SUNNYSIDE CITY COUNCIL REGULAR MEETING
Meeting Minutes
March 12, 2018 at 6:30 P.M.

Law and Justice Center
401 Homer Street, Sunnyside, Washington

CALL TO ORDER - ROLL CALL

COUNCIL	PRESENT	ABSENT
Julia Hart, Mayor	X	
Francisco Guerrero, DM	X	
Dean Broersma	X	
John Henry	X	
Craig Hicks	X	
Jim Restucci	X	
Ron Stremler	X	

STAFF PRESENT: City Manager Day, City Clerk Estrada, Acting Fire Chief Harris, Public Works Director Fisher, Finance & Administrative Services Director Alba, and Police Chief Escalera

PLEDGE OF ALLEGIANCE

PROCLAMATION – 16th Annual March for Meals Month

1. UNSCHEDULED APPEARANCES BY CITIZENS

LaDon Linde thanked the Sunnyside Police Department for their handling of recent threats at Sunnyside High School.

2. CONSENT AGENDA:

A. Approve minutes of the February 26, 2018 Regular Meeting.

B. Approve Claim Vouchers for the following dates:
   1) Voucher number 93307 for $2,693 for the period ending February 23, 2018.
   2) Voucher numbers 93308 through 93336 and Wire Transfers as listed for $91,996.76 for the period ending February 28, 2018.
   3) Voucher numbers 93339 through 93420 and Wire Transfers as listed for $262,678.46 for the period ending March 7, 2018.

C. Approve Payroll Vouchers for the following dates:
   1) Voucher number 117593 for $1,125 for the period ending February 9, 2018.
   2) Voucher numbers 117572 through 117592 and Wire Transfers as listed for $338,129.54 for the period ending February 25, 2018.
   3) Voucher number 117594 through 117629 and Wire Transfers as listed for $296,375.41 for the period ending March 9, 2018.

MOTION by Deputy Mayor Guerrero, seconded by Councilor Restucci to approve the Consent Agenda as presented. MOTION carried with 7 yes votes and 0 no votes.

3. ACTIVE AGENDA:

A. Judicial Services Contract
Consider approving a professional services contract with Steven L. Michels for Municipal Court Judicial Services.

MOTION by Councilor Broersma, seconded by Councilor Hicks, to approve a professional services contract with Steven L. Michels for Municipal Court Judicial Services. Motion carried with 7 YES votes and 0 NO votes.

B. Business Associate Agreement
Consider approving a Business Associate Agreement with Astria Health.

MOTION by Councilor Restucci, seconded by Councilor Henry, to approve a Business Associate Agreement with Astria Health. Motion carried with 7 YES votes and 0 NO votes.

C. Lodging Tax Advisory Committee (LTAC) – 2018 Funding Recommendations
Receive revised funding recommendation from LTAC, consider City Attorney legal opinion, and consider authorizing the City Manager to enter into an agreement with each agency for the amounts recommended.

MOTION by Deputy Mayor Guerrero, seconded Councilor Henry, to fund the Sunnyside Float at $5,000. Motion carried with 5 YES votes and 2 NO votes (Broersma and Restucci).

MOTION made and duly seconded to fund the NW Nitro Nationals at $2,500. Motion carried with 5 YES votes and 2 NO votes.

D. Lodging Tax Advisory Committee – Lighted Farm Implement Parade Funding Recommendation
Receive funding recommendation from LTAC and consider authorizing the City Manager to enter into an agreement with each agency for the amounts recommended.

MOTION by Councilor Henry, seconded by Councilor Broersma, to fund the Lighted Farm Implement Parade at $15,000. Motion carried with 7 YES votes and 0 NO votes.

E. Prosecution Services Agreement for Conflict Cases
Consider authorizing the City Manager to enter in an agreement for Prosecution Services for Conflict Cases.

MOTION by Councilor Restucci, seconded by Councilor Henry, to authorize the City Manager to enter in an agreement for Prosecution Services for Conflict Cases. Motion carried with 7 YES votes and 0 NO votes.

F. Stormwater Rate Study Task Order
Consider approving a Task Order No. 2018-06 to update the Stomwater Management Utility.

MOTION by Deputy Mayor Guerrero, seconded by Councilor Henry, to approve a Task Order No. 2018-06 to update the Stomwater Management Utility. Motion carried with 7 YES votes and 0 NO votes.

G. Kiwanis Park Playground
Consider authorizing the City Manager to execute an agreement with Sitelines Park and Playground Products to install the playground equipment at Kiwanis Park.

MOTION by Councilor Hicks, seconded by Councilor Henry, to authorize the City Manager to execute an agreement with Sitelines Park and Playground Products to install the playground equipment at Kiwanis Park. Motion carried with 7 YES votes and 0 NO votes.

H. Task Assignment with Yakima County – E. Edison Avenue Improvement Project
Consider authorizing the City Manager to execute a task order with Yakima County to acquire right of way for East Edison Avenue Improvement Project.

MOTION by Deputy Mayor Guerrero, seconded by Councilor Stremler, to authorize the City Manager to execute a task order with Yakima County to acquire right of way for East Edison Avenue Improvement Project. Motion carried with 7 YES votes and 0 NO votes.

I. Water System Plan Adoption
Consider adopting the updated Water System Plan as presented.

MOTION by Councilor Henry, seconded by Councilor Broersma, to adopt the updated Waster System Plan as presented. Motion carried with 7 YES votes and 0 NO votes.

J. Citizen Advisory Boards & Commissions Ordinance (SMC 2.50) – First Reading
Consider an ordinance amending Chapter 2.50 of the Sunnyside Municipal Code, pertaining to Citizen Advisory Boards and Commissions.

MOTION by Councilor Restucci, seconded by Council Hicks, to approve the first reading of an ordinance amending Chapter 2.50 of the Sunnyside Municipal Code, pertaining to Citizen Advisory Boards and Commissions, and placing it on the March 26 Consent Agenda for adoption. Motion carried with 7 YES votes and 0 NO votes.

4. ITEMS FROM COUNCIL MEMBERS:

A. Mayors Appointment(s) for Board and Commissions

B. Council Request Status Report

C. Other reports, announcements, and/or questions by Council

D. Upcoming Council Meetings:

1) March 26, 2018 Regular Meeting
2) April 2, 2018 Workshop
3) April 9, 2018 Workshop

5. ITEMS FROM CITY MANAGER AND DEPARTMENT HEADS

6. ADJOURN

There being no further business to come before the Council and without objection, Mayor Hart adjourned the meeting at 8:19 PM.

Respectfully submitted,

_____

Deborah Estrada, CMC, City Clerk

CITY OF SUNNYSIDE
2016 WATER SYSTEM PLAN

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Chapter 1: Description of Water System

1.1 Introduction

This Water System Plan (WSP) is intended to accomplish the following objectives for the City of Sunnyside:

- Document the City's water system's existing and recent past production and consumption, system improvements, activities, and to provide an assessment of existing facilities.
- Consolidate various water quality monitoring plans and water system reports in one document.
- Demonstrate the system's operational, technical, managerial and financial capability to achieve and maintain compliance with relevant local, state and federal plans and regulations.
- Demonstrate how the system will address present and future needs in a manner consistent with other relevant plans.

This WSP will also fulfill the requirements of WAC 246-290-100, Water System Plan, and is consistent with guidelines established by Washington State Department of Health, Office of Drinking Water.

The last Department of Health (DOH) approved plan was the Comprehensive Water System Plan Update finalized in January 2005. That plan had been prepared by HDR-EES. HDR also prepared and submitted another update in January 2013 which was reviewed by DOH. The City and HDR could not reach an agreement on addressing the numerous comments made by DOH as a result of that review, and finally came to a mutually agreed upon termination of the HDR contract for the update. Dan Sander, P.E. working through Backflow Management Inc., agreed to re-submit a new plan rather that attempting to respond to the DOH comments. Portions of the 2013 draft planned have been used in this plan, including the distribution system hydraulic analysis. Some data presented in the 2013 plan could not be verified, and was therefore not used in this plan.

1.2 Brief Inventory of Existing System

The City of Sunnyside was incorporated in 1902. It is located approximately 35 miles southeast of the City of Yakima within Section 25, Township 10 North, Range 22 East, as shown in Figure 1-1.

Figure 1-1 Vicinity Map

The City currently provides water service to a population of approximately 16,280 within the existing service area, which is also its retail service area and coincides with the city limits. The City also provides water to 4 services outside of city limits that are within the UGA. Future connections outside the City Limits are allowed by City Code by way of special agreement, but such requests are infrequent. The service area for the City is consistent with the City's Urban Growth Area (UGA) boundary as established in coordination with Yakima County.

The County has adopted changes to the Urban Growth Area boundaries, comprehensive plan designations and zoning in December 2016. The City will update their 2007 Comprehensive Plan beginning in 2017. The water system's service area will then be revised to coincide with the UGA and City's Comprehensive Plan.

The City water system is considered a Group A community water system by DOH and has a Public Water System Identification Number of 85400. The system current consists of:

- 7 active wells (6, 7, 8, 9, 11, 12, 13) Wells 12 and 13 are considered a wellfield since they pump into a common pipe before entering the distribution system
- 1 emergency well (Well 10)
- 4 storage tanks with a combined capacity of 3.73 million gallons (3 Grandview tanks, 1 Skyline Drive)
- 3 pressure zones
- 9 pressure reducing valve stations
- Approximately 70 miles of transmission and distribution piping
- 5,069 service connections (2,800 single family residences, 152 multi-family residential connections servicing 1675 dwelling units and 594 non-residential connections)

The Sunnyside Valley Irrigation District (District) provides irrigation water to assessed land within the District. All property within the District is assessed annually regardless of use. The historic use of

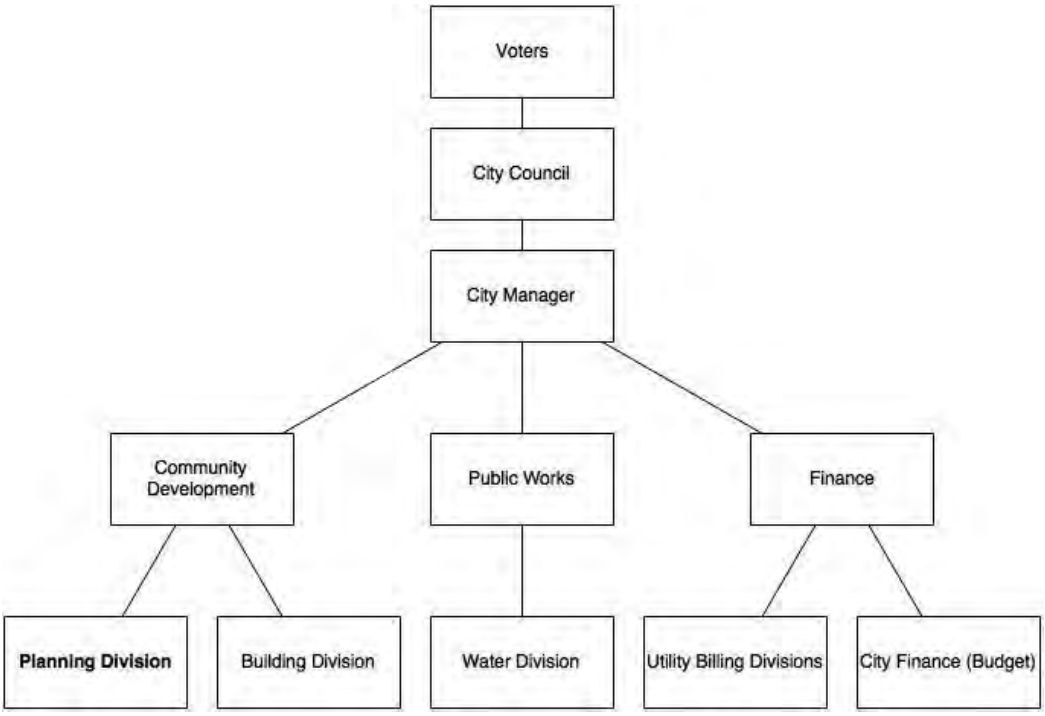
irrigation water was to supply and meet the needs of the various agricultural uses. But as the land within the District has developed, the District continues to provide irrigation water to developed parcels within its boundaries. About 50% of the City's residential customers utilize the District's water for irrigation. The District is expanding its irrigation delivery system within City limits, and connecting existing City residential customers upon request. All new subdivision must connect to the Irrigation District for irrigation water. The City requires that these new connections install a Double Check Valve Assembly on their domestic water line in conformance with the Cross Connection Control portion of the City Code.

1.3 OWNERSHIP AND MANAGEMENT

Sunnyside was the first city in the State of Washington to adopt the Council-manager plan of government in 1948. This plan provides for an elected city council which is responsible for policy making, and a professional city manager, appointed by the council, who is responsible for administration. The city manager provides policy advice, directs the daily operations of city government, handles personnel functions (including the power to appoint and remove employees) and is responsible for preparing the city budget. Under the council-manager statutes, the city council is prohibited from interfering with the manager's administration. The city manager; however, is directly accountable to and can be removed by a majority vote of the council at any time.

The Water Division is part of the Public Works Department and deals with cooperates with all the Divisions in the City, it works primarily with the Departments of Community Development (Planning and Building Divisions), Finance (City Finance and Utility Billing) and Public Works as show on Figure 1-2.

Figure 1-2 Sunnyside Organizational Chart



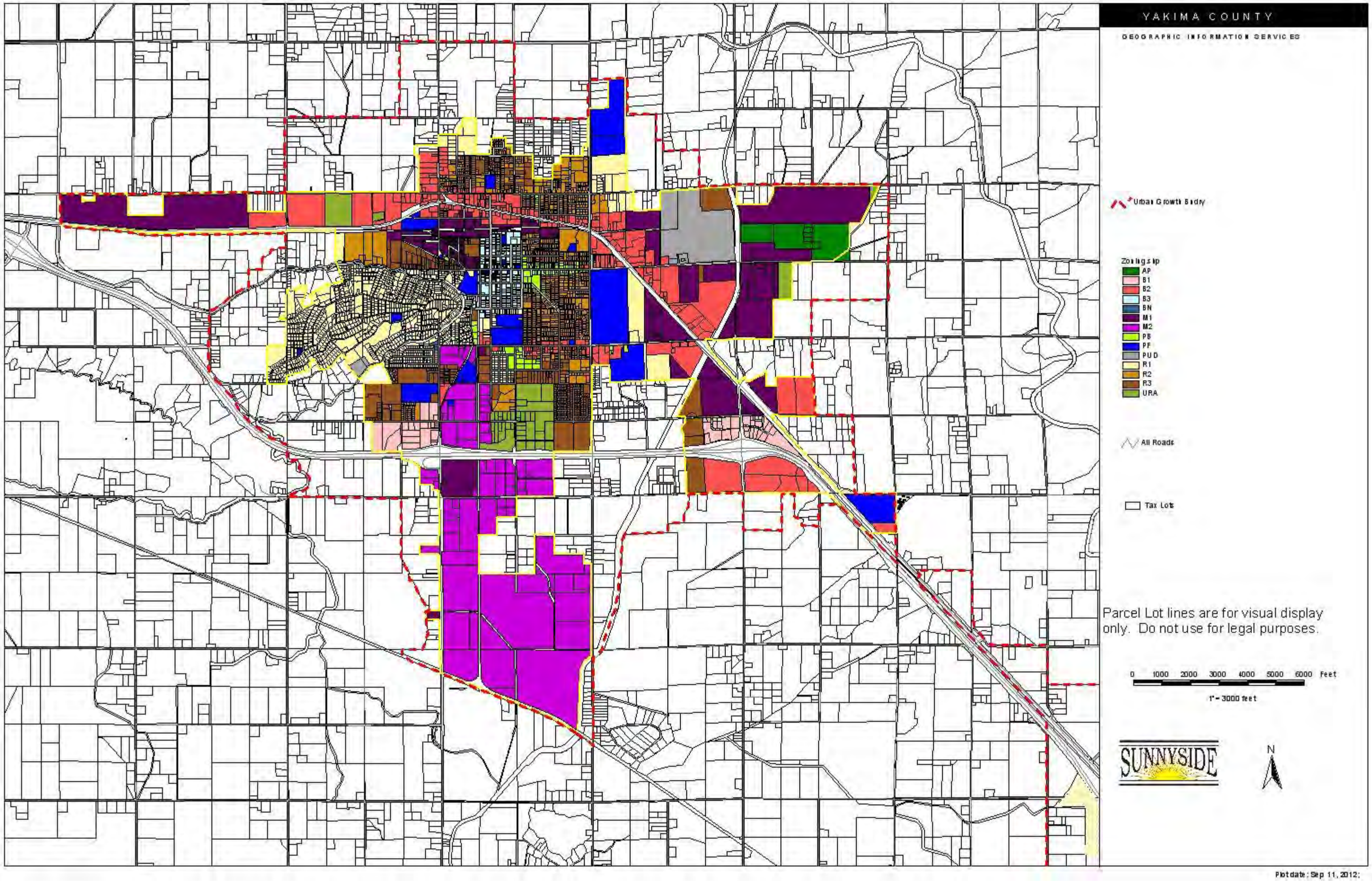
1.4 SERVICE AREA CHARACTERISTICS

The City of Sunnyside's retail service area consists of the typical varied land uses. Within City Limits the City Zoning Ordinance, which is based on the City's Comprehensive Plan, governs new developments. For those areas outside of City limits, but within the UGA, the County Zoning Ordinance is in effect.

The City's Zoning Ordnance provides includes the following zones and as shown on Figure 1-3.

- R1 – Low density residential
- B2 – General commercial
- M1 – Light industrial
- HTC – Highway/Tourist Commercial
- GC – General Commercial
- R-10/5 – Rural – 10/5

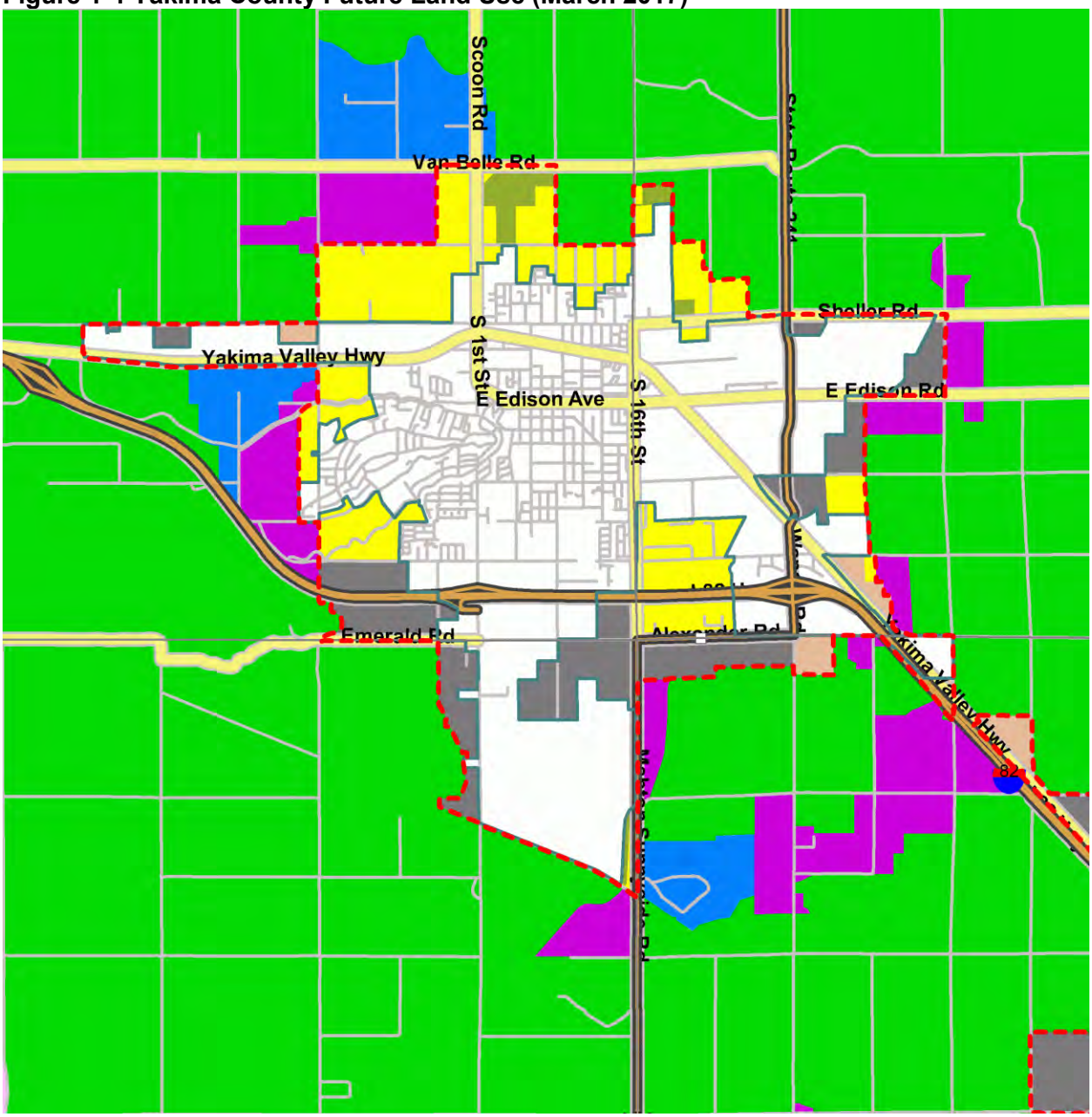
Figure 1-3 City Zoning Map



Currently, the land uses within the City are approximately:

- 70% Residential (dispersed throughout the City)
- 10% Industrial (older area along Warehouse Ave and newer areas in the Sunnyside Port District in the southern portion of the UGA, and western area of the City between Yakima Valley Hwy. and Outlook Road), eastern area near the airport.
- 10% Commercial / Business (north central and along Yakima Valley Hwy.
- 10% Public (Parks, Schools, Airport)

Figure 1-4 Yakima County Future Land Use (March 2017)

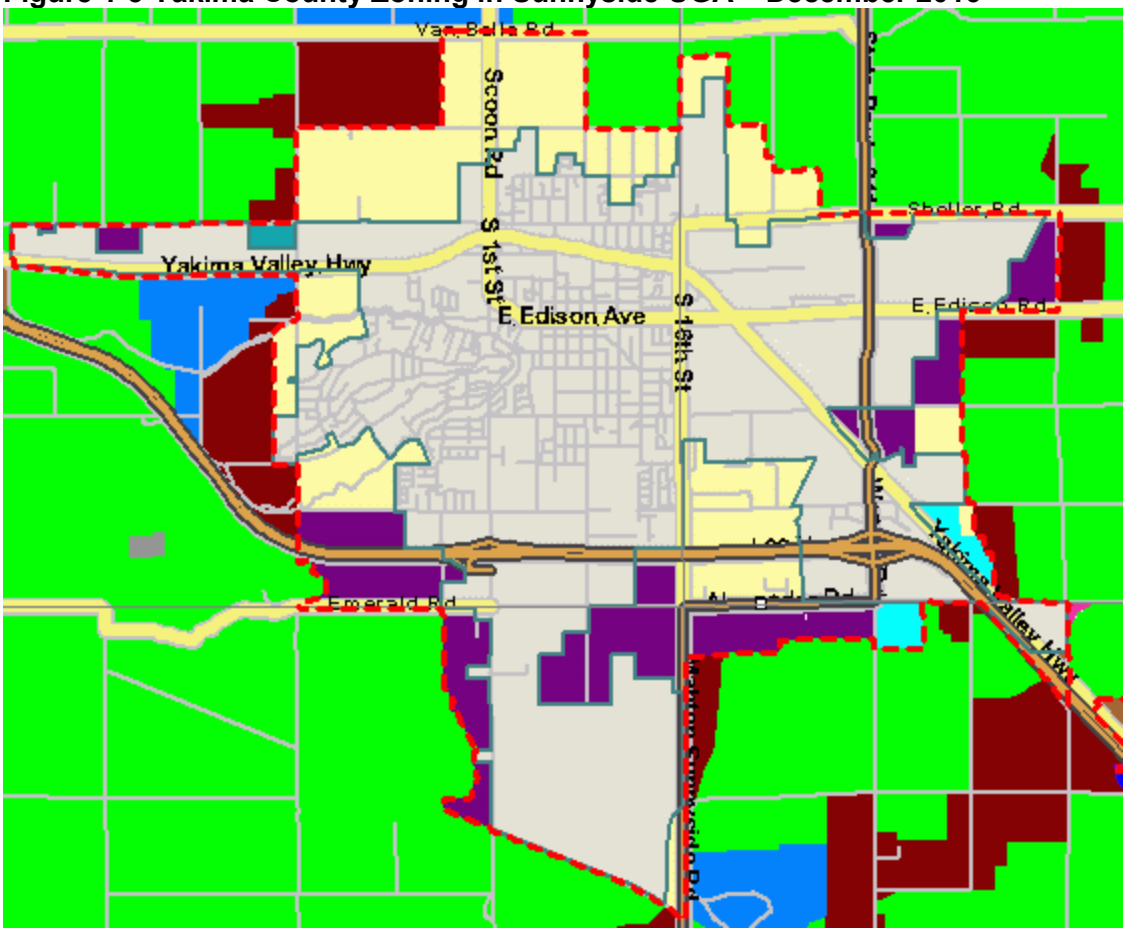


Yakima County Plan2015 Designation

- - - - - - - - Urban Growth Area Boundary (Service Area Boundary)

Agricultural Resource
Rural Transitional
Rural Self-Sufficient
Urban Residential
Urban Commercial
Urban Industrial
Urban Public

Figure 1-5 Yakima County Zoning in Sunnyside UGA – December 2016



Yakima County Zoning (YCC Title 19)

- - - - - - - - Urban Growth Area Boundary (Service Area Boundary)

Agriculture (AG)

Rural-10/5 (R-10/5)

Rural Transitional (RT)

Single Family Residential (R-1)

Local Business (B-2)

General Commercial (GC)

Light Industrial (M-1)

The revised Urban Growth Area Boundaries, County's Future Land Use designations, and zoning are shown in Figure 1-4 and Figure 1-5.

