing irrigation activities, not washing cars, taking shorter showers, etc.
2. Stage 2 - When consumption reaches 90% of production capacity, the public is requested to practice "even-odd" residential landscape irrigation. Residences with odd numbered address irrigate on odd number calendar days, and those residences with even numbered addresses irrigate on even number calendar days.
3. Stage 3 - When consumption reaches 95% of production capacity, mandatory rationing is implemented which requires that "even-odd" landscape irrigation be practiced, and that residential irrigation only take place between 5 a.m. and noon.
4. Stage 4 - When consumption reaches 100% of production capacity, all residential landscape irrigation with City water is curtailed.

When implementation of water conservation and rationing measures becomes necessary, the City could use the media (radio, television, and newspapers) and mailings to keep water customers informed and to seek their cooperation.

During short-term water shortages, the City should implement the following additional conservation measures:

- City restrictions on irrigation of parks;
- City curtailment of pool use;
- City restrictions on water main and hydrant flushing; and
- Requesting curtailment on non-essential commercial water use.

4.7 WATER SYSTEM INTERTIES

Selah currently has no interties with any neighboring water systems, and none are currently proposed. If an intertie is proposed, the City will develop an agreement with the other purveyor, obtain approval of the intertie from the Department of Health and the Department of 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.

CHAPTER 5 - SOURCE WATER PROTECTION

5.1 WELLHEAD PROTECTION PROGRAM

The City of Selah was one of eight water providers within the upper portion of Yakima County which participated in the *Upper Yakima Valley Regional Wellhead Protection Plan*. The purpose of the plan is 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 in the event that ground water does become contaminated.

Completed in 1999, the *Upper Yakima Valley Regional Wellhead Protection Plan* resulted in individual wellhead protection plans for each of the participating water providers, including:

City of Yakima	Yakima County
City of Moxee	City of Selah
City of Tieton	City of Union Gap
City of Selah	Nob Hill Water Association

The City of Selah's Wellhead Protection Plan, prepared in accordance with the Department of Health's requirements, consists of a regional management segment detailing the regional management goals of the study and its eight participants, and a Selah-specific segment that defines the implementation of Selah's local management efforts. Selah's individual Wellhead Protection Plan is divided into the following five sections:

1. A water system summary including background, water source information and wellhead protection area delineations. Wellhead protection area delineations were developed for 6-month, 1-year, 5-year, and 10-year travel times using an analytical model.
2. An inventory of potential contamination sources developed using Washington Department of Ecology databases and a survey of high risk businesses in the area.
3. A contingency plan, which includes an analysis of source capacity, reliability, identification of alternate water sources, and emergency preparedness and spill response procedures.
4. A wellhead protection management strategy which details local management efforts to protect the City's ground water supplies and coordination efforts with the Regional Management Plan.
5. Appendices, containing City of Selah well log reports, well susceptibility assessments, a potential contaminant source and notification list, and resource contacts.

The City of Selah's Wellhead Protection Plan is considered a companion document to this *Water System Plan* and should be consulted for specific details and information regarding Selah's wellhead protection program.

In 2000, the City authorized the Mayor to enter into an Interlocal Agreement for the maintenance of the regional Wellhead Protection Plan.

As part of this *Water System Plan*, the City of Selah has updated their Potential Contaminant Source and Notification List. Updated in December 2012, the Potential Contaminant Source Notification Group is shown in Table 5-1.

TABLE 5-1 2012 POTENTIAL CONTAMINANT SOURCE GROUP	
Owner	Contact Address
Zirkle Fruit Company	352 Harrison Rd., Selah
Tree Top Inc. Ross Plant	220 E. 2 nd Ave., Selah
Graham Packing Company	510 E. Naches Ave., Selah
SunRype	1 S. Railroad Ave., Selah
Monson Fruit Co.	252 N. Rushmore Rd., Selah
Larson Fruit Co.	109 N. Wenas Rd., Selah
Matson Fruit Co.	N. Railroad Ave., Selah
Yakima Coop Association	110 E. 1 st Ave., Selah /2202 S 1 st St., Yakima 98903
Selah Express	P.O. Box 1346, Yakima 98907
Selah Jackpot	340 West Ridge/301 S. 1st, Selah
Selah Shell	313 S. 1 st St., Selah
7-11 Southland Corp.	P.O. Box 219077, Dallas, Texas/ 120 N. 1 st St., Selah
Fremont Ave Spill	605 Fremont Ave., Selah
Tree Top Inc. of Selah Ust 6550	209 E. 5 th Ave., Selah
WA DSHA Yakima Valley School	609 Speyer Rd., Selah
BNRR Selah MP 94 Print 401	Ls048 Sub3rd Portland Division
Pingrey Motor Co.	102 W. Naches Ave., Selah
Selah School Dist. 119 High School	316 W. Naches Ave., Selah