The normal annual precipitation for Sunnyside is 6.7 inches and therefore characterized as arid. Winter is the wettest time of the year, with approximately 40 percent of the rainfall (2.6 inches normal precipitation) occurring in the months of December, January and February combined. The summer months are generally dry, having 0.91 inch normal precipitation falling in June, July and August combined. The average monthly temperatures for June, July and August are 66.9°F, 71.2°F and 70.4°F respectively.

1.5 City Codes and Related Plans / Local Government Consistency

The City has established regulations governing the water utility which are codified in various chapters of its Municipal Code including as shown in Table 1-1. The Sunnyside Municipal Code is current through Ordinance 2016-02, passed February 2, 2016. In addition the City has adopted standard specifications and details/drawings as summarized in Chapter 7. The water related City Codes and standards are located in Appendix 1 and 10 respectively.

Table 1-1 Water Related Sections of Sunnyside City Code

Chapter	Title	Sections	Major Topics
8	Public Health	8.24 Fire Hydrants	Standards Locations and number
13	Water and Sewer System	13.08 General Provisions	Outside City limits terms Fire hydrant operation Interference with system Action to collect delinquent charges
		13.16 Water Service	Application for service Responsibility for leaks
		13.18 Cross Connections	Authority Cross connections regulated Suspension of service
		13.20 Rates and Charges	Schedule of charges and rates Tampering prohibited – penalty
		13.24 Reimbursement Agreements for Utility Improvements	Fire hydrant meters, agreement and fees Process
16	Subdivisions	16.36 Short and Long Subdivisions – Improvement Requirements	Plans Required Inspection As-built drawings

This Water System Plan is consistent with the City's existing 2007 Comprehensive Plan and current Yakima County Plan, as evidenced by the Local Government Consistency Review Checklist in Appendix 2. As noted above, the City plan will be updated in the near future including minor changes in Urban Growth Area (UGA)/service. No major land use changes are anticipated as a result of these plan updates.

1.6 DUTY TO SERVE

DOH regulations state that municipal water supplier (City) has a duty to provide retail water service to all new service connections within its retail service area if the following four factors are met:

1. Service can be provided in a timely and reasonable manner
2. The City has sufficient water rights to provide service
3. The City has sufficient capacity to serve water in a safe water in a safe and reliable manner
4. The service request is consistent with adopted local plans and development regulations.

The City has adequate legal and physical ability to serve new subdivisions, and individual requests for service with its existing service area, which is also its retail service area. The City Code specifies that applications for service must be made and appropriate fees paid prior to obtaining a permit.

For new subdivisions a complete domestic water distribution and fire protection system shall be installed and connected to the City water system. The water distribution system shall conform to the City standards and specifications, and the City's comprehensive water plan.

Water and sewer connections or extensions to lands outside the corporate limits of the City shall be permitted, when reasonably available, within the Sunnyside UGA, and where the recipient of said services pays for or arranges for payment of the costs of said extension. Extension of utility services to areas outside of the City limits which do not meet the above requirements would need to be reviewed, in advance, by the City Council for approval or denial. Any connections or extensions outside of the City limits shall be subject to the charges and costs specified in the City code and shall be subject to specifications and policies of the City.

1.7 Satellite Management Information

The City is not a Satellite Management Agency.
There are seven Group A water systems within 5 miles of the City's service area. These systems are listed on Table 1-2 and have been sent a notice this plan is available for review. The letter, the list of who it was sent to, and any comments received is also included in Appendix 2.

Table 1-2 Nearby Group A Public Water Systems

DOH Id #	Name	Type	Connections	Distance/Direction
28970	City of Grandview	Community	3334	2.5 miles / SE
65919	Panorama Place Water Assn.	Community	47	2.5 miles / S
04157	Teddy Bear Corner	NTNC	5	3 miles / S
64937	Outlook Community Water	Community	56	2 miles / W
64940	Outlook Elementary School	NTNC	1	2 miles / NW
29000	City of Granger	Community	728	5 miles / NW
02351	Sunnyview Park	TNC	2	Within City Limits/SW

In addition there are several Group B water systems near Sunnyside that could be included in the Sunnyside Water System if the lands were annexed. The City has a policy of not extending services to existing developments without annexation. The policy includes more than just water service. It also includes sewer, police, and fire protection. No other water system has expressed an interest in annexing to the city and therefore, an evaluation to include them as a part of this system is not included here.

Chapter 2: Basic Planning Data

2.1 Introduction

Water demand projections are necessary evaluate water resource needs, and to plan for capital improvements. This section reviews historical population growth and summarizes current water production and demands for the City as well as presenting the methodology and results of water demand projections. The basic planning data provided in this section is the foundation of the WSP and will be utilized in subsequent sections to assess the current system and anticipated future needs.

2.2 Population

For the past thirteen years the City of Sunnyside has grown at slightly over an average of 1% per year. The City's Planning Department projects a 2% annual growth which is consistent with the existing City Comprehensive plan.

Table 2-1 Historical Population Growth

Year	Population	Percent Change
2003	14,300	
2004	14,520	1.5%
2005	14,710	1.3%
2006	14,930	1.5%
2007	15,130	1.3%
2008	15,210	0.5%
2009	15,340	3.4%
2010	15,858	3.2%
2011	16,010	1.0%
2012	16,130	0.7%
2013	16,200	0.4%
2014	16,230	0.2%
2015	16,280	0.5%

As part of their recent Comprehensive Plan update Yakima County identifies a higher existing population and has adopted revised population growth projections for Sunnyside at an annual growth rate of 0.83%. Table 2-2 shows both growth projections

Table 2-2 Projected Population Growth

Year	City Projection (2%)	Yakima County Projection (0.83%)
2015	16,280	16,365
2016	16,606	16,499
2017	16,938	16,633
2018	17,277	16,766
2019	17,623	16,898
2020	17,975	17,030
2021	18,335	17,160
2022	18,701	17,289
2023	19,075	17,417
2024	19,457	17,543
2025	19,847	17,668
2026	20,244	17,791
2027	20,649	17,913
2028	21,062	18,034
2029	21,483	18,153
2030	21,913	18,271
2031	22,351	18,388
2032	22,798	18,505
2033	23,254	18,621
2034	23,719	18,736
2035	24,193	18,850

The current City Growth Projections will be used to forecast Equivalent Residential Unit (ERU) growth in order to accommodate potential commercial and industrial growth, and to insure that the water system is prepared for all types of growth as it occurs. If actual water demand in the future is less than forecasted, the City will delay source and storage improvements accordingly.

2.3 EXISTING WATER CONSUMPTION

Water consumption is the amount of water used by all customers of the system as measured by the customer's meters. The City has divided all water users into four classes for billing purposes – single family residential, multi-use (multiple family), commercial, and irrigation (seasonal). The commercial category includes all business, commercial, industrial and public users, except for City irrigation. The data shown in Table 2-3 was obtained from the City's billing system. The City began using the current billing system software (BIAS) in the fall of 2014. Data from the previous software is no longer available due to changes in City staff, and the lack of support from previous software company. There is a discrepancy of about 0.8% between the service meter readings obtained by the Water Division and the amount of water billed by the Finance Department's Utility Billing Division. This difference may be attributed to the billing program rounding off the readings for billing purposes. Other factors that may account for the slight difference include new replacement meters, meters "rolling over" (exceeding the register capacity and starting over), and the billing division's counting water as sold when the bill is paid, not necessarily when the bill was originally sent. The Billing Division's numbers will be used because they can be sorted buy customer class and not just by the Water Division's meter number.

Although the water department staff scans the raw service meter readings on a monthly basis for abnormal readings, they rely on the billing system to produce a list of unusual readings (zero, very low, very high) which they then follow-up with a second reading to verify the amount. The City is transitioning to a fixed ready metering system which will provide daily service meter data summaries which will alert water staff to abnormal readings, which will allow for a more timely follow-up.

Currently, distribution system losses are calculated every few months. With the new data collection system, DSL will be calculated monthly using the water division numbers for metered water usage.

As expected water use varies throughout the year with the highest use occurring between May and October as shown in Table 2-3. The impact of residential irrigation can be seen in the increase in the residential class during the warmer months. The commercial class also shows a large increase due to the seasonal processing of various crops.

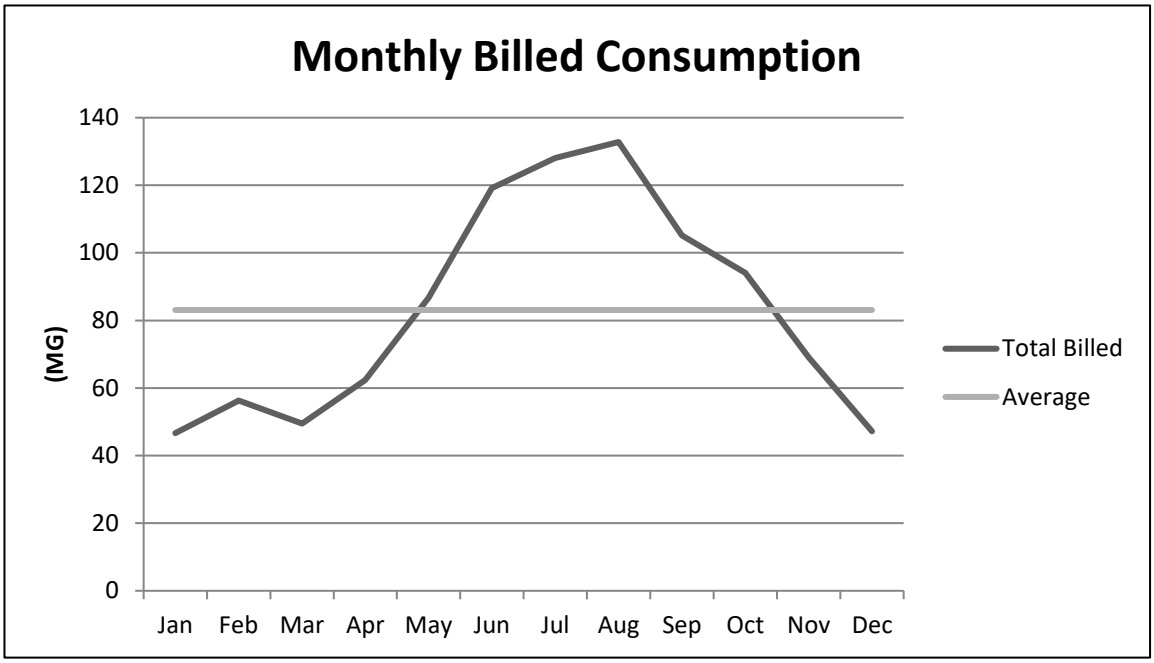
The use of just the 2015 billing system data will be sufficient to base future demands since the 2015 demands were the highest since 2006. The 2015 total production was just 1% less than the 2006 total production. Since that time, the Water Use Efficiency Rule has been implemented by the City and the Irrigation District has continued to provide more residential services with irrigation water

Table 2-3 Consumption by Customer Class (MG)

2015 Year	Single Family	Multi-family	Commercial	Irrigation	Total Billed	Service Meter Readings	Billing Discrepancy	% Billing Discrepancy
Jan	13.852	8.864	23.933	0.000	46.649	48.289	-1.640	-3.516%
Feb	14.878	10.034	31.366	0.000	56.279	58.074	-1.795	-3.190%
Mar	12.464	8.096	28.891	0.000	49.450	49.513	-0.063	-0.127%
Apr	17.814	9.908	34.675	0.000	62.397	64.229	-1.832	-2.936%
May	29.866	13.374	43.470	0.000	86.710	86.981	-0.271	-0.312%
Jun	41.224	18.514	59.444	0.000	119.182	119.593	-0.411	-0.345%
Jul	44.721	19.247	64.110	0.023	128.100	128.492	-0.392	-0.306%
Aug	45.081	21.667	66.038	0.010	132.797	133.122	-0.325	-0.245%
Sep	30.453	15.457	59.115	0.009	105.115	102.216	2.899	2.758%
Oct	23.336	12.524	58.210	0.026	94.096	94.003	0.093	0.099%
Nov	17.324	11.240	40.497	0.000	69.061	70.744	-1.683	-2.436%
Dec	12.928	8.651	25.656	0.000	47.235	49.901	-2.666	-5.643%
Total	**303.941**	**157.576**	**535.405**	**0.069**	**996.991**	**1,005.157**	**-8.166**	**-0.812%**

Figure 2-1 shows the total monthly billed consumption relative to the average monthly total and illustrates the seasonal impact of both irrigation and food processing.

Figure 2-1 Monthly Billed Consumption



As shown in Table 2-4 and Figure 2-2, Commercial consumption accounts for approximately 54% of the total water used. The commercial consumption share of water billed has increased over the years. Figure 2-3 shows each customer class proportion of the total billing for 2015 and the 2006-2010 average.

Table 2-4 Demand by Customer Class

	Single Family	Multi-Family	Commercial	Irrigation	Total
2015 (MG)	303.941	157.576	535.405	0.069	996.991
2015 (%)	30.5%	15.8%	53.7%	<.1%	100%

Figure 2-2 Demand By Customer Class

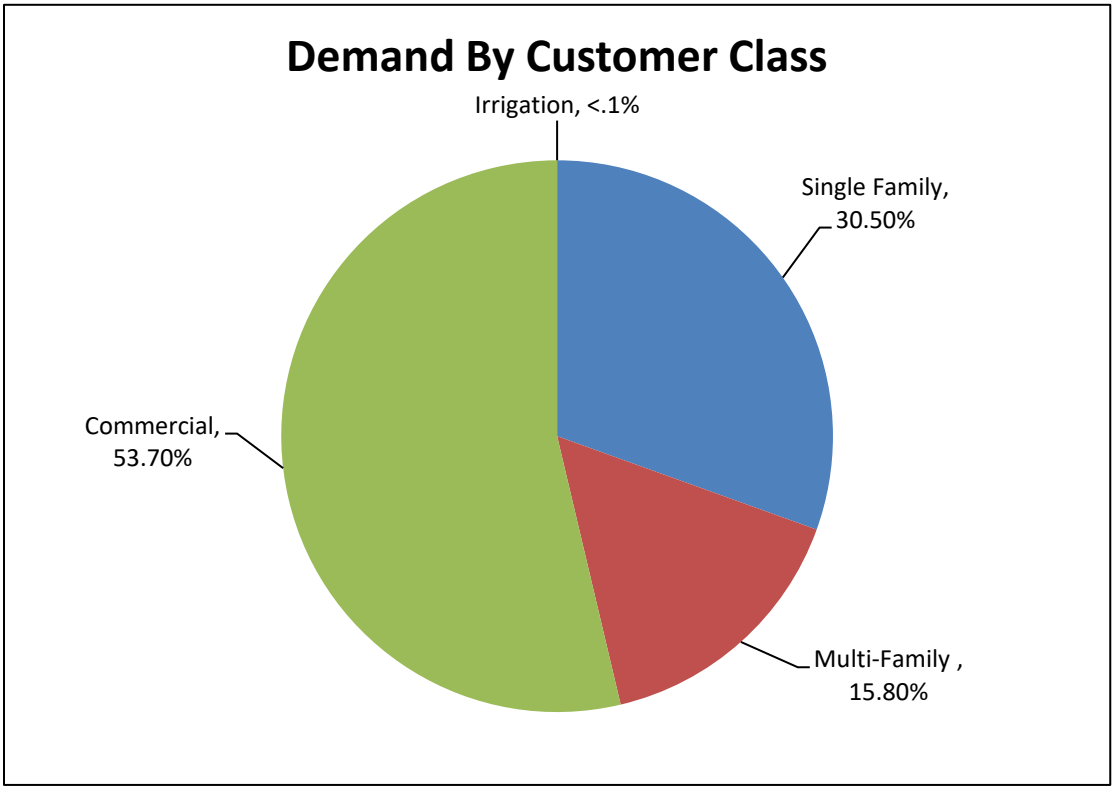
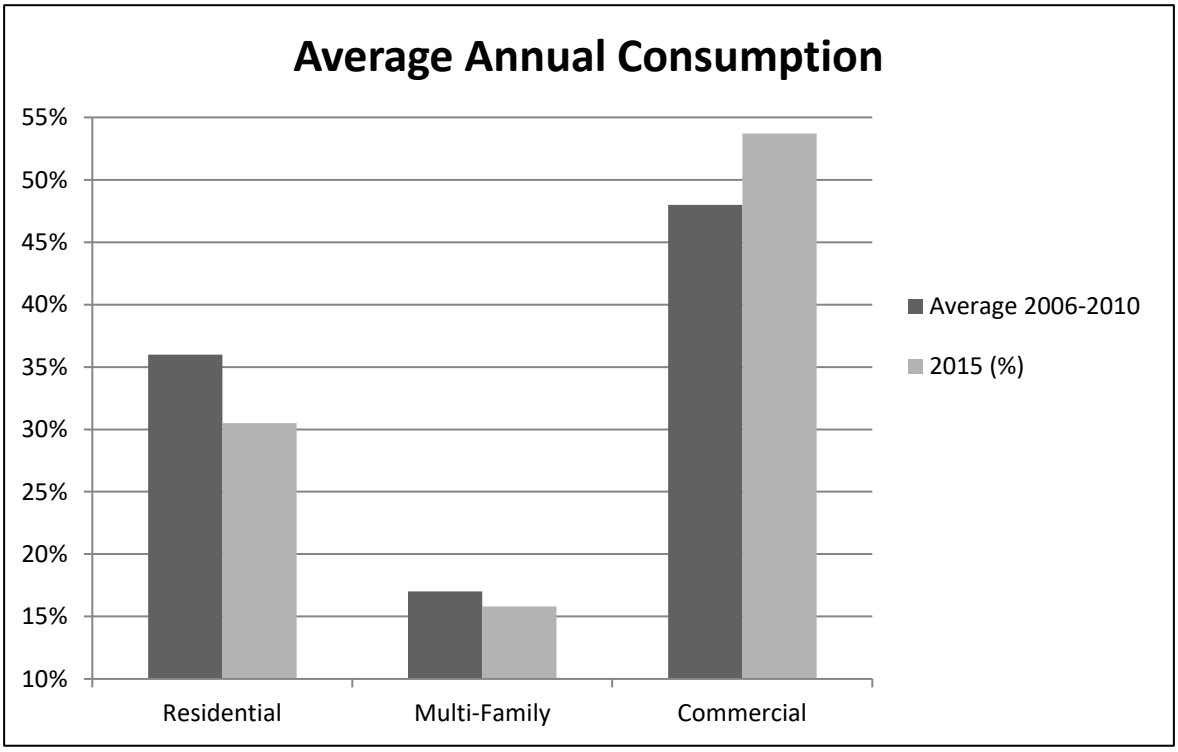


Figure 2-3 Average Annual Consumption by Customer Class



*2006-2010 average data from 2011 HDR Draft WSP Update.

A review of the 2015 Commercial accounts show that the ten largest water users account for about 60% of the total commercial billing and 32% of total water billed. The ten largest users are shown in Table 2-5.

Table 2-5 Top Ten Water Users

Name	Total Annual Consumption (MG)	Percent of Commercial Billing	Percent of Total Billing
Darigold 355 Alexander Rd	118,038,100	22%	11.8%
Seneca Foods LLC 1525 4th	45,361,712	8.5%	4.5%
Valley Processing 201 Blaine Ave	44,206,800	8.3%	4.4%
Valley Processing 108 Blaine Ave	36,422,364	6.8%	3.7%
Johnson Foods Inc. 332 Blaine Ave	15,924,172	3.0%	1.6%
1700 Cascade Way	14,404,984	2.7%	1.4%
1521 1St	12,742,180	2.4%	1.3%
Valley Processing 115 Blaine Ave	10,722,580	2.0%	1.1%
705 Alexander Rd	10,551,288	2.0%	1.1%
131 Parkland Drive, #B	9,581,880	1.8%	1.0%
Total	317,956,060	59.5%	32%

2.4 EQUIVALENT RESIDENTIAL UNITS (ERUS)

The demand of each customer class can be expressed in terms of equivalent residential units (ERUs) for demand forecasting and planning purposes. One ERU is equivalent to the amount of water used by a single family (sf) residence. The number of ERUs represented by the demand of the other customer classes is determined from the total demand for that class divided by the demand per single family residential.

1 ERU = Average daily single family residential use / Number of sf connections

1 ERU = 303.941 MG annual demand / 365 days / 2800 connections = 297.4 gpd

The ERU value of 297.4 gpd will be used for future demand projections and system analysis.

Table 2-6 applies the ERU value of 297.4 gpd to the various customer classes to determine their equivalent number of ERUs. Distribution System Leakage from the 2015 Water Use Efficiency Report is also included to account for it and show its value.

Table 2-6 Equivalent Residential Units (ERUs)

Customer Class	Annual Demand Per Customer Class (MG)	No. Connections	Percent of Total Demand (%)	Total Equivalent Residential Units (ERU)
Average Demand Per Single-Family Residence = 297.4 gpd				
Single-family	303.941	2800	29.8%	2,800
Multi-Use (Multi-Family)	157.576	152	15.4%	1,452
Commercial	535.405	585	52.5%	4,932
Irrigation	0.069	9	.07%	.6
Distribution System Leakage (DSL)*	15.716		1.5%	145
Total	1,012.707*	3,546	100%	9,330

* 1,012.707 MG – 15.717 MG = 996.991 MG total billed water (Table 2-3)

The same 2% annual growth that was used in future population projections in Section 2.2 will be used to forecast future total ERU. Table 2-7 shows the estimated ERUs by year.

Table 2-7 Total ERU Projection

Year	Total ERUs
2015	9,330
2016	9,517
2017	9,707
2018	9,901
2019	10,099
2020	10,301
2021	10,507
2022	10,717
2023	10,932
2024	11,150
2025	11,373
2026	11,601
2027	11,833
2028	12,069
2029	12,311
2030	12,557
2031	12,808
2032	13,064
2033	13,326
2034	13,592
2035	13,864

2.5 WATER PRODUCTION

The total monthly production from all wells is shown in Table 2-8 for the years 2009-2015. Complete data is not available for five months in this time period due to the installation of new Supervisory Control and Data Acquisition system, meter failures and upgrades, and in the case of 2009 just missing. In order to have a more representative annual total production for evaluation and forecasting purposes, the average of the months with data was used to develop an adjusted total value. Except for 2013, the adjusted total shows as steady growth. The average increase in water produced is about 1.8%. It should be noted there was two months of missing data in 2013, including the typical peak month of August. Figure 2-4 shows the annual increase in water production.

The data for Table 2-8 was obtained directly from the source meters. The 2015 total (1,020.873 MG) varies from the Table 2-6 total billed water demand by class (1,012.707 MG including DSL) by 8.166 MG which is the billing inaccuracy discussed in Section 2.3.

Table 2-8 Well Production

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total (WUE Report)	Adjusted Total[4]
2009[1]	-	-	54.000	59.494	78.826	130.037	121.408	156.177	112.074	89.200	72.535	47.210	920.960	1,020.474
2010	46.076	59.134	44.878	58.399	80.699	89.064	106.992	152.617	99.224	79.051	74.690	50.116	940.940	940.940
2011	45.023	60.828	46.407	52.921	83.456	94.031	112.396	141.490	114.956	95.948	65.170	51.901	964.527	964.527
2012	53.151	43.394	45.205	55.123	78.447	88.810	123.823	139.199	105.985	102.988	63.208	55.317	984.650	984.650
2013[1]	42.147	48.906	40.417	59.389	95.635	93.843	91.037	-	121.082	79.896	68.487	-	740.838	932.582
2014[1]	-	51.096	45.306	68.521	85.453	119.899	126.561	116.546	123.320	94.614	64.797	53.340	948.453	995.203
2015	47.355	58.747	50.899	67.910	88.615	125.551	127.769	135.936	101.462	95.397	70.620	50.612	1,020.873	1,020.873
Average[2]	46.919	52.594	45.647	60.773	86.321	104.427	116.317	133.361	113.361	93.769	66.456	52.793	972.670[3]	965.676

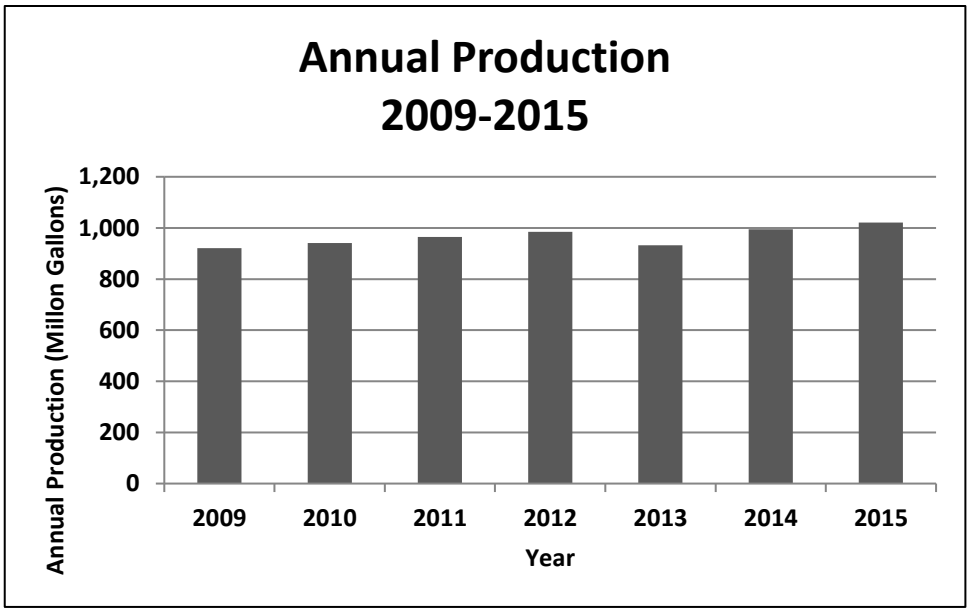
[1] 2009 data is missing; 2013 & 2014 data is not complete due to lack of data while making source meter and SCADA changes

[2] Averages based on number of years of available data

[3] Total of monthly averages

[4] Adjusted Total includes adding the average monthly total for those months of missing data

Figure 2-4 Annual Production



In order to minimize confusion regarding annual water demand and production Table 2-10 shows the source of the various numbers discussed above.

Table 2-9 Annual Demand and Production Summary

Location	Description	Value (MG)	How Value is Used
Table 2-4	Billing Annual Demand	966.991	
	Actual Service Meter Reading	1,005.157	
Table 2-6	Distribution System Leakage (DSL) (total water produced-actual service meter reading)	15.716	
	Total Annual Demand (billed demand + DLS)	1,012.707*	ERU Determination Demand Forecast Base
Table 2-8	Total Water Production	1,020.873	MDD:ADD Calculation

***** 1,020.873 -1,012.707 = .8% variance

Table 2-10 shows the total production from 2009-2015 as obtained by the source meters. The total production was divided by the number of days in the year to generate the Annual Average Day (ADD). The daily source meter records were reviewed to determine the actual Maximum Day Demand (MDD) for the years 2011-2015. As can be seen in Table 2-10, the month of the MDD varies from year to year depending on the various processing plants' timetable. It should be noted that although there is only one maximum day per year, several other days' production approached the MDD at various times.

For analysis and forecasting purposes, a MDD:ADD ratio of 2.0 production data will be used for forecasting purposes .

Table 2-10 Maximum Day Demand and MDD:ADD

Year	Total Annual Production (MG)[1]	Annual Average Day (ADD) MG (Production)	Actual Maximum Day (MDD) MG (Date/Production)[1]	MDD:ADD
2009	1,020.474	2.80		
2010	940.940	2.58		
2011	964.527	2.64	Aug. 5 /5.28	2.0
2012	984.650	2.69	Oct. 4 / 6.51	2.4
2013	932.582	2.56	July 25 / 4.43	1.7
2014	995.203	2.73	July 11 / 5.05	1.8
2015	1,020.873	2.80	June 30 / 5.36	1.9
			Average	1.96

[1] 2011-2015 City's Annual Water Report spreadsheet

Peak hour demand (PHD) is the calculated maximum rate of water use produced, excluding fire flow, that can be expected to occur over a continuous 60-minute time period. The following equations from the DOH water System Design Manual was used to calculate PHDs.

$$PHD = \frac{MDD}{1440} \times (C \times N + F) + 18$$

Where:
PHD = Peak Hour Demand
MDD = MDD/ERU = ADD/ERU x MDD:ADD ratio
C = 1.6 for ERUs > 500
N = Number of ERUs
F = 225 for ERUs >500

Peak hour demand is useful in determining the volume of equalizing storage needed to meet peak system demands that may exceed supply capacity. The calculated peak hour demand for both the 2015 Average Day and Maximum Day Demands are shown on Table 2-11.

2.6 Service Area Demand Projections

Future demands are calculated based on the City's projected number of ERUs and using the 2015 ERU value of 297.4 gpd/ERU. Future demands were also computed using the current Water Use Efficiency goal of reducing residential consumption by 25 gallons per day (272.4) by December 31, 2020. Table 2-11 shows the various forecasts for each year 2016-2021, and then every 5 years until 2035 for both 297.4 and 272.4 gpd/ERU. The values for 2015 annual demand, average day demand and maximum day demand shown are calculated, but closely correspond to actual readings as noted in the table notes. Figure 2-5 shows the water demand projections with and without meeting the WUE goal.

Table 2-11 System Water Demand Projections

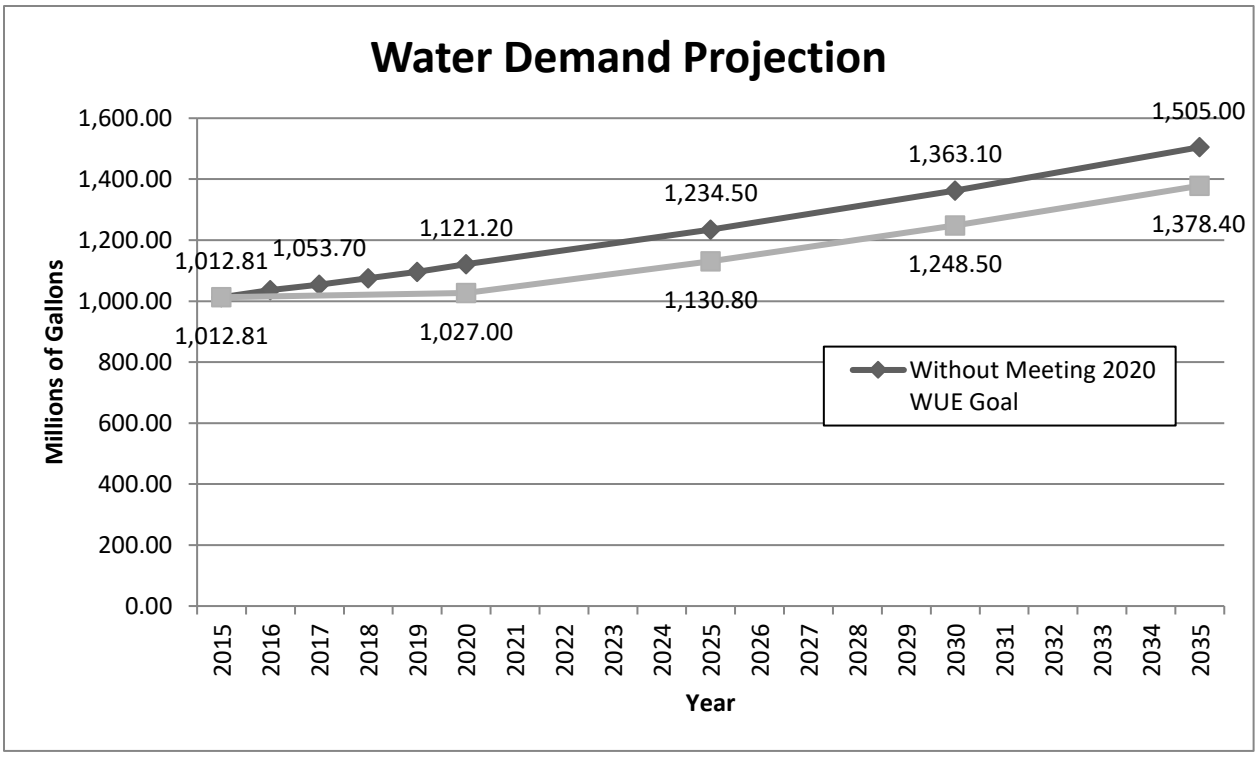
	2015	2016	2017	2018	2019	2021	2020	2025	2030	2035
Total ERUs	9,330	9,517	9,707	9,901	10,099	10,507	10,301	11,373	12,557	13,864
Annual Demand (MG) (297.4gpd/ERU)	1,012.8[1]	1,035.9	1,053.7	1,074.8	1,096.3	1,140.5	1,121.2	1,234.5	1,363.1	1,5175.0
Annual Demand (MG) (272.4 gpd/ERU)	--	-	-	-	-	1,045	1,027.0	1,130.8	1,248.5	1,378.4
Avg. Day (MG) (297.4 gpd/ERU)	2.8	2.8	2.9	2.9	3.0	3.1	3.1	3.4	3.7	4.1
Avg. Day (MG) (272.4 gpd/ERU)[2]	-	-	-	-	-	2.9	2.8	3.1	3.4	3.8
Max. Day (MG) (297.4 gpd/ERU)	5.6[2]	5.7	5.8	5.9	6.0	6.2	6.1	6.8	7.5	8.2
Max. Day (GPM) (297.4 gpd/ERU)	3,889	3,958	4,028	4,097	4,167	4,306	4,236	4,722	5,208	5,694
Max. Day (MG) (272.4 gpd/ERU)	-	-	-	-	-	5.7	5.6	6.2	6.8	7.6
Max. Day (GPM) (727.4 gpd/ERU)	-	-	-	-	-	3,975	3,889	4,306	4,722	5,278
Peak Hour (GPM) (297.4 gpd/ERU)	6,334	6,445	6,555	6,666	6,778	7,054	6,888	7,649	8,445	9,221
Peak Hour (GPM) (272.4gpd/ERU)	-	-	-	-	-	6,458	6,318	6,992	7,670	8,548

[1] Calculated Annual Demand of 1,012.8 MG corresponds to the actual annual demand of 1,020.8 within the .8% billing inaccuracy previously discussed.

[2] Calculated MDD of 5.6 corresponds well to actual MDD of 5.36MGD

[3] WUE Goal; Reduce single family and multi-family connections by 25 gpd by 12-31-20

Figure 2-5 Water Demand Projections



The ERU calculations, and resulting service area demand projections utilized the annual billing demand plus the DSL volume rather than total water production demand in order to more accurately track future customer class and DSL demands. If the total water produced volume was used to calculate the ERU value the result would have been 297.7 g/ERU. The total ERUs/year would be increased by 18 for 2015 and 55 for 2035. This minor change would not affect the projected average day demand of 4.1 MG 2035: 4,143,686 Gallons - 2015: 4,123,153 Gallons = 20,533 Gallons.

2.6.1 PRESSURE ZONES 2 AND 3 PROJECTIONS

Table 2-12 Zone 2 and 3 Projection

	2015	2016	2017	2018	2019	2020	2021	2025	2030	2035
Total ERUs	434	443	452	461	470	479	489	529	584	645
Annual Demand (MG) (297.4gpd/ERU)	47.1	48.1	49.1	50.0	51.0	52.0	53.0	57.4	63.4	70.0
Annual Demand (MG) (272.4 gpd/ERU)						47.6	48.6	52.6	58.1	64.1
Avg. Day (MG) (297.4 gpd/ERU)	.129	.132	.134	.137	.140	.142	.145	.157	.174	.192
Avg. Day (MG) (272.4 gpd/ERU)[2]						.130	.133	.144	.159	.176
Max. Day (MG) (297.4 gpd/ERU)	.258	.263	.269	.274	.280	.285	.291	.315	.347	.384
Max. Day (GPM) (297.4 gpd/ERU)	179.3	183	186.7	190.4	194.1	197.9	201.9	218.54	241.2	266.4
Max. Day (MG) (272.4 gpd/ERU)						.261	.266	.288	.318	.351
Max. Day (GPM) (727.4 gpd/ERU)						181.2	184.7	200.1	220.9	224.0
Peak Hour (GPM) (297.4 gpd/ERU)						932	950	957	1045	1143
Peak Hour (GPM) (272.4gpd/ERU)						927	945	949	1037	1135

The City's retail service area is comprised of three pressure zones. The low zone provides service to the majority of the customer, while zones 2 and 3 service single family residences at higher elevations. Water is pumped from the lower zone to the high zone reservoir. The middle zone receives its water from the high zone through pressure reducing valves. The population and water demands of zones 2 and 3 must be projected in order to evaluate the adequacy of the booster pumps and the high level reservoir.

The 2011 HDR draft plan reported that zones 2 and 3 served about 15.5% of the total single family services. Using that percentage, the current number of residences in these zones is estimate to be 434. Water Division staff agree that this is a reasonable estimation. Table 2-12 projects these ERUs and calculated water demands using the same 2% growth rate and gpd/ERU as used for the whole system.

Chapter 3: System Analysis

3.1 Introduction

This section presents Sunnyside's design standards, system inventory and analysis, legal and physical capacity, and water quality. It concludes with a summary of system deficiencies/needs and discussion of possible improvements.

3.2 System Design Standards

This section presents the City's Design Standards which have been developed to ensure that a consistent minimum level of service is maintained throughout the system and to facilitate planning, design, and construction of water system projects.

3.2.1 Supply

Source facilities shall meet the maximum day demand (MDD) and be sufficient to replenish storage within three days of fire or emergency drawdown during MDD conditions. The supply will be provided at a hydraulic grade line (HGL) that meets replenishment needs of storage facilities. The City will begin to seek new source capacity when the existing wells are operated for more than 18 hours /day (not including the emergency well).

3.2.2 Storage

Sufficient storage shall meet seasonal and diurnal variations in demand, fire flows, and emergency demands such as during power outages or equipment failures. These design standards utilize DOH guidelines as criteria for determination of reasonable treated water storage required in each pressure zone, as well as for the system as a whole.
The five storage components listed below will be considered for each pressure zone:

- Operational storage
- Equalizing storage
- Standby (emergency) storage
- Fire suppression storage
- Dead storage, if any

Only effective storage (total storage – dead storage) will be considered in determining available storage volume unless booster pumps are provided. Equalizing and standby storage must be able to provide a minimum of 30 psi to the highest customer in the pressure zone, and fire storage must provide at least 20 psi. The City fire department has agreed to permit "nesting" of the standby and fire storage which allows using the larger of the two volumes to be used in total capacity calculations. A copy of the fire department's agreement letter is in provided in Appendix 2.

Operational Storage

The volume of operational storage should be sufficient to prevent excess pump cycling. The City actively manages its selection of which sources to use based on water demand. Since it is desirable to allow large well pumps to operate for at least 10 minutes/cycle, and five of the eight wells produce 750 gpm or less, an operational storage capacity of 7500 gallons will be used in storage capacity calculations.

Equalizing Storage
Equalizing storage capacity is utilized to meet the daily (diurnal) variations in demand. Peak use periods typically occur during the morning and evening hours. Water is typically withdrawn from storage during these peak demand periods and replenished during lower demand periods. DOH guidelines recommend the following equation be used to estimate equalizing storage:

Equalizing Storage (gal) = 150 x (PHD – Q_S)

Where:
PHD = Peak Hour Demand (gpm)
Q_S = Source production rate (gpm)

When Q_S is greater than the PHD it results in a negative value for equalizing storage. A value of 5 percent of the MDD will be assumed as a minimum.

Standby (Emergency Storage)
The purpose of standby storage is to provide a measure of reliability should a source or well pump fail. The volume of emergency storage required is dependent upon the reliability of the sources of supply and the ability to provide alternative supplies. If the system or zone has multiple sources of supply, the volume of water produced by the remaining supply sources (after assuming the largest source is out of service) can reduce the standby storage requirement.
For the City, the largest source (Well 9; 1500 gpm) is taken out of production before the storage volume is calculated.
For systems with multiple sources, DOH recommends standby storage be based on the following equation:

SBTMS = (2 days)[(ADD)(N) - tm (QS - QL)]

Where:
SBTMS = Total standby storage component for a multiple source water system; in gallons
ADD = Average day demand for the design year, in gpd/ERU
N = Number of ERUs
QS = Sum of all installed and continuously available supply source capacities, except emergency sources, in gpm. See Section 9.1.1 for the definition of a continuously available source
QL = The largest capacity source available to the water system, in gpm
tm = Time the remaining sources are pumped on the day when the largest source is not available, in minutes. Unless restricted otherwise, assume 1,440 minutes

Although DOH's standby volume is intended to satisfy the requirements imposed by water system customers for unusual situations (WAC 246-290-420), DOH recommends that SB volume be no less than 200 gallons/ERU.

The larger of the amount calculated between the equation above, or 200 gallons × number of ERUs, is used for standby emergency storage in this analysis.

Fire Storage
Fire flow storage is provides water to meet fire fighting requirements specified by the local fire authority while maintaining 20 psi pressure throughout the distribution system. The City has adopted the

Insurance Services Office fire flow requirements. The City Fire Department has determined the largest fire flow requirement is 5,500 gallons per minute for 4 hours and is required at 4th Street and Otis Ave., directly south of the City's Wastewater Treatment Plant. These flows are used in storage capacity analysis and were used in hydraulic modeling of the distribution system.

3.2.3 DISTRIBUTION

The distribution system shall provide no less than 30 psi pressure to all customers during peak-hour demands with equalizing storage depleted. During fire-fighting events, the minimum residual pressure permitted at the fire location will be 20 psi, while maintaining at least 20 psi system pressure throughout the rest of the distribution system with fire storage depleted and under maximum day demand hydraulic conditions.

Pipelines

The following design criteria apply to water system pipelines:

- The minimum pipe size for water mains is 8 inches, this includes any pipeline designed to provide fire flow.
- In general, pipes will be sized such that velocities are limited to a maximum of 8 feet per second (fps) under maximum day demand (MDD) conditions. Maximum velocities greater than 8 fps may occur in short sections of mains or in piping associated with pumping and valves under fire flow conditions.
- Pipelines will be looped where possible.
- As a minimum, pipe materials must be ductile iron or polyvinyl chloride (PVC) and meet applicable American Water Works Association (AWWA) standards.
- All water mains must have a minimum cover of 36 inches over the top of the pipe.
- Minimum separation distances between water mains and sanitary sewer mains will be 10 feet horizontally when the mains are parallel, and the water main shall be a minimum of 1.5 feet above the sanitary sewer when crossing. Adjustments to these requirements may be allowed if the proposed adjustments are within the latest guidelines published by DOH.
- A minimum separation distance of 5 feet horizontally must be maintained between water mains and storm sewer systems. Lesser separations will be allowed if it is shown that it is not feasible to locate the water main further away.
- All new piping will be pressure tested to a minimum of 150 psi for one and a half hours
- All new piping will be disinfected before being placed into service.

Valves

A sufficient number of valves will be installed in the system to allow isolation of the system for maintenance and repair.

As a guideline, valves should be located at all tees and crosses, and have a maximum spacing of 500 feet. The minimum number of valves to be installed at an intersection is N-1, where N is the number of pipes intersecting. Two-inch minimum air and vacuum release valves must be installed at all high points in the piping system.
All valves shall meet applicable AWWA standard.

Fire Hydrants

The following design criteria apply to fire hydrants:

- Fire hydrants must be 6 inches or larger and meet AWWA standards.
- Hydrant spacing must not exceed 800 feet between hydrants. In closely built areas, 600 feet between hydrants is preferred.
- Hydrant type must be dry-barrel construction.
- Fire hydrant type, features, and spacing included in the design of any water system improvement must be approved by the City Fire Department.

Pressure Zones

Pressure zones are determined by evaluating ground elevation as it relates to available hydraulic gradient. The static pressure at the lowest elevation will generally not be greater than 100 psi. Pressure at the highest elevation in a pressure zone must be sufficient to ensure that the pressure is not less than 30 psi at peak hour demand flow conditions.

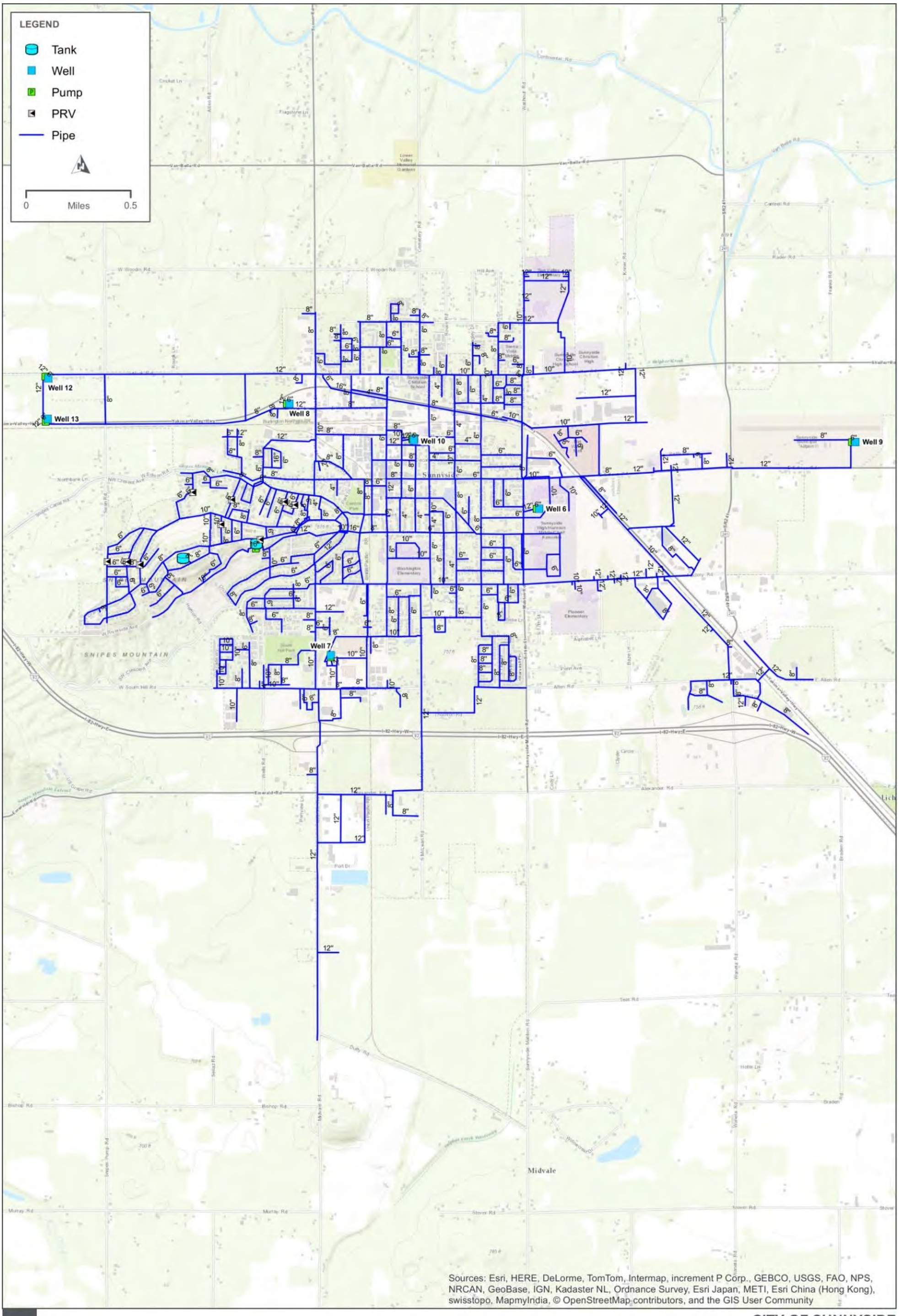
Booster Pump Stations

A minimum of two pumps are required at each booster pump station to provide flexibility and system redundancy. Each pump must be able to meet MDD design conditions. To increase emergency reliability, at least one pump in each booster pump station must be supplied with on-site standby power or have the capability to connect to a portable power supply. This capability allows some emergency supply capacity, even during a general power outage.

3.3 SYSTEM INVENTORY

The Sunnyside water system has grown to meet the needs of the City over the last 106 years with the development wells and reservoirs in the system beginning with the first well in 1910. The distribution as routinely been expanded to serve new customers. The existing system is shown on Figure 3-1 and the systems hydraulic schematic is shown on Figure 3-2.