5.2 EXEMPT WELLS

The City of Selah 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

In 2009, Selah drilled a new primary source well, Well No. 8. Information on this well is provided in CHAPTER 3 of this Plan and a Well Log of Well No. 8 is included in CHAPTER 10 of this Plan. Also provided in CHAPTER 10 is a Ground Water Contamination Susceptibility Assessment Survey Form and Showing of Compliance for Well No. 8, and a revised Wellhead Protection Area Delineation Map. This information was also added to the City's Wellhead Protection Plan.

In 2002, the *Upper Valley Regional Wellhead Protection Plan* was updated with completion of the following tasks:

- The inventory of potential contaminant sources in the County's GIS database was updated. Included were updates from each of the Committee members. Also included were well locations

from the Department of Ecology's GIS system. The well location information included mostly wells drilled since 1972.

- The City of Union Gap's two new wells and wellhead protection areas were added to the County GIS system.
- Updated copies of the map entitled "Upper Yakima County Well Head Protection Inventory" were printed.
- The Department of Health's water quality database was downloaded from the internet.
- An overlay was developed to let County staff know when a project is proposed within a wellhead protection area. Notification letters were provided to the County's Development Services Center, and these letters will be provided to applicants proposing projects within any one of the wellhead protection areas located in the unincorporated area. The purpose of the letter is to notify applicants that their project is within a wellhead protection area and to let them know which water purveyor they can contact for additional information. Types of projects that will be issued a letter include short plats, zoning changes, etc.
- New wellhead protection signs were ordered and will be scheduled for installation.
- Participated in a booth at the Central Washington State Fair in 2002 in conjunction with Yakima County's Solid Waste Division. The theme for the booth was hazardous waste reduction, which tied in closely with wellhead protection.
- Continued the coordination of emergency planning efforts with Yakima County Emergency Management Department.

In 2006, the *Upper Valley Regional Wellhead Protection Plan* was again updated with completion of the following tasks:

- Updated the inventory of potential contaminant sources in the County's GIS database.
- Distributed information brochures to the public at the Central Washington State Fair.
- Downloaded the Department of Health's water quality database from the internet.
- Reviewed information posted on Wellhead Protection website for accuracy and appropriateness for public information.
- Mailed notification letters to the owners of all contaminant sources within the wellhead protection areas.
- The Town of Naches' new well and wellhead protection area was added to the County GIS system.

In 2009, the *Upper Valley Regional Wellhead Protection Plan* was again updated with completion of the following tasks:

- Updated the inventory of potential contaminant sources in the County's GIS database.
- Distributed information brochures to the public at the Central Washington State Fair.
- Downloaded the Department of Health's water quality database from the internet.
- Reviewed information posted on Wellhead Protection website for accuracy and appropriateness for public information.

- Mailed notification letters to the owners of all contaminant sources within the wellhead protection areas.

In 2011, the *Upper Valley Regional Wellhead Protection Plan* was again updated with completion of the following tasks:

- Updated the inventory of potential contaminant sources in the County's GIS database.
- Downloaded the Department of Health's water quality database from the internet.
- Reviewed information posted on Wellhead Protection website for accuracy and appropriateness for public information.
- Mailed notification letters to the owners of all contaminant sources within the wellhead protection areas.

In 2013, the *Upper Valley Regional Wellhead Protection Plan* was again updated with completion of the following tasks:

- Updated the inventory of potential contaminant sources in the County's GIS database.
- Downloaded the Department of Health's water quality database from the internet.
- Reviewed information posted on Wellhead Protection website for accuracy and appropriateness for public information.
- Mailed notification letters to the owners of all contaminant sources within the wellhead protection areas.

An updated copy of the Yakima County GIS map entitled *Upper Yakima County Well Head Protection Inventory* is included in CHAPTER 10 of this Plan. Copies of the Regional Wellhead Protection Plan Updates are included in CHAPTER 10 of this Plan.