Figure 3-1 Existing System Map



CITY OF SUNNYSIDE
WATER DISTRIBUTION SYSTEM (2011)

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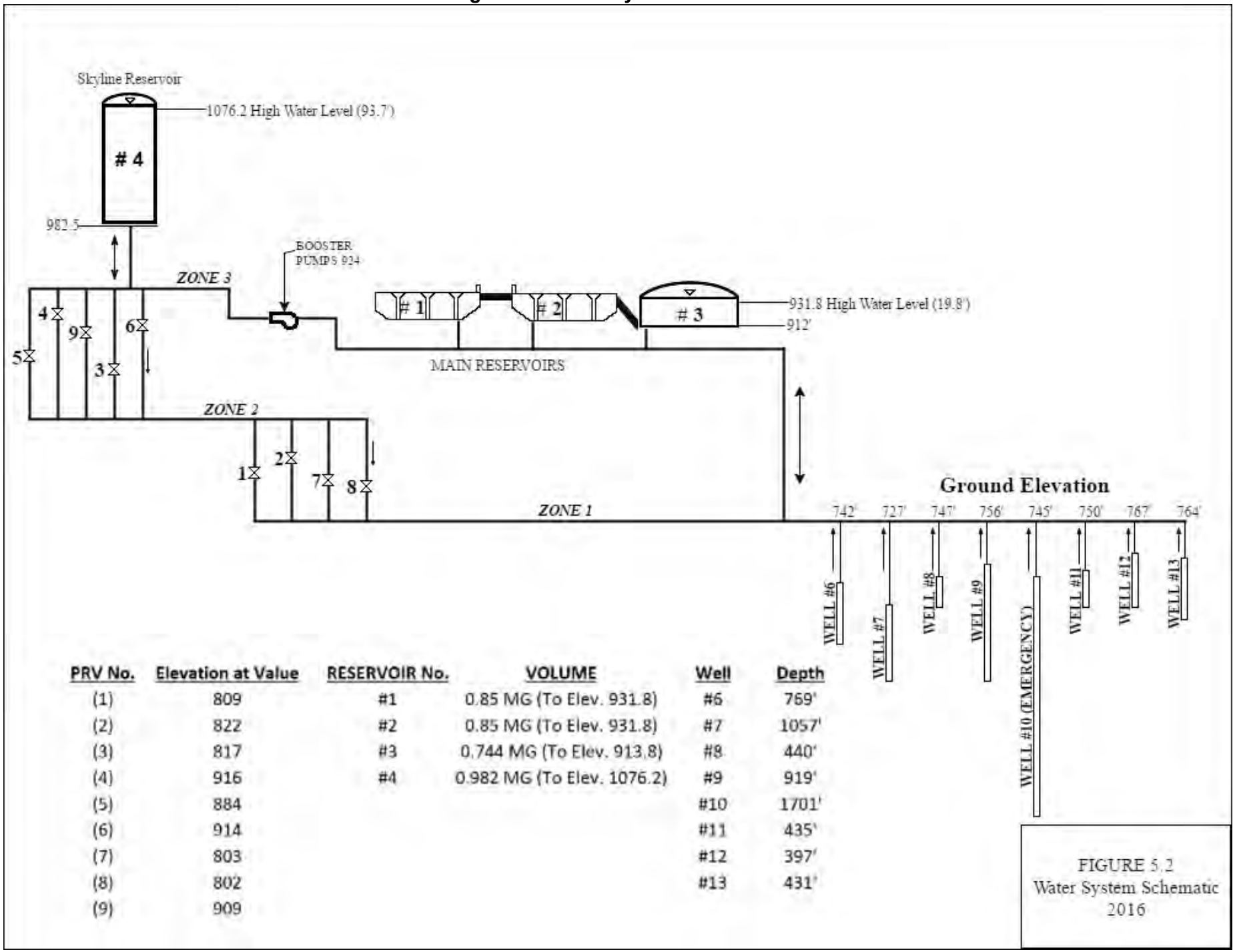
Figure 3-2 Water System Schematic



PRV No.	Elevation at Value	RESERVOIR No.	VOLUME
(1)	809	#1	0.85 MG (To Elev. 931.8)
(2)	822	#2	0.85 MG (To Elev. 931.8)
(3)	817	#3	0.744 MG (To Elev. 913.8)
(4)	916	#4	0.982 MG (To Elev. 1076.2)
(5)	884		
(6)	914		
(7)	803		
(8)	802		
(9)	909		

Well	Depth
#6	769'
#7	1057'
#8	440'
#9	919'
#10	1701'
#11	435'
#12	397'
#13	431'

3.3.1 SOURCE

The City of Sunnyside is located in the Lower Yakima Valley between the major geologic features known as the Rattlesnake Mountains to the north and the Horse Heaven Hills to the south. In terms of geology, the area is in the West Central Columbia Plateau Province which is an area underlain by the Columbia River Basalt Groups. The basalts are overlain by an assorted mixture of sediments, including fluvial, glacial, and catastrophic flood deposits. Both the basalts and sediments in the Sunnyside area serve as aquifers suitable for groundwater production. The three major basalt formations are the Saddle Mountain, Wanapum, and Grande Ronde Basalts which form the Yakima Basalt Subgroup.

The basalt units were formed by successive eruption events resulting in a relatively thick sequence of individual lava flows. The thickness of individual flows ranges from a few feet to several hundred feet and is characterized by columnar jointing and fractures. At the top and bottom of the individual flows, a rubbly zone, made up of broken rock, generally occurs due to rapid cooling of the lava. Groundwater occurs predominately in the rubbly zone between flows and, to some extent, within fractures in the basalt. Sedimentary interbeds (typically sand, silt and gravel) between the lava flows are also capable of providing water. The City's deepest well (Well 10) is located in the Wanapum Basalt flow and contains hydrogen sulfide and methane and is maintained as an emergency well. Other municipal wells in the Yakima Valley in this aquifer also experience the same water quality issues. The City's other deep wells (Wells 6, 7, and 9) penetrate the Saddle Mountain Basalt flow group, and provide excellent water quality.

The sediments overlying the Saddle Mountain Basalt are comprised of clay, sand and gravel that are recharged within the Yakima basin by precipitation, irrigation canals, Yakima River, large irrigation using deeper aquifers and possibly "leakage" from deeper wells that have artesian flow. Wells 8, 11, 12 and 13 are developed in these unconsolidated materials.

Table 3-1 provides a summary of each well. Well logs and other construction information for these wells are provided in Appendix 3.

Table 3-1 Well Data

Well No. (DOH Source Number)	DOE Well Tag Number	Date Drilled	Depth	Ground Elevation (ft MSL)	Type Well	Depth to First Open Interval (feet)	Tested Capacity (gpm)	Original Developed Capacity (gpm)	Current Pumping Rate (gpm)
1		1907-08	166	740	Alluvium		420	490	Decommissioned
2		1927-29	833	740	Rock		230	350	Decommissioned
3		1939-40	1,162	746	Rock		930	780	Decommissioned
4		1944-46	1,576	746	Rock		1,200	1,000	Decommissioned
5		1953-54	458	740	Alluvium		1,400	1,400	Decommissioned
6 (S06)	AFL811	1962-63	769	742	Rock	523	1,570	1,380	650
7 (SO7)	ABR059	1972-74	1,057	727	Rock	541	1,000	1,000	1,100
8 (SO8)	AFL812	1994	440	747	Alluvium	325	800	800	750
9 (S09)	AFK905	1997	919	756	Rock	471	N/A	1,500	1,500
10 (S10)	AFL815	1998	1701	745	Rock	1202	2000	1,000	Emergency Use
11(S11)	AKN517	2005	435	750	Alluvium	380	800	500	500
12 (S12)	ALM337	2007	397	767	Alluvium	383		350	350
13 (S13)	BAL875	2010	431	764	Alluvium	351	850	650	650
									Total
									5,500

Wells 1-5 have been decommissioned due to either declining production, contamination or cascading water between the unconsolidated aquifer and the Saddle Mt. Basalt. Well 10 is considered an emergency well, and is not routinely used. Wells 12 and 13 are in close proximity to each other and withdraw from the same aquifer. The water from each well comes together for chlorination prior to their single entry into the distribution system; therefore they are considered a wellfield (DOH Source Number S14).

Table 3-2 documents the annual withdrawal from each well. Data is lacking for several months over the years due to problems with either the source meters or the old SCADA system. These difficulties have been corrected with the replacement and upgrade of all source meters and the SCADA system in 2012 and 2013. The difference between the City's Annual Water Report data and the WUE reported dated is attributed to the different time periods of each report. The annual report accounts for water from the 1st of each month through the last day of that month, whereas the WUE report is adjusted to be consistent with the service meter readings that occur in middle of the month. It should also be noted that the reporting year for 2009 WUE Report was June 15 - May 15 and therefore is not shown on Table 3-2. The difference between the 2015 source readings and the WUE reporting figure is less than 1%.

Table 3-2 Annual Water Production History by Well (Million Gallons)[1]

	Well Number											
Year	**6**	**7**	**8**	**9**	**10[2]**	**11**	**12**	**13**	**Total**	**WUE**	**Total-WUE**	**%**
2003	113.02	302.02	298.92	262.22	-	-			976.18			
2004	32.04	267.69	64.37	572.59	-	-			936.69			
2005	85.36	272.96	102.33	588.04	0.00	-			1048.69			
2006	57.35	337.19	158.47	344.07	0.00	126.73			1023.81			
2007[(3)]	8.85	250.86	182.71	384.39	0.00	134.12			960.93			
2008	38.83	175.71	302.60	360.61	0.00	98.30			976.05			
2009	46.88	209.99	287.37	254.39	0.00	210.77			1009.4	920.960	88.44	8.8%
2010[(4)]	1.18	42.68	110.70	495.42	0.00	167.91			817.89	940.940	-123.05	-15.0%
2011	18.023	114.80	326.02	466.87	0.00	37.93			963.65	964.527	-.877	-.09%
2012	7.33	226.07	241.40	388.41	0.00	225.28			1088.49	984.650	103.84	9.5%
2013[(5)]	6.65	38.72	172.90	344.22	0.00	90.87			653.36	740.838	-87.478	-13.3%
2014	5.78	48.71	166.67	563.11	0.00	60.72	41.89	105.05	991.93	948.453	43.48	4.4%
2015	3.06	166.79	112.12	268.11	0.00	117.07	111.21	243.44	1021.80	1,020.873	0.927	0.09%

[1] Data Source: 2003-2010: HDR 2012 Draft Water System Plan; 2011-2013 City's Annual Water Report spreadsheet
[2] Well No. 10 is an emergency well
[3] Omits production data from November 2010
[4] Omits production data from December 2007 and 2010
[5] Missing data for parts of August and October, and all of November, and December 2013

Auxiliary power generation is available at wells number 8, 9, 10, 11, 12 and 13.

All of the wells are capable of pumping 24 hours per day (7.92 million gallons) which would meet projected maximum day demands until about 2034 without WUE savings, and a few years after 2035 with WUE savings. While it capacity exists, it is undesirable to stress the wells at this level. The City's design standard calls for initiating a detailed study of additional sources with maximum day demand exceeding an 18 hour pumping day. That level of pumping (5.94 MGD) is projected to occur in 2018 without WUE savings. The desirable pumping duration of 20 hours per day (6.6 MGD) will be reached about 2024 without WUE savings and 2029 with WUE savings. Therefore an additional source of supply should be available between 2024 and 2028 depending on the success of reaching the WUE goal.

3.3.2 TREATMENT

All of Sunnyside's sources are chlorinated before entering the distribution system. Wells 6, 7, 8, and 9 utilize gas chlorine. Sodium hypochlorite is generated on-site at Well 11 for Wells 10 and 11. Liquid sodium hypochlorite is trucked from Well 11 to Well 12, which also serves as the injection point for Well 13. The City plans to move the unused on-site generator from the wastewater treatment plant to Well 12 in 2017.

Because Well 6 is located near the high school, the City intends to replace the gas chlorination system with an on-site liquid hypochlorite storage tank and injector in 2017. Similar tanks and injectors are planned to be installed at both Grandview and Skyline reservoirs sites for emergency chlorination in 2021 and 2022.

Additional disinfection equipment will be installed with the addition of additional sources in the future

3.3.3 STORAGE

Sunnyside's reservoir storage consists of four tanks totaling 3.426 million gallons of storage, not all of which is useable due to service connections near the Skyline tank. This volume is less than noted in previous reports because of a change in operations which provides a greater safety factor above the high pumping level. Between that level and the overflow level there is an alarm level, which provides 24 hour notifications if there is a control problem and the water level is still rising above the pumping level and allows time for manual shut down of the pumps before the tanks are overflowing.

Three side-by-side concrete tanks located on Harrison Hill are designated as the Grandview 1, 2 and 3 Reservoirs. The three are interconnected so they share a common water level with a total volume of 2.444 MG when the level is at elevation 931.8. Grandview Reservoirs 1 and 2 were built in 1942 and Grandview Reservoir 3 was constructed in 1962. These reservoirs serve Zone 1 directly as well as being the source for the booster pump station delivering water to the Skyline Reservoir located at the top of Harrison Hill. The area around the Grandview Tanks is served by pressure Zone 2. There are a few water services at the upper level of Zone 1 on Riverside Ave. whose pressure may drop below the design pressure of 30 psi if the storage in Grandview reservoirs would drop significantly. The City is planning to switch these customers to a higher pressure zone in 2019.

The Skyline Reservoir, built in 1962, has a volume of .982 MG when filled to elevation 1,076.2 and provides water service to pressure Zone 3 and then to Zone 2 through nine pressure reducing stations. Only 255,630 gallons is available to provide 30 psi at the base and 497,753 gallons at 20 psi. These volumes are available to not only pressure Zones 2 and 3, but if needed, to the entire system through

the pressure reducing stations between Zone 2 and 1. The Skyline Reservoir is a standpipe and is in need of seismic and other structural upgrades.

For analysis and forecasting purposes, effective storage of 2.444 MG and .256 MG for a total of 2.7 MG will be used for the entire system storage evaluation since required standby storage is greater that fire flow requirements. Even though the fire flow requirement for Zones 2 and 3 is greater than the standby requirement, they can be met using the 30 psi volume of the Skyline tank.

Table 3-3 Existing Storage Components

Tank	Volume (Million Gallons)
Grandview #1	.85
Grandview #2	.85
Grandview #3	.744
Grandview Total	2.444
Skyline	.982 (.498 above 20psi; .256 above 30 psi
Total	3.426 (2.7 above 30psi in Skyline Tank

All of the tanks are cleaned and inspected on a regular basis with the next work scheduled for 2017. A Reservoir Assessment Technical Memorandum was completed by HDR consults in 2011 made several recommendations to address issues that were identified. The City has addressed many of the recommendations and will be repainting and making structural improvements to the Skyline Reservoir within the next few years. Other minor repairs to the concrete tanks remain to be made.

A detailed analysis of the storage capacity required to serve the entire system shows a deficit shortly after 2025 without WUE savings and without another source of supply. If the WUE goal can be met, the deficit isn't realized until about just before 2030. The details of this analysis are presented in Table 3-6.

For pressure Zones 2 and 3 that are served by the Skyline tank, an excess storage capacity of over 56,000 gallons exists at the end of the 20 year planning period at the 30 psi volume. This does not take into account any water that by be discharged to the pressure Zone 1 through the lower set of pressure reducing valves. These calculations are shown in Table 3-7.

Figure 3-3 and Figure 3-4 show the various storage components for each reservoir using figures from Table 3-4 and Table 3-5.

Figure 3-3 Grandview Tank*

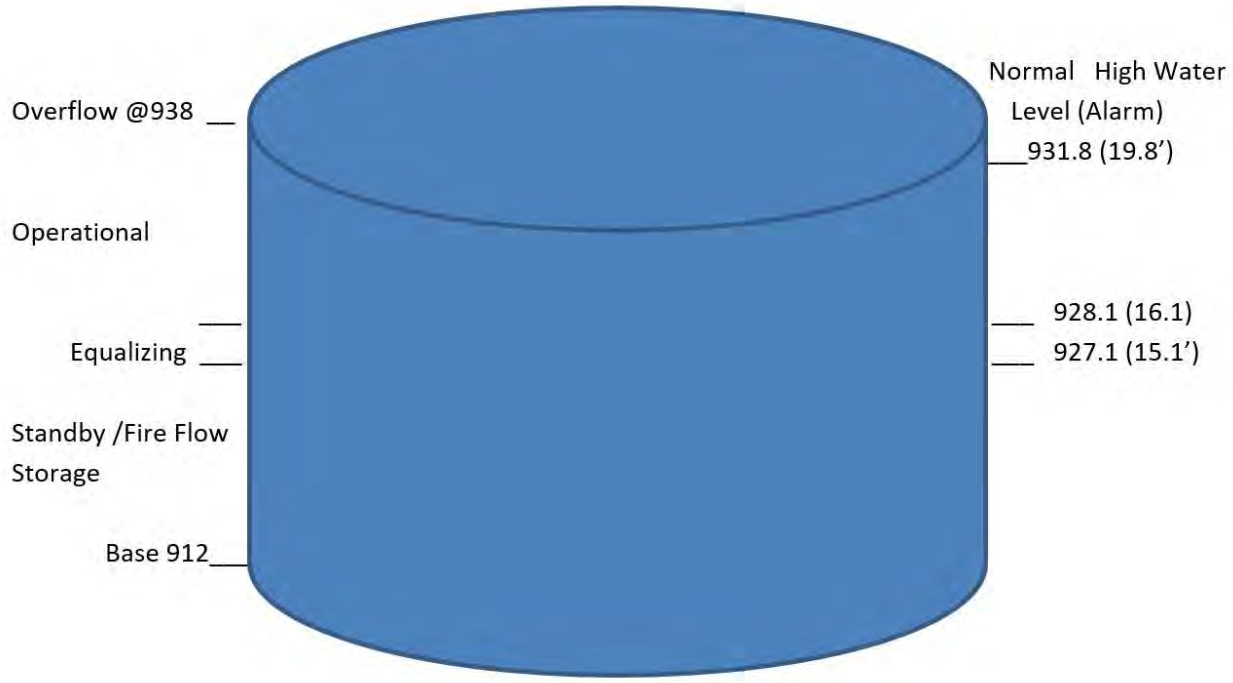


Table 3-4 Based on Total Number of Connections (Zones 1, 2, and 3)

Current Storage Requirement[1]	Volume (gallons)	Feet
Dead Storage	0	
Fire Flow	0[2]	
Standby	1,866,000[3]	15.1
Equalizing	125,100	1.0
Operational	7,500	0.1
Total Required	1,998,600	16.2
Available from Grandview Tanks	444,437	3.6

* The dimensions of Grandview tanks 1 and 2 are unknown at this time. Liquivision Technology Inc. measured the interior after the 2017 cleaning, but their report was not available as this WSP was being finalized. Tank volumes were estimated assuming one 2.444 MG circular tank.

Figure 3-4 Skyline Tank

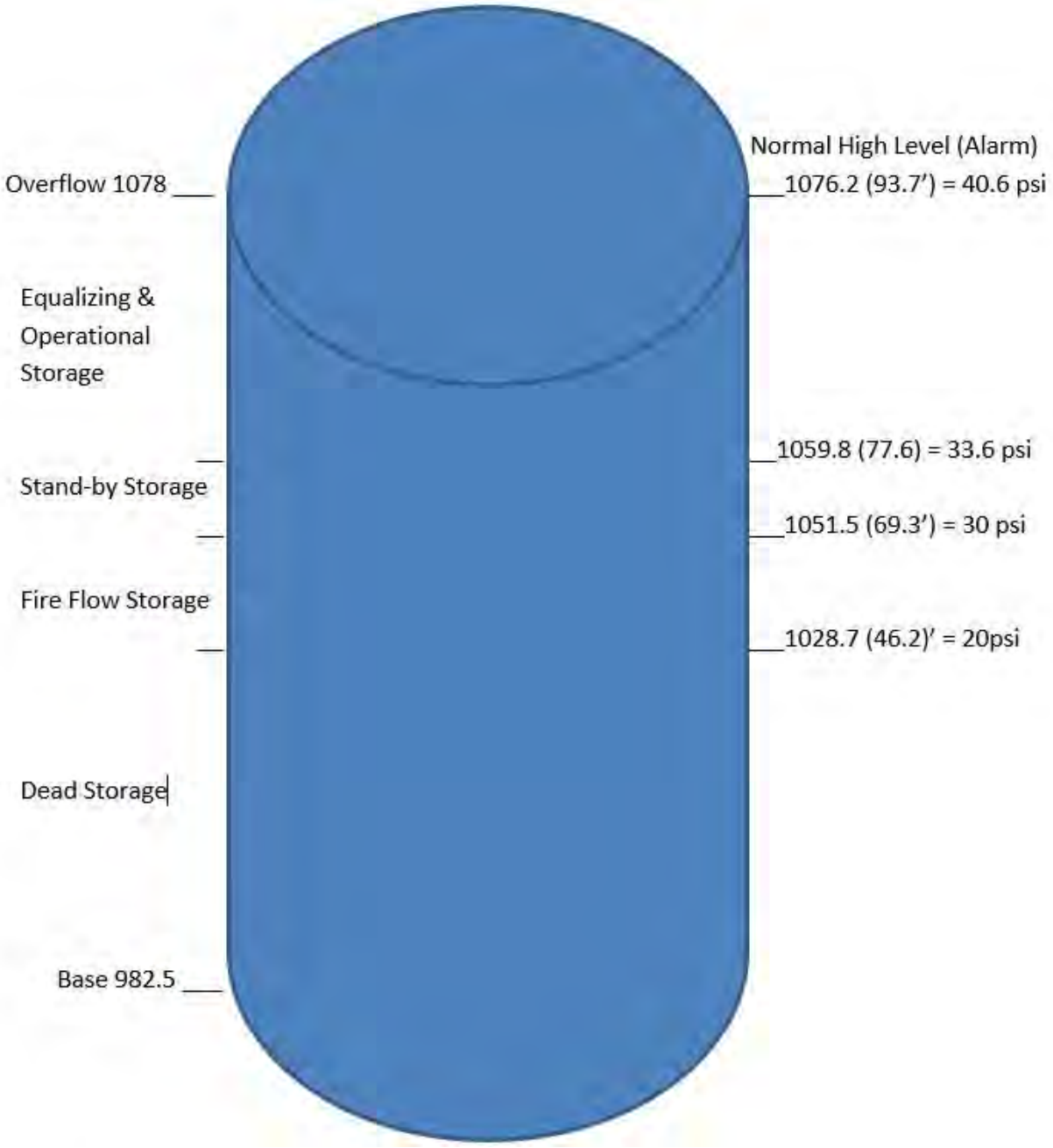


Table 3-5

Current Storage Requirement[1]	Volume (gallons)	Feet
Dead Storage	487,391	46.2
Fire Flow	180,000	17.2
Extra fire storage to provide 30psi standby	61,841	5.9
Standby	86,800	8.3
Equalizing	12,907	1.2
Operational	1,510	.2
Total Required	830,449	79.0
Available >30psi	154,078	14.7

3.3.4 BOOSTER PUMP STATION

A five pump booster pump station is located at the Grandview tank site which pumps water through the high pressure zone (Zone 3) distribution system to the Skyline reservoir. The booster pump operation is controlled by the water elevation in the Skyline Reservoir and is varied throughout the year based on anticipated daily water demand in pressure Zones 2 and 3. The station is supplied with an emergency generator to provide auxiliary power. Table 3-8 lists basic data for the booster pumps.

Table 3-6 Storage Capacity

Year	ERUs	gpd/ERU	Fire[1]	Standby[2]	Equalalizing[3]	Operational[4]	Total	Existing[5]	Remaining
2015	9,330	297.4	1,320,000	1,866,000	125,100	7,500	1,998,600	2,700,000	701,400
2020	10,301	297.4	1,320,000	2,060,200	208,200	7,500	2,275,900	2,700,000	424,100
2020	10,301	272.4	1,320,000	2,060,200	122,700	7,500	2,190,400	2,700,000	509,600
2025	11,373	297.4	1,320,000	2,275,000	322,350	7,500	2,604,850	2,700,000	95,150
2025	11,373	272.4	1,320,000	2,275,000	223,800	7,500	2,506,300	2,700,000	193,700
2030	12,557	297.4	1,320,000	2,511,000	443,700	7,500	2,962,200	2,700,000	-262,200
2030	12,557	272.4	1,320,000	2,511,000	325,500	7,500	2,844,000	2,700,000	-144,000
2035	13,864	297.4	1,320,000	2,773,000	558,150	7,500	3,338,650	2,700,000	-638,650
2035	13,864	272.4	1,320,000	2,773,000	457,200	7,500	3,237,700	2,700,000	-537,700

[1] 5,500 gpm x 4 hours = 1.32 MG

[2] 200 gallons x ERU (larger volume than DOH recommended equation of 2(ADD x ERU) – 1440 x (5,500-1,500))

[3] (PHD-$Q_{S)}$ x 150 minutes = (PHD-5,500) x 150minutes

[4] 750 gpm x 10 minutes = 7,500

[5] 2.444 MG from the Grandview Tanks and .498 MG from Skyline Tank (water above 20 psi level)

Table 3-7 Zone 2 & 3 Storage with and without WUE Savings (Gallons)

Year	ERUs	gpd/ERU	Fire[1]	Standby[2]	Equalalizing[3]	Operational[4]	Total	Existing (30psi)	Remaining
2015	434	297.4	180,000	86,800	12,907	1,510	194,417	255,630	61,213
2020	479	297.4	180,000	95,800	14,088	1,510	195,598	255,630	60,032
2020	479	272.4	180,000	95,800	12,933	1,510	194,443	255,630	61,197
2025	529	297.4	180,000	105,800	15,705	1,510	197,215	255,630	58,415
2025	529	272.4	180,000	105,800	14,319	1,510	195,829	255,630	59,801
2030	584	297.4	180,000	116,800	17,319	1,510	198,831	255,630	56,799
2030	584	272.4	180,000	116,800	15,705	1,510	197,215	255,630	58,415
2035	645	297.4	180,000	129,000	18,938	1,510	200,448	255,630	55,182
2035	645	272.4	180,000	129,000	17,552	1,510	199,032	255,630	56,598

[1] 1500 gpm x 2 hours = 180,000 MG

[2] 200 gallons x ERU (larger volume than DOH recommended equation of 2(ADD x ERU) – 1440 x (1,693 – 800))

[3] (PHD-Q_5) x 150 minutes = (PHD – 1,693 x 150 minutes) Where flow available exceeds PHD, use 5% MDD

[4] 151 gpm x 10 minutes = 1,510 gallons

Table 3-8 Booster Pump Capacity

Pump No.	HP	Design Capacity (gpm)
1	40	800
2	20	457
3	10	167
4	10	118
5	10	151
Total		**1,693**

The 1,693 gpm pumping capacity of the booster pump station exceeds the 2035 anticipated peak hour demand of 533 gpm. Minor concrete repairs were identified in the Reservoir Assessment memorandum and will be addressed when the concrete tank refurbishing is done.

3.3.5 PRESSURE ZONES

The City utilizes three pressure zones to provide water throughout their service area. All of the well sources pump directly into Zone 1 and the Grandview storage tanks. The booster station moves water from the Grandview tanks through Zone 3 to the Skyline tank. Five Pressure Reducing Stations lower the pressure from Zone 3 to Zone 2, and 4 stations allows water from Zone 2 to flow back into Zone 1 if the demand warrants. Some of these stations have combination pressure reducing / pressure sustaining valves that not only reduces the higher inlet pressure to a steady lower pressure regardless of changing flow rate or varying inlet pressure, but also protects against loss of upstream pressure should excessive flow occur through the valve. Table 3-9 provides information on the locations, elevations and pressure characteristics of each of the pressure reducing valves and Figure 3-5 shows the pressure zone boundaries.

Figure 3-5 Static Pressure Zone Map

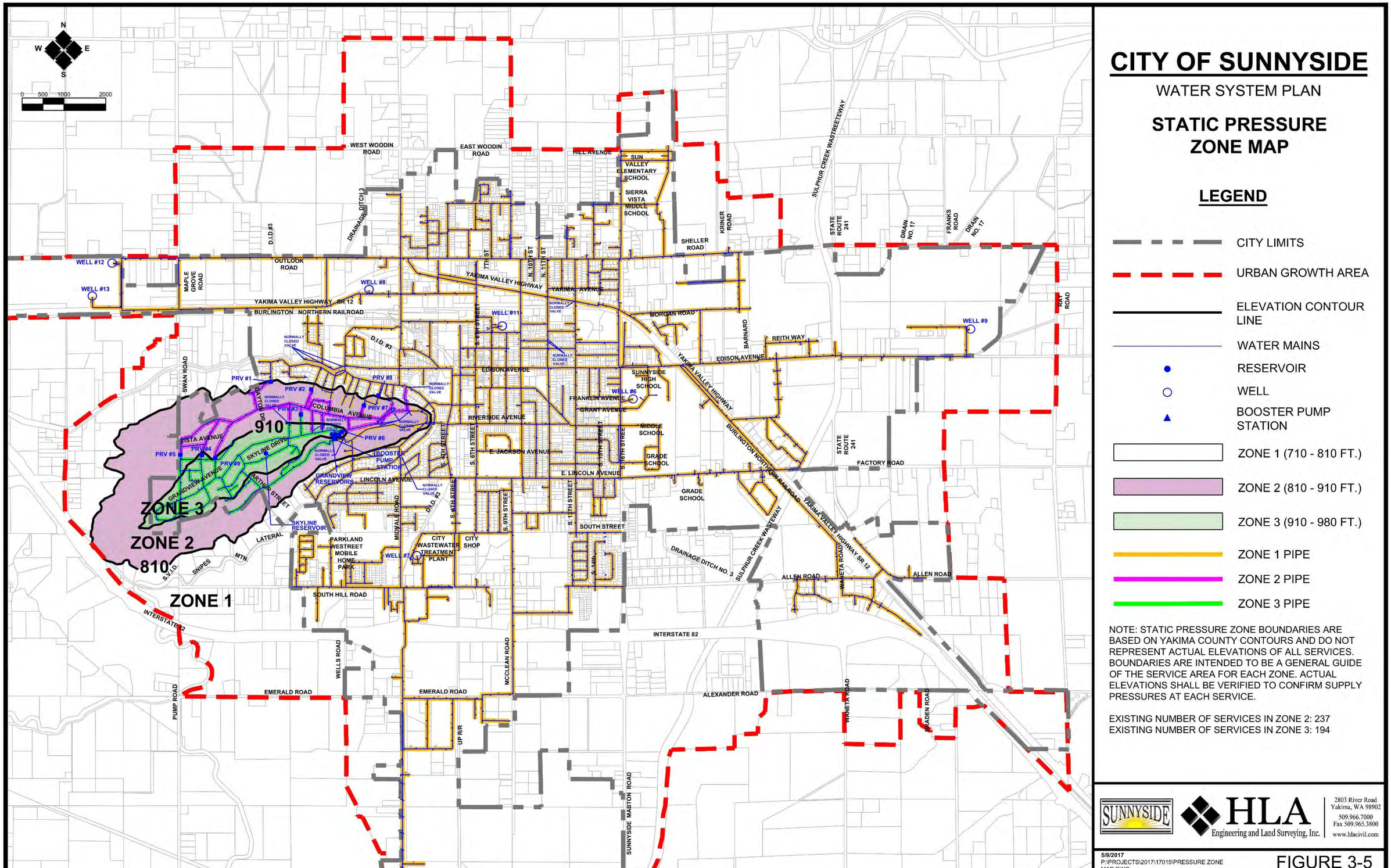


Table 3-9 Existing Pressure Reducing Valves (PRVs)

PRV No.	Location of PRV	Elevation	Valve Size	*Cla-Val Model No.	Inlet PSI	Outlet PSI	Sustaining PSI
Zone 3 → Zone 2							
3	Terry & Columbia Ave.	871	6”	90G-01AB	83	58	
4	Upland & Vine	915.9 916.4	1 ½” 6”	90G-01AS 90G-01AB	68 68	47 42	
5	Swan Rd & Vine	883.6	6”	92G-01B	80	55	50
6	328 Grandview	914.3 912.2	1 ½” 6”	90G-01AS 90G-01AB	65 65	45 40	
9	Vine & Taylor	908.8 909	1 ½” 6”	90G-01AS 90G-01AB	67 67	50 50	
Zone 2 → Zone 1							
1	Darrin Court & Dayton Dr.	809.9 810.1	1 ½” 6”	90G-01AS 92G-01B	98 98	53 48	65 65
2	545 Terry	822.2	6”	92G-01B	83	58	50
7	San Clemente & S. Lookout	803.4 803.6	2” 6”	92G-01BS 92G-01BCS	102 102	57 52	60 60
8	South Lookout	802.0 802.2	2” 6”	92G-01BS 6" 92-01	102 102	58 53	60 60

3.3.6 DISTRIBUTION SYSTEM

The distribution system consists of over 80 miles of pipelines from 1 inch to 16 inches in diameter. The City has been replacing and updating various components of the distribution system annually (including replacement of old and defective mainline valves, fire hydrants and corroded pipelines) and eliminating some of the hydraulic restrictions that have been identified in past hydraulic modeling. The most recent larger project was the 12” transmission line from the new wellfield (Wells 12 and 13) to the main distribution system.

Based upon the extensive modeling performed for the approved 2005 WSP, the draft 2012 WSP, and recent updates for the wellfield project, DOH has granted the City’s request not to include another hydraulic model in this WSP. All previously identified piping deficiencies that have not yet been addressed are included in the recommended Capital Improvement Program (CIP) presented in Section 8 of this plan. The corrective projects are sorted by fire flow deficiencies and desired looping of the distribution system to improve reliability.

Previous hydraulic models used Haestad’s WaterCad Version 6 (2005 WSP) and WaterGEMS software. Both models were calibrated / validated by comparing actual fire flow tests at various locations throughout the distribution system with computer generated results.

3.3.7 DISTRIBUTION SYSTEM LEAKAGE

Distribution system leakage (DSL) is defined as the difference between the water produced and the authorized water used during a twelve month time period. All of the City's water services are metered, as is authorized water used by contractors and city departments from fire hydrants. Sanctioned water use by fire department is tracked and estimated and is considered "authorized". The annual DSL is shown in Table 3-10. The current rolling three year average of 2.3% is less than the DOH standard of 10%.

Table 3-10 Distribution System Leakage[1]

Year (Jan.-Dec.)	Production (Gallons)	Authorized Consumption (Gallons)	Distribution System Leakage (Gallons)	Annual Distribution System Leakage (Percent)	3 year Average Distribution System Leakage (Percent)
2007					
2008	888,823,000	841,601,764	47,221,236	5.4%	
2009	920,960,000	902,686,559	18,273,441	2.0%	4.8%
2010	940,939,500	919,682,456	21,257,044	2.3%	3.2%
2011	964,527,000	935,163,812	29,363,188	3.0%	2.4%
2012	954,650,000	920,962,288	33,687,712	3.5%	2.9%
2013[2]	740,838,472	750,163,216	-9,324,744	-1.3%	2.9%
2014[2]	948,453,000	930,841,868	17,611,132	1.9%	2.8%
2015	1,020,873,000	1,005,157,164	15,715,836	1.5%	2.3%

[1] Data Source: WUE Annual Performance Report

[2] 2013 and 2014 data are not complete due to lack of data and data loss while making meter and SCADA changes

3.3.8 CONTROL SYSTEM

The City of Sunnyside's water system is controlled by a Supervisory Control and Data Acquisition (SCADA) system that was installed in 2013. The system in located in the water system division's office at 4th and Lincoln Ave. The control center has an emergency generator that will keep the SCADA operational in event of a power outage in the main grid. The system is being updated yearly with the new control centers at major facilities. The Grandview Booster Pump Station was upgraded in 2016, and Well 7 is scheduled for an upgrade in 2017.

The system monitors water levels Grandview and Skyline water reservoirs, as well the flow rates at each well and the Grandview Booster Pump Station. Pump operation is controlled by reservoir level set points which are adjusted according to anticipated water demands. Likewise, the pump sequencing is varied throughout the year based on anticipated daily water demand.

3.4 SYSTEM CAPACITY ANALYSIS

Future water demands have been calculated for the ERU projections using a 2% annual growth rate. This method was chosen rather than using individual customer classes because of the potential large impact of commercial growth and its unpredictability. The 2015 commercial demand of 535 MG is 15% greater than the 2010 demand of 466 MG as reported by HDR. This impact of this growth is further shown by the 2015 commercial share of the total demand being 54%, as compared to the 2010 share of 48%. The total demand is the critical factor, and not the projected demands by each classification.

DOH's Water System Design Manual (WSDM) presents a method of identifying capacity limitations by calculating the number of ERUs supported by available source and storage facilitates. Using the formulas on Table 6-1 of the WSDM, the number of ERUs for source and various types of storage were calculated and presented in Table 3-11. The table shows the various capacities for both the current ERU value of 297.4 and the WUE goal value of 272.4 and the approximate year that the identified ERU is projected to occur, along with the projected ERUs for that year.

Table 3-11 Source and Storage Capacity

ERU Value	Current Component	ERUs	Year & ERU	If 500 gpm Additional Source is available		If 1000 gpm Additional Source is available	
				ERUs	Year & ERU	ERUs	Year & ERU
297.4 g/ERU	Source –Annual Average	22,562	>2035				
	Source – Peak Day	11,281	2024 - 11,150	12,105	2028 – 12,069	13,114	2032 -13,064
	Equalizing Storage	11,680	2027 – 11,833	11,932	2028 – 12,069	12,184	2029 – 12,311
	Standby Storage*	11,713	2027 – 11,833	11,963	2028 – 12,069	12,213	2029 – 12,311
	Total Capacity Related Storage	11,709	2027 – 11,833	11,959	2028 – 12,069	12,210	2029 – 12,311
272.4 g/ERU	Source –Annual Average	24,633	>2035				
	Source – Peak Day	12,316	2029 – 12,311	13,216	2032 – 13,064	14318	>2035
	Equalizing Storage	12,040	2028 – 12,069	12,315	2029 – 12,311	12,535	2030 – 12,557
	Standby Storage*	12,038	2028 – 12,069	12,288	2029 – 12,311	12,563	2030 – 12,557
	Total Capacity Related Storage	12,035	2028 – 11,833	12,292	2029 – 12,311	12,550	2030 – 12,557

* Includes Skyline Reservoir storage above the 30 psi level

In addition to showing the year that new source and storage facilities are required, three important observations are revealed:

- The importance in achieving the WUE goal of reducing the ERU value in delaying the year improvements are required by a year.
- The importance is securing a new well on line by 2024 for not only meeting peak day demands, but in also delaying the need for an additional reservoir.
- The importance of tracking annual growth and related ERUs, especially with respect to commercial growth where one large customer may be equivalent to 2 or more years of projected ERU growth.

3.5 WATER QUALITY ANALYSIS

The City monitors water quality at each of the sources and within the distribution system as required by DOH and the SDWA regulations. These regulations establish both primary (health related) maximum contaminate levels (MCLs) and secondary levels (non-health related). The secondary levels address items such as color, taste, and odor. The current water quality monitoring schedule as provided by DOH is located in Appendix 8. Sunnyside's water quality is consistently below the primary water quality levels (MCLs). Because of high levels of hydrogen sulfide, iron, and manganese Well 10 exceeds some of secondary MCLs. Although these chemicals do not have health related MCLs, they are undesirable due to taste and odors and staining. For these reasons, Well 10 is maintained as an emergency well. Water from this well has not entered the distribution system since about 2000.

3.5.1 SOURCE MONITORING

Several of the individual chemicals can be analyzed in a group (test Panel) while others must be tested individually (Analyte). Each source has its own schedule which reflects previous monitoring history or susceptibility to contamination. Because Wells 12 and 13 have been designated as a wellfield, one sample may be taken from tap after the water from the wells are co-mingled. DOH has issued waivers to the standard required monitoring frequency for many of the chemicals due to their lack of use in the area or past results showing the levels to be consistently below levels of concern.

City staff collects all of the required samples and submit them to Washington State Certified laboratories for analysis and reporting to the City and DOH.

Source monitoring requirements include the following test panels and analytes as shown in Table 3-12.

Table 3-12 Source Monitoring

Test Panel / Analyte	General Frequency	Location
Nitrate	Annually	After treatment, before first customer
Complete Inorganic Chemicals (IOC)	Standard - 3 years Waiver - 9 years	After treatment, before first customer (includes Nitrate) Some chemicals are required to be monitoring every three years, and others every 9 years.
Volatile Organic Chemicals (VOC)	Standard - 3 years Waiver - 6 years	After treatment, before first customer
Herbicides	Waiver - 9 years	After treatment, before first customer
Pesticides	Waiver - 9 years	After treatment, before first customer
Soil Fumigants	Waiver - 3 years	After treatment, before first customer
Radium 226	Standard – 3, 6 year	After treatment, before first customer
Radium 228	Standard – 3, 6 years	After treatment, before first customer
Gross Alpha	Standard 6 years	After treatment, before first customer
E-coli	Following a positive coliform result in a routine distribution sample	Before treatment

The water quality results in all of the City's operating wells are well below the regulatory limits.

3.5.2 Distribution System Monitoring

Distribution system water quality is monitored for various parameters as required by the regulations and shown in Table 3-13. Samples are collected from various locations within the distribution system in accordance with sample plans that the City has developed for each parameter. The frequency of these samples is based on the population served by the system. The coliform monitoring plan has been recently updated to include the Revised Total Coliform Rule and Groundwater Rule requirements.

Table 3-13 Distribution System Monitoring

Analytes	Current Frequency	Location
Colilform	15 / month	Identified in the 2016 monitoring plan
Lead and Copper	30 / 3 years	Identified on Pb & Cu sampling map and address list*
Disinfection By-Products (TTHMs and HAA5s)	Reduced 1 / yr.	Identified in the 2004 D/DDP Compliance Program.
Asbestos	1 / 9 yrs.	Area served by transite (Asbestos Cement) pipe
Chlorine Residual	Daily	Continuous monitoring with low level alarms at Grandview Reservoirs, and at wells 11,12, and 13. Daily grab samples (Monday-Friday) at all operating wells (basis of monthly DOH report)

* City plans to review the monitoring sites and revised as necessary which may include adding additional sites and/or replacing

The City experienced two total coliform detections in July and September 2016 however all repeat and groundwater samples were satisfactory. The coliform present samples were collected from a sink used

for cleaning the area where raw beef is handled. This site has been replaced with a more representative site for routine sampling in the most recent Coliform Monitoring Plan.

3.5.3 Recent and Possible Future Water Quality Regulation Changes

Recent changes to the water quality regulations include the Groundwater Rule (GWR) and the Revised Total Coliform Rule (RTCR). Both of these rules have been incorporated into the City's operational plans and the Coliform Monitoring Plan. The Lead Free Act of 2011 reduced the allowable lead content of materials used in public water supplies to less than .25% and was effecting in January 2014. The City is complying with the new provisions.

Possible future regulations include revisions to the Lead and Copper Rule and a change to the Chromium maximum contaminate level.

3.6 Summary of System deficiencies

This section summarizes the deficiencies identified in Sections 3.2 thru 3.4.

- Source: Additional water supply will be required to meet projected maximum day demands. The timing of the additional source(s) is dependent on ERU growth and the effectiveness of achieving the WUE goal.
- Treatment: For safety reasons, the gas chlorinator at Well 6 (near the high school) needs to be replaced. Emergency chlorination equipment at both reservoir sites is desirable.
- Storage: Additional storage will be required to meet standby and equalizing demands. The timing will depend on ERU growth, the effectiveness of achieving the WUE goal, and the addition of new source(s) of supply. Improvements to all of the tanks need to be made to improve safety and extend their useful life.
- Booster Pumps: Minor pump vault improvements are required.
- Pressure Zones: Adjustment of the pressure zone boundary between Zone 1 and 2 is needed to address lower pressures in a portion of Zone 1 near the Grandview Tanks.
- Distribution System: Continue to address fire flow and looping issues previously identified.
- Control System: Upgrade the SCADA controls in Well 7.
- Water Quality: The Lead and Copper Monitoring Plan is in need of updating.

3.7 Analysis of possible improvement projects

Many of the deficiencies identified in Section 3.5 are relatively straight forward, and do require an extensive evaluation alternative with the expectation of additional source and storage.

3.7.1 Additional Water Supply Alternatives

The alternative sources of supply include:

- Re-evaluating Well 10 to determine current conditions. If it still pumps water that will be objectionable, consider a relative long pump (i.e. 7 days) to waste to determine the effect on water quality. Revisit the 2007-08 engineering work for possible treatment of this well and update the treatment alternative with desktop analysis of available treatment techniques and costs (both capital and O&M). There would be value in utilizing this well since it is in the Wanapum Basalt Flow and its pumping would not affect the other city wells that utilize different aquifers. Other wells in the Wanapum Basalt Flow in the Yakima Valley exhibit similar water quality problems.
- Obtaining and converting an existing well for use as a potable water supply

- Obtaining new well site(s) and drilling new well(s).

In addition to the actual future demands, the number of new sources required will depend on the volume of each new source. If new wells are to be drilled, a hydrogeological study would need to be conducted to determine the optimum location, size, and depth of the new wells. From a water distribution viewpoint, new sources south of Interstate 82 would be desirable because of the amount of land available for future commercial growth/demand. A well in this location would also reduce the possible head loss in the north side distribution system due to increased flows if all the identified distribution looping projects are not completed by the time a new source is put on line.

The water right component of the additional water supply is discussed in Chapter 4.3.

3.7.2 Additional Storage Alternatives

The questions regarding additional storage include how much volume is required, the location and type of storage, and the timing. Because of the potential of major growth south of Interstate 82 it would be desirable to locate the new storage in that area. Unfortunately the only higher elevation is at the very south end of the future service area (and perhaps just outside). Locating tank in a more central portion would require either a standpipe, composite elevated tank, or a ground level tanks with booster pumps. As the City approaches the date when an additional tank is needed, an engineering report to further investigate these alternatives will be required.

Chapter 4: Water Resources Analysis and Water Use Efficiency

Introduction

This chapter describes the City's Water Use Efficiency program, documents their water rights, analyzes their sources and discusses future source alternatives.

4.1 Metering Program

The City documents all of the water produced and all of the authorized water by the use of meters which are maintained or replaced on a scheduled basis. Water used during the actual fire fighting is the only exception, and the water used is estimated and documented.

4.1.1 Source Meters

All of the wells have rate of flow and totalizing meters that are either new (Wells 12 and 13), or have been calibrated or replaced within the last three years. The meters are connected to the SCADA system and which continually transmits the readings to the Water Division. Daily SCADA information from each well is transferred to an Excel spreadsheet to facilitate necessary recordkeeping and analysis. Source meters are tested and if necessary, calibrated every year.

4.1.2 Service Meters

All service connections are metered and equipped with radio transmitters to allow for mobile (drive-by) reading. The data is downloaded at the Water Division office, and then transferred to the Finance Division for billing. Unusually high or low meter readings are flagged for follow-up. The City plans on converting the data collection method to "fixed base radio read" in order to save staff time, and to be able to monitor water use more closely. All meters are inspected once a year to verify their accessibility and condition. The 3" and 4" meters are tested and calibrated yearly, if necessary. The 1 ½" and 2" meters are tested and calibrated on a three-year rotating schedule, if necessary. Because of the large volume of water used by several of the commercial customers, maintaining the accuracy of their large meters is essential.

4.1.3 Bulk Water Uses

All bulk water uses are also metered, including fire hydrant testing, main flushing and water used by other City Divisions (street, and sewer). The City also provides a metered, coin-operated fill spout at 409 E. Lincoln for those not renting a short term bulk meter.

4.1.4 Water Rate Structure Evaluation

The City has maintained its historical declining block rate structure. A 2013 Water and Sewer Rate Analysis was conducted primarily to ensure that water and sewer rates were adequate to meet city needs, including debt service for current and future projects. The future projects information was based on the HDR draft water system plan, the majority of which are included in this water system plan update. The second objective of the Rate Analysis was to identify inequities in the existing rater structure with respect to single family residences, mobile home parts and commercial users (including large industrial users). The recommendations of the report, which were adopted by the City, included annual rate increases on 1.5% TO 2.5% through 2018, and to modify monthly base charges.

The City currently charges their customers based on meter size. The minimum monthly fee (service charge) includes the first 300 cubic feet (cu.ft./month. Consumption greater than 300 CF/M is rounded up to the next 100 cu. ft. and charges on a declining rate as shown on Table 9.3. In other words, the price per 100 cu.ft. (748 gallons) becomes less expensive the more water used. There is not rate incentive to use water efficiently as shown below (based on 2016 rates):

First Block	$1.73/100 cu.ft.	=	$0.0023/gallon
Second Block	$1.26/100 cu.ft.	=	$0.0017/gallon
Third Block	$0.86/100 cu.ft.	=	$0.0011/gallon
Fourth Block	$0.63/100 cu.ft.	=	$0.0008/gallon

WAC 246-290-100(4) requires evaluation of a rate structure that encourages water use efficiency. The pros and cons of an inclining block rate structure include:

Advantages (pros):

- Decrease in water use in each meter size class
- Increase in system capacity for growth in all meter classes
- Delay in the need for additional source, pumping capacity and storage
- Encourages more thoughtful use of water including more careful irrigations practices.

Disadvantages (cons):

- Increased water bills, especially in summer high use months
- Increased operational costs for high water using industrial users
- May discourage new industrial customers

There are many possibilities that can be considered when evaluating water rates including:

- The same Increasing block rates for all meter sizes
- Set the first overage block rate at the average winter time usage volume, and then increase the rate/100 cu.ft.
- Uniform block (one rater) rate for all meter sizes regardless of how much water is used
- Different increasing block rates for different meter sizes (potentially decreasing the impact on large industrial users, or users with a 3" meter or larger)
- Establishing an industrial use class regardless of meter size
- Decreasing the number of overage blocks (making the water bill easier to read and understand)
- Establishing a summer time overage rate

The planning portion of the CIP identifies another rate study for 2018. That study will consider in detail modifications of the consumption rates that will include uniform block rates for each user classification and either a season rate or inclining block rate. The issue of equity of rates between customer classes may again be a matter of concern. As can be seen on Figure 4.1 (base on Table 2-3 figures) both the single family and commercial groups have large summer time flows. While the residential increase can be attributed to summer lawn and garden irrigation, the commercial increases reflect seasonal food processing which is the economic base of the City, and major employers.

4.2 WATER USE EFFICIENCY (WUE) PROGRAM

The City had adopted a revised Water Use Efficiency Program in 2013 that included five measures to reduce residential ERU/connection by December 2020. Due to population changes, an additional measure was required for this WSP update. Upon review of the entire WUE in the summer of 2017, it was decided to revise the entire WUE Program. A public Forum was held on October 26, 2017 to obtain input on the proposed revised goal and measures. The City utilized their normal public notice procedures; including posting notices in all of the City's public buildings. No one attended the forum besides City staff and consultants. The revised program will be presented to the City Council for approval along with the complete updated Water System Plan.

4.2.1 WUE GOAL

The proposed WUE goal is to reduce single-family, multi-family residential and commercial/industrial connections by 25 gallons per day per connection by December 31, 2020 as measured by annual average demand for each classification. This goal extends the 2013 goal to include commercial/industrial users. The following measures will be carried out by the City to achieve this goal.

4.2.2 WUE MEASURES

Proposed WUE Measures

1. The City will continue an outreach program to local public schools. City representatives will deliver interactive presentations to elementary school students, distribute age- appropriate educational material and engage students in fun activities that encourage water conservation. The City will target third grade classrooms at every public elementary school annually, thereby ensuring that public school students know and understand the importance of conserving water. The City hopes that by engaging the children in fun educational activities, the presentations will have both an immediate and long-term impact on their water-use practices. The posters and materials will also be posted in City Hall and other City owned public facilities.

2. The City will include a brochure addressing consumer leak detection with water bills at least once a year, and include WUE information in the annual Consumer Confidence Report. The purpose of the brochure is to increase awareness of at-home leak detection and to educate water customers by providing leak-detection techniques as well as some solutions and resources for fixing leaks. People often underestimate the amount of water wasted by a leak and delay in fixing small leaks. The City hopes that the annual mailing will encourage water customers to take the time to survey their home for leaks at least once a year.

3. Starting in the 2017-18 school year, the City will work with the Sunnyside School District to create an annual flyer which will be included in the weekly take-home packets of (at a minimum) first and second grade students. The flyers will provide water efficiency and conservation hints for around the home.

4. The City will continue to run two articles per year on water conservation information and tips in the local newspapers, starting in 2018. The spring article will focus on outdoor conservation tips and the fall article on indoor conservation. The City feels that by providing water customers with season-appropriate water conservation tips, they will be more likely to use them and change their water usage habits.

5. There are certain dwelling units that use City water but do not receive individual-use water bills, such as apartments and retirement homes. By working with building owners and managers, the City will provide these residents with all of the conservation material to be included in the water bills, including conservation tips and leak detection brochures. These materials will also be available at City Hall.

6. The City will initiate a commercial/industrial education program by providing these customers with information and checklists to help them reduce water consumption; including suggesting a water audit, and possible reduction in sewer fees with decreased flows.

In addition to these programs, the City also does their required customer general education regarding the importance of using water efficiently by including a message in their annual Consumer Confidence Report.

The costs of these measures are absorbed in the Water Division's annual budget. The next planned update of the WUE program is scheduled for 2023.

The estimated water savings from these measures and achieving the WUE goal are detailed on Table 2-10 and shown graphically on Figure 2-1. As noted in Section 3.3 (System Capacity Analysis) the effect of the projected savings is delaying the need for additional source and storage by one to five years.

The effectiveness of this program will be measured by comparing the annual average daily demand for single-family residences and comparing it to a previous benchmark. Unfortunately, historical information to determine the number of single-family homes and their annual consumption on an annual basis is unavailable at this time, so the 2015 value of 297.4 gallons / single family residence will be used as the benchmark. For the multi-family connections, a benchmark figure of 257.7 gallons /dwelling unit will be used (2015 multi-family annual consumption of 157.576 divided by 1675 residential units (WFI).

Success of previous measures can be judged by the HRD 2010 single family annual consumption of 316.4 g/day and our 2015 number of 297.4 to show a 6% reduction. Some of this reduction has resulted from the SVID expanding their residential irrigation program.

The City submits an Annual Performance Report to DOH providing data on total water produced, authorized usage, and distribution system leakage. The report also provides information on changes and progress in the City's WUE goals and measures. A copy of the 2016 report is provided in Appendix 4.

When the current goal and measures were adopted in 2013, the estimate population served called for 5 measures which are being phased in over a year period. Major revisions to the Water Facilities inventory since that time has increased the required measures to 6. The City plans to suggest an additional measure to the public as part of the Water System Plan consumer input program. Council approval of this Water System Plan will include approval of the additional measure. The City will suggest offering a water use audit to their largest industrial users as the sixth measure.

Figure 4-.1 Consumption by Customer Class

4.3 DISTRIBUTION SYSTEM LEAKAGE (DSL)

As discussed in Chapters 3.2.7, the average DSL for the past three years in 2.3%. That is the same percentage for the average DSL since 2008. This is substantially less than the State goal of 10%. The City's metering programs, monitoring of abnormal meter readings, tracking of unmetered but authorized water uses (i.e. fire fighting) and quick response to discovered leaks all contribute to this low number. Although the percentage is low, the total volume leaked in 2015 was 15.7 million gallons. The City is committed to reducing this volume.

4.4 WATER RIGHTS SELF-ASSESSMENT

The water rights obtained by the City of Sunnyside are summarized in this section as well as assessments their adequacy to meet projected future demands.

4.4.1 EXISTING WATER RIGHTS

Copies of the City's existing seven ground water right certificates and one permit are included in Appendix 5 and are summarized on Table 4-1A, 4-1B and 4-1C. These tables also compare the water rights to the existing water demand and the six year, and 20 year forecasts. The assessment demonstrates that the City's total water rights are adequate not only for current demands, but also for the projected 20 year demands. It should be noted that the future consumption values used on these tables are based on the total water produced projections, and not the total billing plus DSL projections used for Table 2-11.

There is a difference of opinion regarding the interpretation of annual volume of some of the certificates being primary or supplemental. A primary right is one that provides additional pumping capacity and

additional annual quantity, typically to serve future growth demands. A supplemental right is one that authorizes an additional well or wells and instantaneous pumping capacity, but does not increase the total annual quantity of water rights. The different opinions do not affect the total annual quantity of the City's water right, which is mutually agreed upon. The only practical difference is the priority date of a portion of the City's water rights.

An extension request for permit G4-31581P has been submitted and approved by Ecology. The associated development schedule for this right has been extended to February 1, 2022. The City must request an additional extension if construction is not completed by this date.

4.4.2 Surface Water Option

The City possesses surface water rights for irrigation purposes ("Surface Rights") from the Snipes Mountain Lateral of the Sunnyside Valley Irrigation District that have been confirmed in the Yakima River water rights adjudication. The City's Surface Rights are part of a collection of water rights to be certified to the Sunnyside Division Board of Control (the "Division") under Claim No. 1752, pursuant to a settlement agreement and conditional final order. The diversion and maintenance of the Surface Rights is managed by Sunnyside Valley Irrigation District ("SVID"), and the City pays maintenance assessments to SVID in the range of $50,000 per year to maintain the validity of the Surface Rights. These annual fees are payable whether or not the City diverts and uses the water it is entitled to. The quantity of the Surface Rights is enough to irrigate 578 acres. The precise quantity was described in a settlement agreement with the Yakama Indian Nation (described below) at 4.3 c.f.s., 1734 afy. That quantity may be reduced over time depending on the irrigation requirement for lawn watering using reasonably efficient methods.

The City has two primary options for future direct utilization of its Surface Rights. First, it could use surface water from the Snipes Mountain Lateral to irrigate properties within the City's water service area, which will save water from the City's drinking water system to serve domestic, commercial and industrial customers. Second, the City could file a water right change application to change the purpose of use to municipal and the point of diversion of the Surface Rights, most likely to increase the City's allowed withdrawal at an existing well or a new well. A third option would be to change the purpose of use to municipal provide surface water treatment of the lateral water and pump directly into the drinking water system. As long as the utilization of the groundwater resource is available, this third option would not be practical due to the seasonal nature of the lateral water availability and the higher construction and operations costs of a surface water treatment facility. Aquifer storage and recovery may also be an option to enhance ground water availability in the future.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Table 4-1A
WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – EXISTING STATUS

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		EXISTING CONSUMPTION		CURRENT WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/Certificates										
1. 33-D	City of Sunnyside	1-1-1909	Well #8 (S08)[a]	Primary	420 gpm	347 afy				
2. 34-D	City of Sunnyside	9-1-1929	Well #8 (S08)[a]	Primary	230 gpm	62 afy				
3. 35-D	City of Sunnyside	6-1-1942	Well #3	Primary	420 gpm	347 afy				
4. 49-A	City of Sunnyside	12-12-1945	Well #10 (S10)[b]	Primary	1,000 gpm	1,000 afy				
5. 2553-A	City of Sunnyside	7-10-1953	Well #11, #12, #13 (S11, S12, S13, S14)[c]	Primary	1,500 gpm	720 afy				
6. 4795-A	City of Sunnyside	9-14-1962	Well #6 (S06)	Supplemental[d]	1,570 gpm	1,600 afy				
7. G3-21323C	City of Sunnyside	6-28-1973	Well #7 (S07)	Supplemental[d]	950 gpm	1,500 afy				
8. G4-31581P	City of Sunnyside	12-21-1992	Well #3, #6, #7, #9 (S06, S07, S09)	Primary/ Supplemental[e]	2,000 gpm	3,230 afy[e]				
TOTAL	**********	*********	*********	**********	**8,090 gpm**	**5,044 afy**	**3,884 gpm[f] (5.59 MGD)**	**3,133 afy[f] (1,020.8 MG)**	**4,206 gpm**	**1,911 afy**
9. Surface Water Adjudication Claim 1752	SVID	Numerous, from 1878 to 1905	Snipes Mountain Lateral	Primary, for irrigation	4.3 cfs	1734 afy	--	--	--	--

[a] Certificate #33-D and #34-D sources were formerly Well #1 and Well #2, respectively. Well #8 (S08) was added in 1994 and utilizes these water right authorizations.
[b] Certificate #49-D source was formerly Well #4. Well #4 was decommissioned in 1998 and replaced by Well #10 (previously designated as Well #4A).
[c] Certificate #2553-A source was formerly Well #5. This water right was transferred to Well #11 (S11), Well #12 (S12), and Well #13 (S13) through change applications CG4-GWC2553-A@1 (YAKI-04-14) and CG4-GWC2553-A (YAKI-07-21).
[d] Annual volumes of Certificate #4795-A and #G3-21323C are non-additive (supplemental) to previously authorized annual volumes for Well #1 through Well #5.
[e] Permit #G4-31581P authorizes up to 3,230 afy of primary (additive) annual volume to existing rights, but the total annual volume of all authorizations shall not exceed 5,044 afy. The final primary and supplemental portions of this right will be determined in the future when the City's project is complete and their ground water rights are adjudicated.
[f] Total existing instantaneous consumption is based upon calculated maximum day demand (MDD) for 2015. The existing combined total maximum well pump capacity (including emergency sources) is 6,500 gpm. Existing annual consumption is based upon the combined 2015 total annual volume pumped from the source wells (total well production).

DOH Form 331-371 (Updated 08/10)

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Table 4-1B
WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – 6 YEAR FORECAST

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (6-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/Certificates										
1. 33-D	City of Sunnyside	1-1-1909	Well #8 (S08)[a]	Primary	420 gpm	347 afy				
2. 34-D	City of Sunnyside	9-1-1929	Well #8 (S08)[a]	Primary	230 gpm	62 afy				
3. 35-D	City of Sunnyside	6-1-1942	Well #3	Primary	420 gpm	347 afy				
4. 49-A	City of Sunnyside	12-12-1945	Well #10 (S10)[b]	Primary	1,000 gpm	1,000 afy				
5. 2553-A	City of Sunnyside	7-10-1953	Well #11, #12, #13 (S11, S12, S13, S14)[c]	Primary	1,500 gpm	720 afy				
6. 4795-A	City of Sunnyside	9-14-1962	Well #6 (S06)	Supplemental[d]	1,570 gpm	1,600 afy				
7. G3-21323C	City of Sunnyside	6-28-1973	Well #7 (S07)	Supplemental[d]	950 gpm	1,500 afy				
8. G4-31581P	City of Sunnyside	12-21-1992	Well #3, #6, #7, #9 (S06, S07, S09)	Primary/ Supplemental[e]	2,000 gpm	3,230 afy[e]				
TOTAL	**********	*********	*********	**********	**8,090 gpm**	**5,044 afy**	**4,374 gpm[f] (6.30 MGD)**	**3,528 afy[f] (1,149.6 MG)**	**3,716 gpm**	**1,516 afy**
9. Surface Water Adjudication Claim 1752	SVID	Numerous, from 1878 to 1905	Snipes Mountain Lateral	Primary, for irrigation	4.3 cfs	1734 afy	--	--	--	--

[a] Certificate #33-D and #34-D sources were formerly Well #1 and Well #2, respectively. Well #8 (S08) was added in 1994 and utilizes these water right authorizations.
[b] Certificate #49-D source was formerly Well #4. Well #4 was decommissioned in 1998 and replaced by Well #10 (previously designated as Well #4A).
[c] Certificate #2553-A source was formerly Well #5. This water right was transferred to Well #11 (S11), Well #12 (S12), and Well #13 (S13) through change applications CG4-GWC2553-A@1 (YAKI-04-14) and CG4-GWC2553-A (YAKI-07-21).
[d] Annual volumes of Certificate #4795-A and #G3-21323C are non-additive (supplemental) to previously authorized annual volumes for Well #1 through Well #5.
[e] Permit #G4-31581P authorizes up to 3,230 afy of primary (additive) annual volume to existing rights, but the total annual volume of all authorizations shall not exceed 5,044 afy. The final primary and supplemental portions of this right will be determined in the future when the City's project is complete and their ground water rights are adjudicated.
[f] Total future instantaneous withdrawal rate and annual volume values are from projected maximum day and annual demand provided in Section 3. The City will continue to track withdrawals from each of its source wells to ensure that future instantaneous and annual withdrawals do not exceed authorized quantities.

DOH Form 331-372 (Updated 08/10)

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Table 4-1C
WATER SYSTEM PLAN
WATER RIGHTS SELF ASSESSMENT – 20 YEAR FORECAST

PERMIT CERTIFICATE OR CLAIM #	NAME ON DOCUMENT	PRIORITY DATE (List oldest first)	SOURCE NAME/ NUMBER	ANY PORTION SUPPLEMENTAL? (If yes, explain in footnote)	EXISTING WATER RIGHTS		FORECASTED WATER USE FROM SOURCES (20-year Demand)		FORECASTED WATER RIGHT STATUS (Excess/Deficiency)	
					Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)	Maximum Instantaneous Flow Rate (Qi)	Maximum Annual Volume (Qa)
Permits/Certificates										
1. 33-D	City of Sunnyside	1-1-1909	Well #8 (S08)[a]	Primary	420 gpm	347 afy				
2. 34-D	City of Sunnyside	9-1-1929	Well #8 (S08)[a]	Primary	230 gpm	62 afy				
3. 35-D	City of Sunnyside	6-1-1942	Well #3	Primary	420 gpm	347 afy				
4. 49-A	City of Sunnyside	12-12-1945	Well #10 (S10)[b]	Primary	1,000 gpm	1,000 afy				
5. 2553-A	City of Sunnyside	7-10-1953	Well #11, #12, #13 (S11, S12, S13, S14)[c]	Primary	1,500 gpm	720 afy				
6. 4795-A	City of Sunnyside	9-14-1962	Well #6 (S06)	Supplemental[d]	1,570 gpm	1,600 afy				
7. G3-21323C	City of Sunnyside	6-28-1973	Well #7 (S07)	Supplemental[d]	950 gpm	1,500 afy				
8. G4-31581P	City of Sunnyside	12-21-1992	Well #3, #6, #7, #9 (S06, S07, S09)	Primary/ Supplemental[e]	2,000 gpm	3,230 afy[e]				
TOTAL	**********	*********	*********	**********	**8,090 gpm**	**5,044 afy**	**5,772 gpm[f] (8.31 MGD)**	**4,656 afy[f] (1,516.9 MG)**	**2,318 gpm**	**388 afy**
9. Surface Water Adjudication Claim 1752	SVID	Numerous, from 1878 to 1905	Snipes Mountain Lateral	Primary, for irrigation	4.3 cfs	1734 afy	--	--	--	--

[a] Certificate #33-D and #34-D sources were formerly Well #1 and Well #2, respectively. Well #8 (S08) was added in 1994 and utilizes these water right authorizations.
[b] Certificate #49-D source was formerly Well #4. Well #4 was decommissioned in 1998 and replaced by Well #10 (previously designated as Well #4A).
[c] Certificate #2553-A source was formerly Well #5. This water right was transferred to Well #11 (S11), Well #12 (S12), and Well #13 (S13) through change applications CG4-GWC2553-A@1 (YAKI-04-14) and CG4-GWC2553-A (YAKI-07-21).
[d] Annual volumes of Certificate #4795-A and #G3-21323C are non-additive (supplemental) to previously authorized annual volumes for Well #1 through Well #5.
[e] Permit #G4-31581P authorizes up to 3,230 afy of primary (additive) annual volume to existing rights, but the total annual volume of all authorizations shall not exceed 5,044 afy. The final primary and supplemental portions of this right will be determined in the future when the City's project is complete and their ground water rights are adjudicated.
[f] Total future instantaneous withdrawal rate and annual volume values are from projected maximum day and annual demand provided in Section 3. The City will continue to track withdrawals from each of its source wells to ensure that future instantaneous and annual withdrawals do not exceed authorized quantities.

DOH Form 331-373 (Updated 08/10)

4.5 SOURCE OF SUPPLY ANALYSIS

This section will utilize the basic water supply information provided in Sections 3.2 and 3.6.1 to consider source reliability and further describe future water supply alternatives.

4.5.1 WATER SUPPLY RELIABILITY

This section considers the reliability of the City's sources. Prior to the addition of Wells 12 and 13, the City relied on Well 9 for an average of about 50% of the annual water produced, followed by Wells 8 and then 7. In 2015, Well 9 still provided the largest volume of water to the system, but its percentage dropped to just over 26%. Well 13 was the second largest contributor with almost 24%, and the other wells producing between 11 and 16%. The exception was Well 6 which delivered less than 1%. With the addition of Wells 12 and 13, Well 6 will only be used to handle high demands due to a higher iron and manganese levels.

Although Well 6 is listed as a permanent source on the City's Water Facilities Inventory (WFI) (Appendix 11) since it is available for use at any time year round, but it is usually the last well in the call order due to a slightly elevated iron levels. Current staff does not know the reason the existing pumping equipment is limited to 650 gpm rather than closer to the original developed capacity of 1380 gpm. Drawdown levels during pumping have been consistent over the recent years. Well 6 and all the other wells (except for Well 7) are equipped with probes connected to the SCADA system. Low level alarms and automatic pump shut off provides protection against over pumping. Well 6 does not show major water level drawdown when pumping.

As shown in table 4.2, the annual production is now fairly well divided between the unconsolidated aquifer and the Saddle Mountain Basalt flow. Wells 8 and 11 can be run simultaneously, but they do affect each other's drawdown. Wells 6 and 7 also affect each other, and cannot be run together for extended periods of time. There are no indications that water levels are declining in the area in either the unconsolidated aquifer or the basalt aquifers.

Table 4-2 2015 Source Pumping Distribution

Aquifer / Basalt Flow	Well Number	Depth	2015 Volume	% of Total
Unconsolidated	8	440	750	11.0
	11	435	500	11.5
	12	397	350	10.9
	13	431	650	23.8
		Subtotal	**2,250**	**57.2%**
Saddle Mt. Basalt	6	769	650	0.3
	7	1,057	1,100	16.3
	9	919	1,500	26.2
		Sub-total	**3,250**	**42.8%**
Wanapum Basalt	10	1701	0.0	0.0*
		Sub-total	**0**	**0%**
		Total	**5,500**	**100%**

*** 2005 Water System Plan reported original capacity of 1000 gpm and 750 gpm current pumping rate**

The primary water supply reliability concerns include:

- Electrical, pump or control system failure would cause a temporary condition until the failure is corrected. If the failure occurred during a high use time of the year, temporary water restrictions may be required.
- Chemical spills or other sources of contamination from existing land uses could contaminate groundwater for those wells utilizing the unconsolidated aquifers (Wells 8, 11, 12 and 13). Well is probably most vulnerable since 11, 12 and 13 have a number of clay layers above the water bearing zone. The probability of a chemical spill contaminating the Saddle Mountain and Wanapum Basalt aquifers is low in the vicinity of the City.
- Geologic materials may be drawn into the wells due to screen failure and cause temporary or permanent shutdown of the wells. The City has had to make modifications on wells in the past because of this problem.
- Due to its location, the City does not have existing interties with neighboring systems and has few opportunities for interties with the nearest larger public water system being Grandview located 2.5 miles to the Southeast.

4.5.2 WATER SUPPLY ALTERNATIVES

In addition to the three general alternatives available to the City for additional sources of supply as noted in Section 3.7.1, there are two additional options that would reduce the non-domestic use of the water system, especially irrigation applications. The five water supply alternatives discussed include:

1. Providing treatment for Well No. 10
2. Obtaining an existing well (and water rights) and converting it to an approved public water supply source. A sub-option may be to enter into an intertie agreement allowing use of the well, or at least part of the discharge of the well, if it can be approved by DOH as public water system source. Having an intertie agreement, for at least emergency source of supply, would provide added reliability for the City.
3. Drilling a new well. The primary decision in drilling a new well is which formation to tap for additional water. Other factors to include in considering the various options would be locations with respect to other City wells, potential sources of contamination in the area of the new well, location with respect to distribution system hydraulics, and anticipated volume available.
4. As noted above 4.4.2, increasing the use of irrigation water from SVID for city irrigation uses. This option would reduce the summertime use of water when the largest maximum day demands are experienced.
5. Another potential source of water may be to use reclaimed water for some customers to reduce the demand on the drinking water system. The only current use of reclaimed water is at the City's wastewater treatment plant for sewer cleaning and maintenance activities. The City does not maintain formal accounting of the quantity of reclaimed water use, but estimates that approximately one million gallons of reclaimed water is used for this purpose on an annual basis. The City's largest water users are food product related, and would not be able to use reclaimed water in their processes. Another large use of water is for City parks and school ball fields and playgrounds, but they are scattered throughout the City and would require an extensive distribution system. The SVID currently supplies irrigation water to the Sunnyview Park, and may be available to other parks and schools.

Expanding the range of the sources of supply beyond the existing operating source aquifers would provide improved reliability with added redundancy. A source in Wanapum basalt aquifer would benefit the City by tapping into a hydraulically separate aquifer from their other operational wells. This could be accomplished by installing treatment facilities at Well 10, or development on a new well. Either option

would result in less hydraulic “stress” in the same aquifer in terms of drawdown impacts, but would require additional treatment.

The City also has the ability to develop new wells in the Saddle Mountain basalt aquifer outside of the existing well locations under their existing permit (G4-31581P). Wells in this aquifer do not provide the same level of reliability because the well(s) would be in the same aquifer as existing wells, but they would provide added infrastructure redundancy and can most likely be added to the system without additional treatment besides chlorination.

Chapter 5: Source Water Protection

Because the City's sources of supply are all groundwater, the City has a wellhead protection program that is based on a comprehensive protection plan developed in 2004. That plan has been updated with the addition of new wells over the years, the most recent being Wells 12 and 13.

5.1 Wellhead Delineation

The original plan, which is included in Appendix 8, included wells 5, 6, 7, 8, 9, and 10 (was originally 4A). As previously noted, Well 5 has been decommissioned. The delineation includes a description of the geology and hydrogeology of the area and estimates of 1, 5, and 10 year time-of-travel as produced by an analytical computer model. Figure 5-1 is from that report and shows the combined capture zones for the City wells at that time. Additional delineation efforts have been conducted for the newer wells (Wells 11, 12 and 13). Figure 5-2 shows the addition of Well 11 (adjacent to Well 10). Figure 5-3 identifies the capture zone for Wells 12 and 13. The Susceptibility Assessment Survey forms and other source information for the new wells were submitted to DOH as part of the source approval packages.

5.2 Potential Contaminate Source Inventory

The initial inventories of potential sources of contamination have been regularly updated by conducting site surveys and reviewing available data basis. The most recent update was completed in 2015. The next update is scheduled for 2017.

5.3 Spill Response and Contingency Planning

The Wellhead Protection Plan also includes a spill response discussion and a list of state and local support agencies, including contact information. The contingency planning explores short and long term alternatives in event of a source becoming unusable due to contamination. Both of these sections have remained current.

5.4 Management Recommendations

Both regulatory and non-regulatory approaches to minimize the threat of contamination to the City's sources of water and general awareness of potential contamination issues were included in the plan. The City continues to pursue these approaches in its various planning and public works programs.

Figure 5-1 Combined Capture Zones

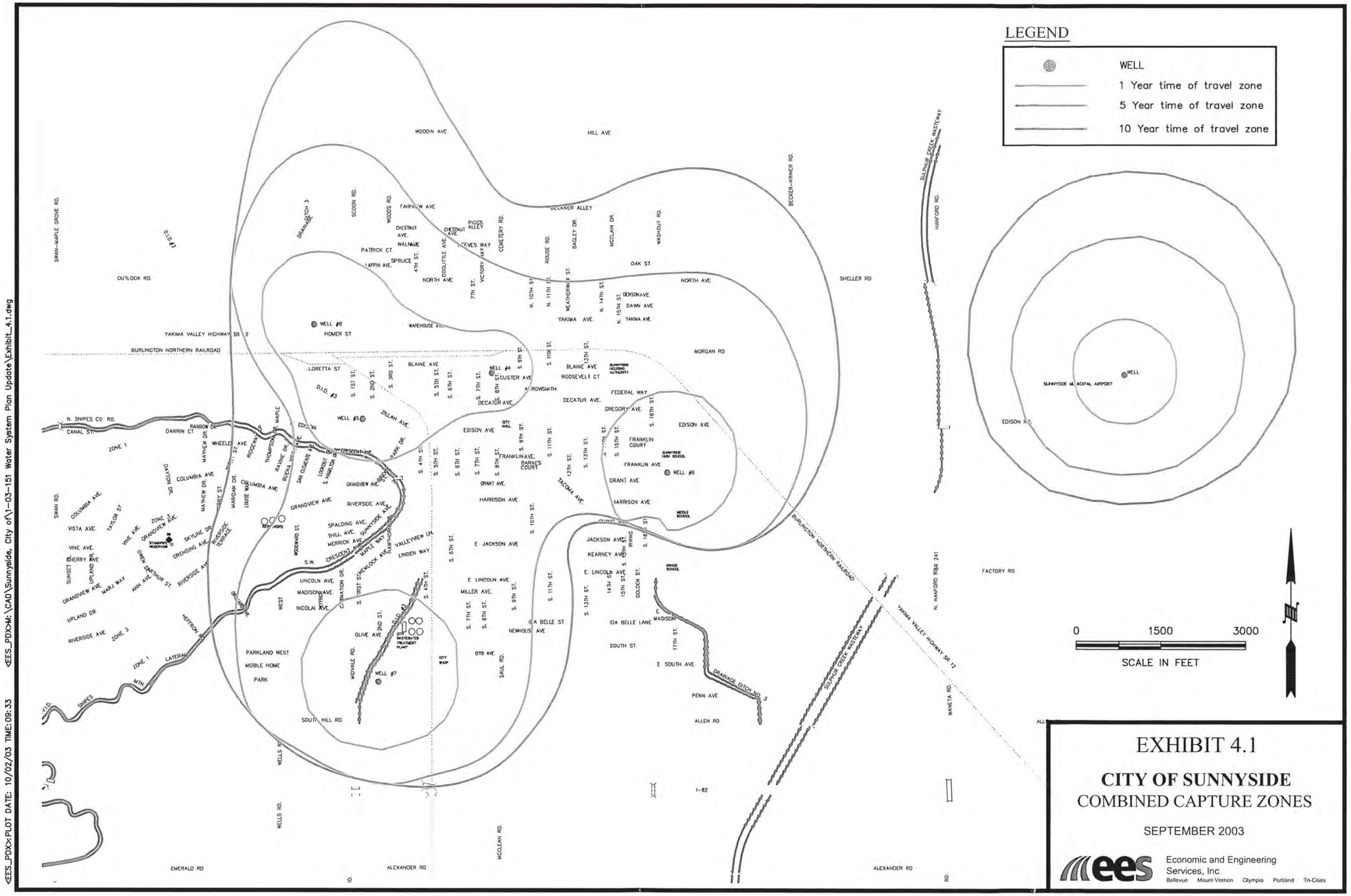


Figure 5-2 Vicinity Map

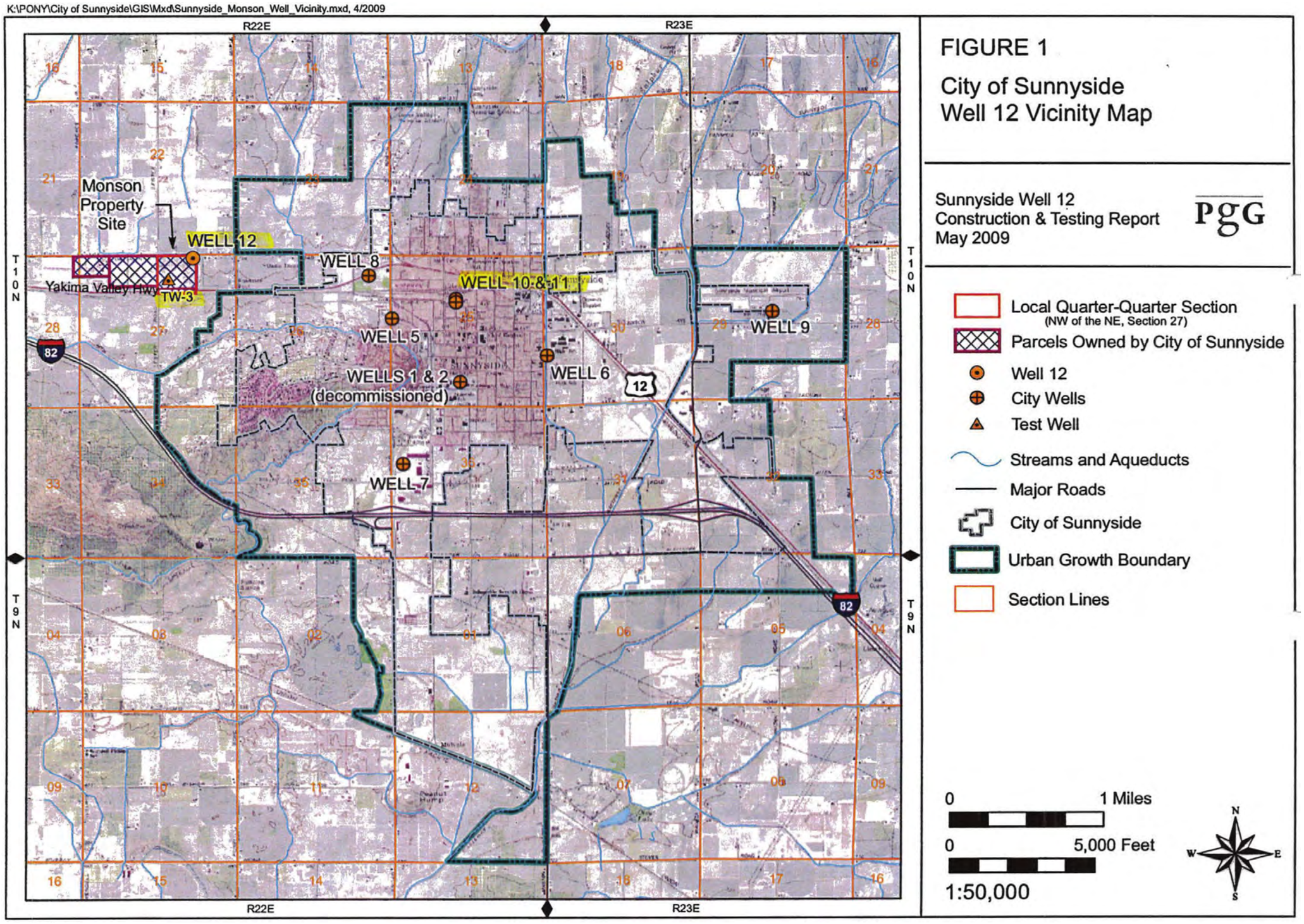
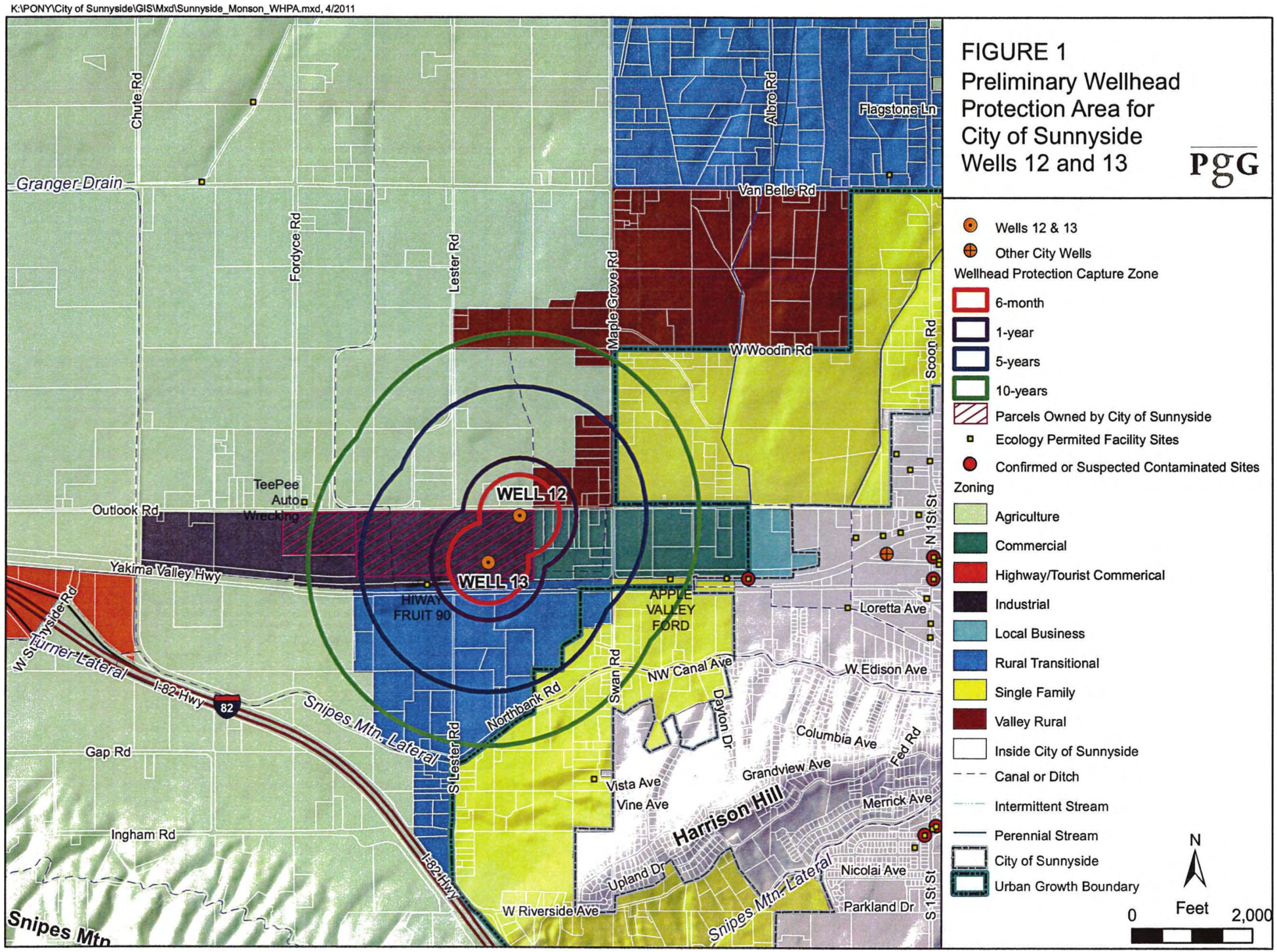


Figure 5-3 Wellhead Protection Area for Wells 12 and 13



Chapter 6: Operation and Maintenance Program

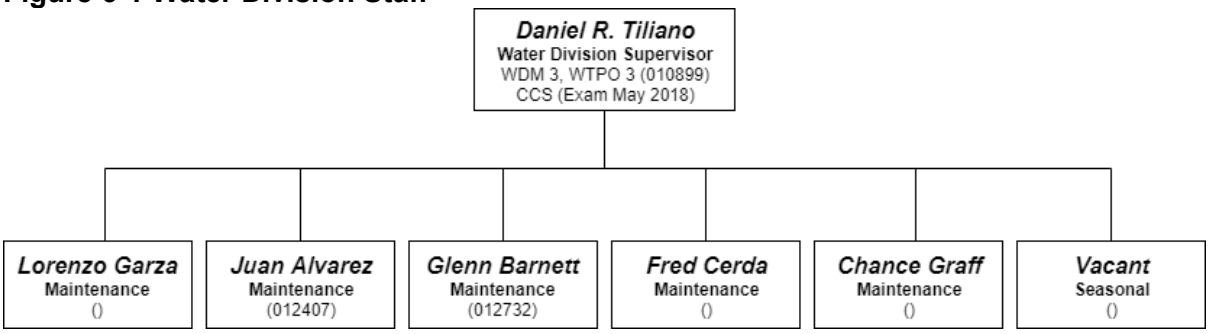
Introduction

The water division is responsible for the operation and maintenance of the water system, including day-to-day operations, preventative maintenance, meter reading, equipment repair, material acquisition, water quality monitoring, installation of new services, water line locates, pipeline repair, and minor construction of new or replacement facilities. The City continues to maintain and update its Operations and Maintenance Manual which documents it procedures. This binder is maintained at the Division's office and includes details regarding routine system operations and special operational programs.

6.1 System Personnel

Staffing of the City's water division includes a supervisor and five maintenance workers. A seasonal temporary employee helps with summer related duties. The current water division staff and their certifications are listed in Figure 6-1. The City is in compliance with the Water Works Certification requirements (WAC 246-292) with the supervisor being certified as a Water Distribution Manager 3 and a Cross Connections Specialist.

Figure 6-1 Water Division Staff



The supervisor is responsible for having knowledge of all aspects of the water system and its operations, maintenance, policies, and procedures. In addition, the supervisor is accountable for the Division's compliance with applicable regulations, maintenance of appropriate system records, and the safety of its staff.

All maintenance staff are responsible for having knowledge of all aspects of the general operations, maintenance, policies and procedures of the Division, and must be capable of performing required duties with minimum direction or supervision.

6.1.1 Professional Growth

In Washington State, all certified water works operators must demonstrate professional growth every three years. This can be accomplished by a certified operator either advancing in the certification program or accumulating a minimum of three continuing educations units (CEUs) or college credits during the three year period. The City supports its water division staff in pursuing either option.

6.2 ROUTINE OPERATIONS & MAINTENANCE SUMMARY

The City's routine system Operations and Maintenance Manual describes the steps for each of routine scheduled tasks for source wells and pumps, reservoirs, distribution system and SCADA system. The manual also includes the policy and procedures for special operational programs such as meter testing/replacement, motor reconditioning, and backflow assembly testing. Table 6-1 identifies the routine elements for weekly, monthly, quarterly and annual schedules. The City's manual continues the schedule for some facilities for 3, 5 and 18 years.

Table 6-1 Routine System Operations

	DAILY
Source Wells and Pumps	a. Check all well facilities visually b. Maintain oil levels in well pumps c. Check pump packing glands d. Check chlorination system e. Clean pumphouse floors
Reservoirs	a. Check pressure transmitter and level controls at booster station for all reservoirs b. Ground maintenance at all sites (weekly)
Distribution System	a. Conduct free chlorine count tests at each operating well and booster station (5 days/week)
SCADA	a. Observe system operation
	MONTHLY
Source Wells and Pumps	a. Check and grease well pump packing b. Check oil level in pump bearing reservoir and fill if necessary c. Test generator set
Distribution System	d. Take required number of water samples from specific sites within the distribution system as identified in Coliform Monitoring Plan and submit them to Lab for bacteriological analysis e. Deliver delinquent account "door hangers" f. Turn off and on delinquent accounts g. Reading of all meters
SCADA	a. Check system alarms
	QUARTERLY
Source Wells and Pumps	a. Grease seal bearings on pump motors
Distribution	a. Flush selected fire hydrants various areas within the system
	SEASONAL / YEARLY
Source Wells and Pumps	a. Winterize or de-winterize pumphouse facilities b. Check heating equipment and thermostats

	c. Clean chlorination system equipment
	d. Well pump control valves inspected
	e. Summarize flow meter totalizer records and compare to amount of water sold for % of unaccounted for water
	f. Generator set complete inspection and maintenance
	g. Electrical panels and switchgear inspected and maintained
Reservoirs	a. Visually inspect reservoir exterior
	b. Inspect reservoir interior as possible without removing it from service
	c. Removal of a Booster pump and motor and rebuild as needed
Distribution	a. Insulate service meters with bags of plastic peanuts as needed
	b. Operate and flush all fire hydrants. Lubricate hydrant caps and threads, touch-up painting as required
	c. Inspection of pressure reducing valves
	d. Inventory of materials
	e. Annual inspection of all PRVs
	f. Annual inspection of all chlorination equipment
	g. 1 ½ " and larger meter testing
	h. Collect annual Nitrate sample from each well
SCADA	a. R/R all battery back-up for remote sites and PCs
	AS REQUIRED
Source Wells and Pumps	a. Drawdown confirmation measurements performed as required (SCADA monitors drawdowns continuously) b. Painting of interior and exterior of building
Distribution	a. Flush low velocity water mains as required to remove sedimentation b. Approve and inspect new mains c. Encourage conservation with customers d. Customer complaints, rereads, etc. e. Line locates for other utilities projects
	f. Map as-builts

The Operations and Maintenance Manual address additional duties of the Division such as:

- Customer Service (property transfers; leak checks; delinquencies)
- Booster station maintenance and repairs
- Backflow assembly testing and repair (City Backflow Assembly Testers)
- Coliform sample collection
- Source and other distribution system sampling

6.3 Cross-Connection Control Program

The City has an active cross connection program, which is documented in their Cross Connection Control Program Plan and in their Annual Summary Report to DOH; a copy of each is included in Appendix 7. The city contracts with Backflow Management Inc. to assist with the implementation of the program.

All residential and commercial applications for new service are evaluated by a Cross Connection Control Specialist to determine the potential hazard of the plumbing system and, if required, the appropriate level of protection is a condition of approving the application. Inspection and testing of backflow preventers will be conducted:

- At the time of installation;
- Annually after installation;
- After a backflow incident; and
- After repair, reinstallation, relocation, or re-plumbing.

The City may require a backflow preventer to be inspected and/or tested more frequently than once a year, when it protects against a high-health hazard or when it repeatedly fails tests or inspections.

The City is responsible for inspection and testing of all City-owned backflow preventers, and requires the customer to be responsible for inspection and testing of backflow preventers owned by the customer. The customer shall employ a DOH-certified Backflow Assembly Tester to conduct the inspection and test within the time period specified in the testing notice sent by the City. The test report shall be completed and signed by the Backflow Assembly Tester, then countersigned and returned by the customer to the City, before the due date specified by the City.

6.4 Customer Complaint Program

When routine customer complaints or questions are received by City Hall staff regarding water quality, quantity or pressure, they are forwarded to the Water Division via e-mail. If the customer's concern is an emergency situation, the Division is notified by telephone call to the office or cell phone. Complaints regarding billing or fees are directed to the Finance Department. The City utilizes an internal Excel-based tracking system to document the complaints and the follow-up taken by the Division. A copy of the two forms that are used are included in Appendix 11.

6.5 Water Quality Monitoring

The Water Division routinely collects the required water quality samples from each of its sources, and from throughout the distribution system as identified by the various monitoring plans. All samples are submitted to Washington State certified laboratories. If any of the water sample results show contamination, or are abnormal, the City or its representative notifies the Eastern Regional DOH office and works cooperatively to determine the cause, conducts appropriate follow-up sampling, and initiates public notification procedures, if required.

The coliform monitoring plan defines 15 routine sampling locations as well as two repeat sample sites for each routine site. In the event a routine coliform result shows the presence of total coliform, the Coliform Monitoring Plan also specifies raw water sampling at each source that may be in use the day the coliform present sample was collected. The current Coliform Monitoring Plan is included in Appendix 8.

Chlorine residual is continuously monitored at 4 locations (Wells 11, 12/13, Grandview Reservoirs and at the Water Division Office. The analyzers are connected to the SCADA system which provides record keeping and alarm functions. In addition chlorine residuals are collected at operating well daily and when collecting coliform samples. Monthly chlorination reports are submitted to DOH by the 10th of the following month.
Other distribution samples include annual disinfection by-product samples (two samples) in late July or early August; and 30 lead and copper samples every three years. In addition, one asbestos sample is required every nine years.

Source monitoring includes inorganic, volatile and synthetic organic chemicals and radionuclides on a schedule defined by DOH and SDWA regulations. The current Water Quality Monitoring Schedule provided by DOH is also included in Appendix 8.

6.6 SANITARY SURVEYS

Sanitary surveys of the water system are conducted by DOH staff on a three to five year basis as specified in the DOH regulations. The last sanitary survey was conducted on June 18, 2015. Two significant deficiencies and three significant findings were observed. The City has addressed all of these issues. The survey checklist and report of findings are included in Appendix 9.

6.7 EMERGENCY RESPONSE PLANNING

Emergency response planning can be defined as the activities that prepare a utility to respond to an emergency situation. Emergencies can be small or large with respect to their effects on utility operation and service. The operation of the water system under emergency conditions is an important responsibility of City staff.

Many utilities cope with smaller scale or ''routine" emergency situation frequently, perhaps weekly or daily. Larger scale or "disaster" emergency situations occur far less frequently, but many aspects or effects of a disaster manifest themselves in the same way as the routine emergencies. In many respects, a disaster can be considered the simultaneous occurrence of many smaller scale emergencies. If a utility is well prepared to handle the routine emergencies, it will be better prepared to handle disasters.

6.7.1 KEY COMPONENTS

There are a few key components of a successful response to an emergency including:

- **Capable Staff**. The Water Division has four experienced senior staff including the Division Director, who know all aspects of the system facilities and operations. In addition they have access to names and contact numbers of suppliers and contractors, if needed.
- **Good routine Operations and Maintenance**. Keeping all of the facilities and equipment well maintained and in good operating condition not only helps ensure their continued functioning, but also their availability in case of an emergency.
- **Preparation**. Maintaining an adequate inventory of spare and repair parts; watching weather reports of possible adverse weather conditions such as high winds, cold weather, snow storms, etc.; and the entire staff discussing their implications.
- **Notification**. The SCADA system uses an auto dialer to notify various staff of an abnormal operational condition. Senior staff can also monitor system conditions via their cell phone and respond either remotely or in person. If another type of emergency occurs, such as a main break, the police department has the complete employee contact list. The City's

complaint handling process also serves as a method of notifying the Division of possible abnormal conditions.

- **Coordination**. The Water Division works with other divisions within the Public Works Department, the City Fire and Police Department on routine activities and can call upon their assistance as needed.

6.7.2 Vulnerability Assessment and Response Plan

After September 11, 2001 the City conducted a Vulnerability Assessment of its facilities as required by the Public Health Security and Bioterrorism Preparedness Act of 2002 (Bioterrorism Act). Specific findings and information from the Vulnerability Assessment are not included here, but are available for review by authorized agencies as necessary and approved by the Water Division Director.

An Emergency Response Plan was then developed in 2004 that included findings of the assessment. That plan is also available for review at the Water Division office.

The Water Division recently initiated discussions revisiting system vulnerability with the goal of modifying the Operations and Maintenance Manual and updating the Emergency Response Plan.

6.8 Safety

All Water Division employees are required to pass and maintain all safety courses including (but not limited to) flagging, forklift, CPR and first aid. As new equipment is purchased, employees must successfully learn how to operate the equipment safely per the owner's manual. All equipment is to be maintained and operated in a safe manner. Safety meetings are held monthly.

6.9 Customer Notifications

Sunnyside corresponds with its customers on a regular basis on a number of water related topics including Consumer Confidence Reports, Water Use Efficiency information, general Cross Connection Control, and distribution system flushing schedules. These notifications may be included with the monthly water bill, Sunnyside newspaper articles or ads, and posting on the City's web page. Specific mailings to selected customers are done directly for such topics as backflow assembly testing reminders. If electronic notifications are necessary due to a health related concern or other water system emergency, the City would provide press releases to radio and television stations in Yakima.

The Public Works administrative staff assists the Water Division with all customer notifications and the notices that are included with the bills are coordinated with the Finance Department-Utility Billing Division.

6.10 Recordkeeping & Reporting

The Division supervisor is responsible for maintaining operational records and routinely keeping the Public Works Director informed about the activities of the Division and if any problems have arisen or may arise. All staff are expected to keep maps and other system related records up-to-date.

The City as a whole has a records retention policy in accordance with the Revised Code of Washington. At a minimum the Water Division is required by DOH regulations to maintain a number of records; a list of the applicable records is presented in Table 6-2.

Table 6-2 WAC 246-290 Record Retention

3 Years (Minimum)	• Public Notifications • Chlorine Residual Reports • "Other information as specified by the Department"
5 Years (Minimum)	• Bacteriological Analysis Results • Invalidation of Groundwater Samples • Coliform Positive Samples (that were not invalidated) • Records of backflow preventer information (including test reports) • Records of backflow incidents and annual summary report
10 Years (Minimum)	• Corrective Actions to Correct Violations of Primary Drinking Water Standards or Groundwater Rule • Copies of Written Reports and Communication Relating to Sanitary Surveys • Source Meter Readings
Life of the Plan	• Coliform Monitoring Plan • Lead and Copper Monitoring Plan • Disinfection By-products Monitoring Plan
Life of Facility	• Project Reports, Construction Documents, Related Drawings, Inspection Reports and Approvals • Master list of backflow preventers as long as the premises pose a cross-connection hazard
As Long as the System is in Operation	• Chemical Analysis Results • Disinfection Profiling & Benchmarking

6.11 Summary of Operations & Maintenance Deficiencies and Action Plan

Although there are no significant problems with the Water Division's operation and maintenance programs, there are a few areas that need continuing attention.

6.11.1 Areas needing attention

1. Modifying the structure of the existing crew by assigning senior members of the crew primary responsibility for the day-to-day operations of the system, while the remaining maintenance staff can work various projects as needed. By having staff assume some of the routine operation related responsibilities of the Division Supervisor, he would be available for increased project planning efforts.
2. Increased attention to maintaining the system map to ensure that it is current and accurately represents existing facilities.
3. Ongoing efforts to maintain and enhance the Division's Operations and Maintenance Manual
4. Continue analysis of system vulnerability and modifications to the Operations and Maintenance Manual and Emergency Response Plan
5. Ensure the various program specific plans are updated as scheduled including:

a. Wellhead Protection
b. Emergency Response Plan
c. Water Use Efficiency
d. Lead and Copper Monitoring Plan
e. Cross Connection Control Ordinance

Chapter 7: Standard Design & Construction Standards

Introduction

The city requests an exception to WAC 214-290-110 and WAC 246-290-120 for new distribution system mains. The City agrees to maintain files for each exempt project including a construction completion report.

Water Division staff routinely install valves, hydrants, fittings, meters, and backflow prevention assemblies in addition to making repairs and minor pipeline replacements. They also may install short sections of piping to complete system looping as identified in the WSP.

For larger City sponsored projects, the City retains the services of an Engineering Consultant to design, inspect and provide a construction completion report. The City requires a developer to retain a professional engineer to design, inspection construction, and submit a construction completion report for projects related to the proposed development. Water Division staff oversees connection and disinfection and sampling process for contractor built facilities.

All projects must comply with applicable City Codes and Standard Design and Construction Standards Table 7-1 provides a summary of the City's repair, replacement and construction procedures.

Table 7-1 City Constructions Procedures

Requirement	City Staff Project	City Bid Project	Developer Project
City Standards	✓	✓	✓
Specifically Identified in WSP	✓	✓	
PE Design		✓	✓
Construction Inspection		✓	✓
As-build drawings	✓	✓	✓
Construction Completion Report (PE)		✓	✓

The City's design standards are presented in Section 3 and were used to evaluate the system. The City has adopted standard specifications and drawings for roadways, sanitary sewer, storm water and water. The sections applying to water are presented in Appendix 10.

The City is initiating a process to review and upgrade all of the City standards including those pertaining to the water system. This project is scheduled to be completed in 2017.

Chapter 8: IMPROVEMENT PROGRAMS

This chapter describes the improvements to the City of Sunnyside's water system that address the needs of the existing and future customers based on the results of the system analyses presented in Chapters 3 and 6. The list and implementation schedule of planned improvements and studies/plans are provided to guide the City during its annual budgeting process. Emphasis has been placed on the improvements needed in the next six years. The present worth estimates are based on planning level costs for similar projects, and were projected forward with a 3% annual inflation rate.

8.1 CAPITAL IMPROVEMENT PLAN

Necessary improvements to the existing system, and those required to address anticipated growth are listed on Table 8-1. All projects have been assigned a number to help identify the project on Figures 8-1 and 8-2 as well as future reference on the table. The projects are organized by source/treatment, distribution, storage, and planning.

The projects are described as follows:

Source and Treatment Projects

- S-1 Hypochlorite conversion Well 6; moving hypochlorite generator to Well 12
    - Eliminate the gas chlorinator at Well 6 which is located about 75 feet from the Sunnyside High school. Replace with a hypochlorite tank and chlorinator.
    - Relocate an existing hypochlorite generator from the City's waste water treatment plant to Well 12 pump house to eliminate hauling the hypochlorite solution from Well 11 to Well 12.
- S-2 Install emergency hypochlorite storage tank and chlorinator at both the Grandview and Skyline tank sites
- S-3a Acquire the property for future well south of the freeway
- S-3b Drill and develop new well to meet projected needs
- S-3c Equip the new well and tie into the existing distribution system
- S-4a Acquire the property for future well north of the freeway
- S-4b Drill and develop new well to meet projected needs
- S-4c Equip the new well and tie into the existing distribution system

Fire Flow Distribution Projects

- D-1 Replace about 350 feet of existing distribution main on South 9th Street with an 8" main for improved fire flow to address a 46% deficiency.
- D-2 Complete loop on south 1st Street to mobile home park to improve a 23% fire flow shortage by installing an 8" main of approximate 550 feet.
- D-3 Complete 720 foot 12" loop on East Edison Road to improve fire flow that is currently 34% deficient.
- D-4 Replace approximately 700 feet of pipeline in Vine Street with 8" line to address a 29% shortage of fire flow.
- D-5 Replace about 840 feet 6" pipeline in Eastway Drive with a 12" line and connect to new 12" main from Federal Way to Eastway Drive for better fire flow to address a 28% deficiency.

- D-6 Complete loop on south side of Yakima Valley Highway with 12” line to improve a 10% fire flow shortage by installing 80 feet of 8” main.
- D-7 Complete loop on North Avenue with approximately 50 feet of8” line to improve fire flow that is currently 22% deficient.
- D-8 Increase line size to hydrant on 11th Street to 8” for better fire flow to address an 35% shortage caused by the long distance(170 feet)from the main to the hydrant.
- D-9 Increase about 1350 feet of pipeline in Scoon Road from 8” to 12” for better fire flow in the area that is 23% deficient.
- D-10 Complete 5th and Blain loop and install 12” line from Federal Way for better fire flow (22% shortage) and better east-west hydraulics with about 1800 feet of new main.

System Looping Projects

- D-11 Install 390 feet of 8” line to connect the Madison and Parkland neighborhoods to complete looping and assist with fire .
- D-12 Replace all 4’ water mains with 12’ mains at various locations within central portion of the city (approximately 13,500 feet).
- D-13 Complete loop from Sunnyside-Mabton Road to Quail Lane with about 4,1790 feet of 12” main.
- D-14 Compete 12” lop east of the Port’s Wastewater Treatment Plant with 3,00 feet of pipe for potential growth.
- D-15 Loop the SW portion of the residential area with 1,250 feet of 12” main for improved Service.
- D-16 Loop NW portion of service area with 12” main of approximately 5,850 feet in Sheller Road to Airport for growth.
- D-17 Install 4,920 feet of 12” main between East Edison and Yakima Valley Highway on Hanford Road for growth.
- D-18 Construct about an 13,170 feet 12” East Sunnside loop (Allen-Ray –Alexander-Yakima Valley Highway) to service the area of potential growth.
- D-19 Construct an approximate l7,920 feet 16” South Sunnyside loop on Alexander from Picard Place to McLean Road for improved east-west flow in entire system, and for growth south of the freeway.
- D-20 Connect dead-end lines in Ravine Drive and Buena Vista Ave to Columbia Ae with about 530 feet of 8” line that will also help with fire flow.

Main Replacement and Pressure Improvement

- D-21 Miscellaneous and service line repair throughout the distribution system as needed
- D-22 Install new pressure reducing station to improve pressure near the Grandview tanks exact location to be determined)

Water Storage Improvements

- R-1 Structural upgrade to the Skyline Reservoir to improve the seismic stability of the standpipe
- R-2 Repaint the interior and exterior of the Skyline Reservoir
- R-3 Repair and recoat the Grandview reservoirs as needed

- R-4a Purchase property for additional reservoir
- R-4b Construct new reservoir of approximately 2.6 million gallon capacity

The switching from gas to sodium hypochlorite at Well 6 and the installation of emergency disinfection equipment at reservoirs and other reservoir improvements are identified as maintenance and are scheduled throughout the next six years. Fire flow improvements, looping projects for the existing system, additional PRV stations and miscellaneous main replacements are also identified as maintenance items, and are scheduled. These projects include the deficiencies identified in previous hydraulic models. Their scheduling has been modified to address areas of current greater concern. Growth projects such as additional source(s), storage, and pipelines are labeled growth related, but not all are scheduled at this time since they are dependent on developer contributions and other financing (loans and grants). The planning and development of an additional source of water is identified, with the schedule providing adequate lead time before projected demand.

The structural and seismic upgrades to the Skyline Reservoir are the most critical improvements to be made, followed by switching the method of chlorination at Well 6.

Project W-18 (Alexander–Picard Place loop) may be mostly funded by development sources with the City contributing $160,000 towards the cost of that project.

8.2 PLANNING IMPROVEMENT PLAN

Planning-related projects are also listed to assist in budgeting and scheduling. These projects include regular updates to the Wellhead Protection Program and Water Use Efficiency programs. A Cost of Service Study and the next Water System Plan are also identified. In addition to the WSP, annual funds are being allocated to provide ongoing engineering and planning related to growth projects. New source and storage are two major projects that need substantial lead time for planning, property acquisition, and planning. The lead and copper monitoring plan is in need of updating to identify additional sites. Updating the Emergency Response Plan is also identified.

Table 8-1 Capital Improvement Plan

Code	Project Description	Item	Basis	2016 Present Worth Cost	Anticipated Year of Construction	2017	2018	2019	2020	2021	2022	Total for 2017-2022 (Inflation adjusted)
Water Supply Projects												
Source & Treatment												
S-1	Hypochlorite conversion Well 6, moving hypochlorite generator to Well 12	Lump Sum	Maintenance	$5,000	2017	$5,200						
S-2	Hypochlorite storage and emergency feed, Grandview & Skyline	Lump Sum	Maintenance	$245,000	2021-2022					$225,200	$52,200	$277,400
S-3a	Property Acquisition for South Well	Lump Sum	Growth	$150,000	2020				$168,900			$168,900
S-3b	South Well - Saddle Mountain (construction; 1000 gpm; 900 feet deep)	900 feet bgs	Growth	$550,000	2021					$637,400		$637,400
S-3c	South Well Facilities(piping, pump, disinfection, controls, power)	Lump Sum	Growth	$605,000	2022						$722,400	$722,400
S-4a	Property Acquisition for North Well	Lump Sum	Growth	$150,000								$0
S-4b	North Well - Saddle Mountain (construction; 1000 gpm; 900 feet deep)	900 feet bgs	Growth	$550,000								$0
S-4c	North Well Facilities(piping, pump, disinfection, controls, power)	Lump Sum	Growth	$605,000								$0
	Water Supply Subtotal:			**$2,860,000**		**$5,200**	**$0**	**$0**	**$168,900**	**$862,600**	**$ -**	**$1,036,700**
Water Distribution System Improvements												
Fire Flow												
D-1	S. 9th St. - 8" waterline	350LF	Maintenance	$35,000	2017	$36,100						$36,100
D-2	S. 1st St. to trailer park - 8" waterline loop	550LF	Maintenance	$55,000	2017	$57,700						$57,700
D-3	Edison Rd. to hydrant - 12" waterline	720 LF	Maintenance	$72,000	2018		$76,400					$76,400
D-4	Vine Ave. - 8" waterline	700LF	Maintenance	$70,000	2019			$76,500				$76,500
D-5	Eastway Dr. -12" waterline; 12" waterline from Federal Way	840LF	Maintenance	$84,000	2020				$94,600			$94,600
D-6	Yakima Valley Rd - 12" waterline loop	80LF	Maintenance	$8,000	2021					$9,300		$9,300
D-7	North Ave. - 8" waterline loop	50LF	Maintenance	$5,000	2021					$5,800		$5,800
D-8	S. 11th St. - 8" tap to hydrant	170LF	Maintenance	$17,000	2021					$19,700		$19,700
D-9	Scoon r and Private Road - 12" waterline	1350LF	Maintenance	$135,000	2021					$156,500		$156,500
D-10	S 5th St. to Blaine Ave Loop - 12" waterline from Federal Way	1800 LF	Maintenance	$180,000	2022						$208,600	$208,600
System Looping												
W-11	Madison to Parkland neighborhood - 8" waterline loop	390LF	Maintenance	$39,000	2019			$42,600				$42,600
W-12	Replace all 4" waterlines with 12" waterlines	13,500LF	Maintenance	$1,350,000	2018-2035		$106,100	$109,300	$112,600	$115,900	$119,400	$563,300
W-13	Sunnyside - Mabton Rd. to Quail Ln. - 12" waterline loop	4,170LF	Maintenance	$417,000	2020				$469,500			$469,500
W-14	South Sunnyside (east of Port WWTP) - 12" waterline loop	3,600LF	Growth	$360,000								$0
W-15	West 12" waterline loop	1,250LF	Maintenance	$125,000	2021					$144,900		$144,900
W-16	Sheller Rd. to Airport - Morgan 12" waterline loop	5,850LF	Growth	$585,800								$0
W-17	E. Edison Ave. to Yakima Valley Hwy. - 12" waterline loop	4,920LF	Growth	$492,000								$0
W-18	East Sunnyside - Ray Rd. - 12" waterline loop	13,170LF	Growth	$1,317,000								$0
W-19	Alexander - Picard Place -16" waterline loop	7,920LF	Growth	$792,000								
W-20	Columbia Ave. - 8" waterline loop	530LF	Maintenance	$530,000	2022	$530,000					$632,820	
Main Replacement & Pressure Improvement												
W-21	Miscellaneous main / service line replacement	$100K Annual	Maintenance	$500,000	Annual		$106,100	$109,300	$112,600	$115,900	$119,400	$563,300
W-22	New PRV Station	Lump Sum	Maintenance	$75,000	2019			$82,000				
	Water Distribution Subtotal:			**$7,168,800**		**$623,800**	**$288,600**	**$337,700**	**$789,300**	**$568,000**	**$1,080,220**	**$3,687,620**
Water Storage Improvements												
R-1	Structural Upgrade for Skyline Reservoir	Lump Sum	Maintenance	$1,250,000	2017	$1,287,500						$1,287,500
R-2	Repaint Skyline Reservoir Interior/Exterior	Lump Sum	Maintenance	$250,000	2018		$265,200					$265,200
R-3	Repair and recoat Gramview Reservoirs	Lump Sum	Maintenance	$100,000	2019			$109,300				
R-4a	Property Acquisition	Lump Sum	Growth	$150,000	2025							$0
R-4b	Zone 1 Reservoir (2.6 MG)	Lump Sum	Growth	$3,000,000	2026							$0
	Water Storage Subtotal:			**$3,150,000**		**$1,287,500**	**$265,200**	**$109,300**	**$0**	**$0**	**$0**	**$1,662,000**
	Total Water System Capital Improvements			**$13,178,800**		**$1,916,500**	**$553,800**	**$447,000**	**$958,200**	**$1,430,600**	**$1,080,220**	**$6,386,320**

Continued on next page.

Code	Project Description	Item	Basis	2016 Present Worth Cost	Anticipated Year of Construction	2017	2018	2019	2020	2021	2022	Total for 2017-2022 (Inflation adjusted)
	Planning Improvement Plan											
P-1	Wellhead Protection Program Update		Maintenance	$8,000	2017	$8,200		$8,700		$9,300		$26,200
P-2	Update Emergency Response Plan		Maintenance	$7,500	2018		$7,500					$7,500
P-3	Water Use Efficiency Program Update		Maintenance	$5,000	2019			$5,500				$5,500
P-4	Update Lead and Copper Monitoring Plan		Maintenance	$5,000	2019	$5,000						$5,000
P-5	Update Cross Connection Control Ordinance		Maintenance	$5,000	2018		$5,300					$5,300
P-6	Water Cost of Service, Rates, SDC Study		Maintenance	$80,000	2021		$84,900					$84,900
P-7	Update Water System Master Plan and Miscellaneous On-going Planning		Maintenance	$200,000	2026	$20,600	$21,200	$21,900	$22,500	$123,200	$23,900	$233,300
P-8	New Source Well Study		Growth	$50,000	2018			$54,600				$54,600
P-9	Additional Storage Study		Growth	$30,000	2024						$46,371	$46,371
	Total Water System Planning Projects			**$390,500**		**$33,800**	**$118,900**	**$90,700**	**$22,500**	**$132,500**	**$70,271**	**$468,671**
	Project Totals			**$13,569,300**		**$1,950,300**	**$672,700**	**$537,700**	**$980,700**	**$1,563,100**	**$1,150,491**	**$6,854,991**

Figure 8-1 Sunnyside Water System CIP 6-year

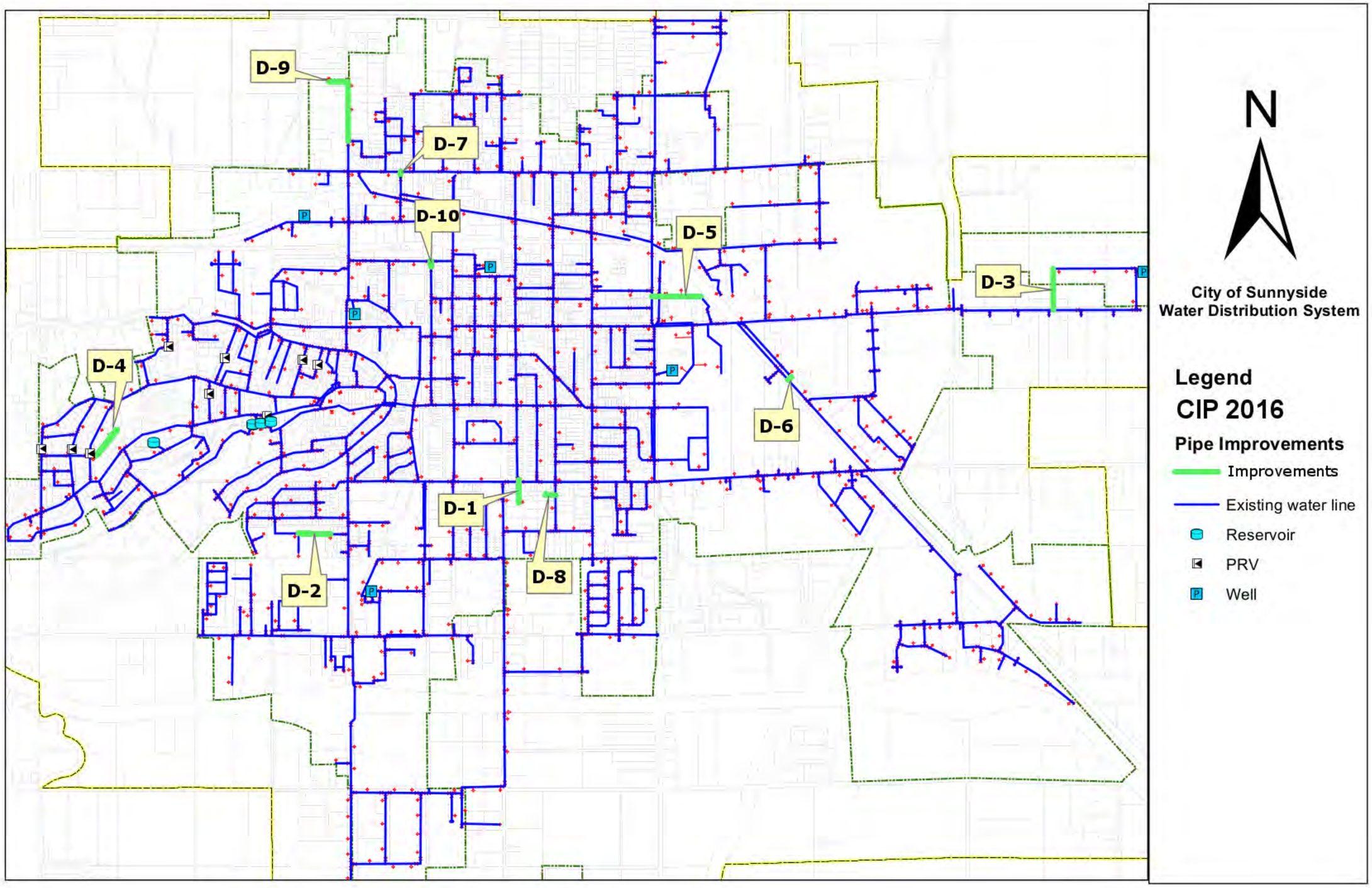
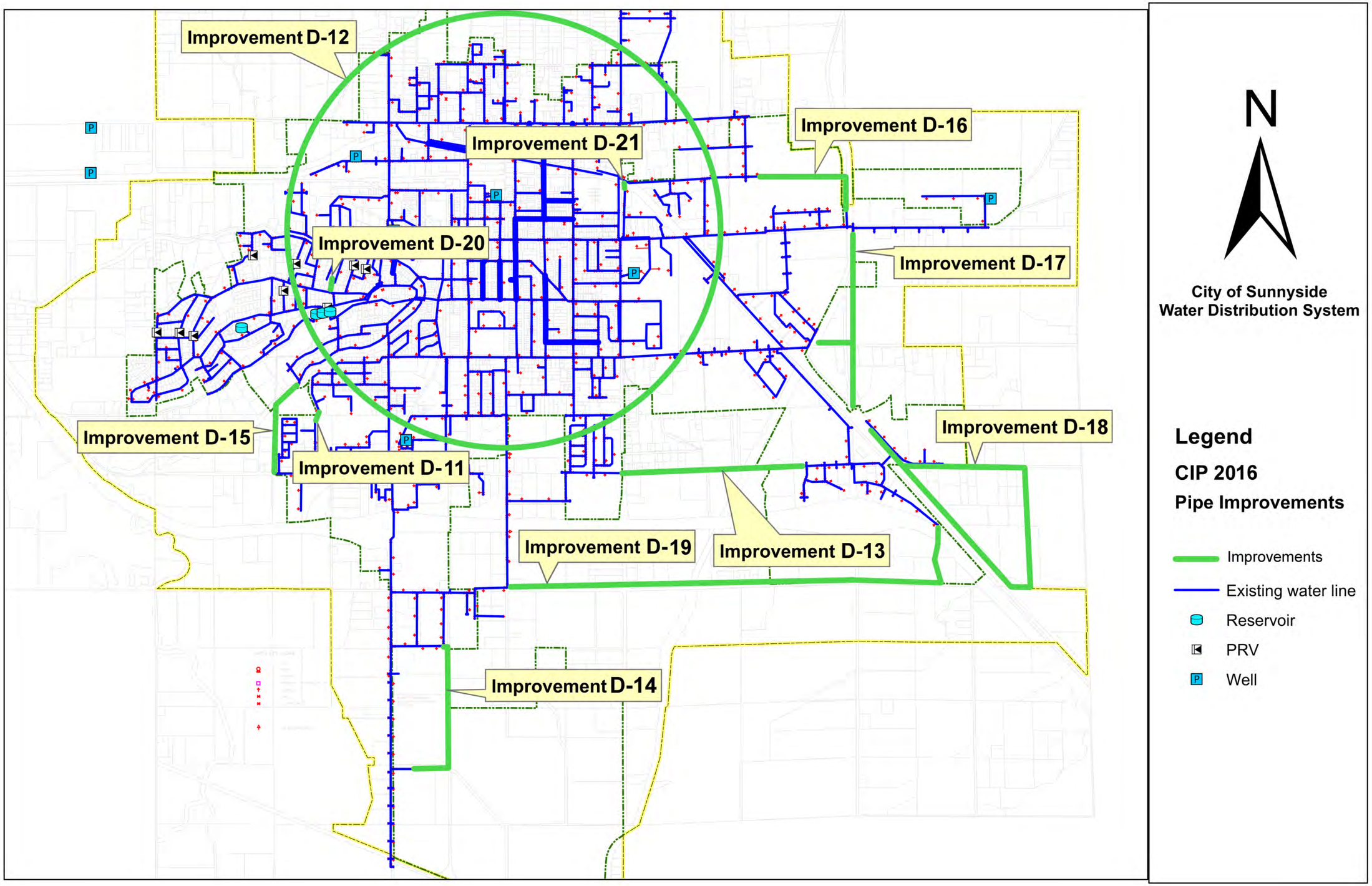


Figure 8-2 Sunnyside Water System CIP 20-year



Planning Improvement Plan

- P-1 Review and update as necessary the potential contaminate inventory every two years
- P-2 Review and update as necessary the Emergency Response Plan
- P-3 Review and modify the Water Use Efficiency Program Goals and Measures
- P-4 Update Lead and Copper Monitoring program to include additional potential monitoring sites
- P-5 Update Cross Connection Control Ordinance
- P-6 Water Cost of Service Study to evaluate modifying consumption rates, and ensure adequate funding for operations and CIP program
- P-7 Update Water System Plan and enable miscellaneous on-going planning. Although the 6 year planning period will not expire until 2023, WSP funding appears in 2021 to allow project to start in late 2021, after a new source is developed. Adequate time will therefore be allowed to assemble 2021 data, and request an extension of water right permit (if required), and to have the WSP submitted by the fall summer/early fall of 2022.
- P-B New Source Study to determine location and anticipated depth of additional source(s)
- P-9 Additional Storage Study to determine best location and type for additional storage (high elevation ground level tank, standpipe, composite elevated storage, or ground level with booster pumps & emergency power)

8.3 Operations and Maintenance Improvement Program

As previously noted in Chapter 6.11, the following are the operations and maintenance areas that need continuing attention:

1. Modifying the structure of the existing crew by assigning senior members of the crew primary responsibility for the day-to-day operations of the system, while the remaining maintenance staff can work various projects as needed. By having staff assume some of the routine operation related responsibilities of the Division Supervisor, he would be available for increased project planning efforts.
2. Increased attention to maintaining the system map to ensure that is current and accurately represents existing facilities.
3. Ongoing efforts to maintain and enhance the Division's Operations and Maintenance Manual
4. Continue analysis of system vulnerability and modifications to the Operations and Maintenance Manual and Emergency Response Plan
5. Ensure the various program specific plans are updated as scheduled including:
    a. Wellhead Protection
    b. Emergency Response Plan
    c. Water Use Efficiency
    d. Lead and Copper Monitoring Plan
    e. Cross Connection Control Ordinance

8.4 Additional Recommendations

In addition to the Capital Improvement Plan and the Operations and Maintenance improvements discussed above, the following recommendations are made to assist in the addressing future system needs:

1. The City should be watching for the possibility of acquiring existing well(s) and related water rights, especially south of the interstate.
2. The Water Division should closely track annual water demand and the impact of new commercial connections to ensure timely addition of new source(s) of supply.
3. File request of extension of water right permit (GA-31581) before Feb 1, 2017.

Chapter 9: FINANCIAL PROGRAM

Introduction

This chapter provides a summary of the City of Sunnyside Water Divisions financial program that shows it is financially viable, and has the capacity to obtain sufficient funds to construct the water system improvements identified in the previous chapter. The information presented here was obtained from the City of Sunnyside's Annual Financial Report, and proposed 2017 budget.

9.1 RECENT FINANCIAL CONDITION

Table 9-1 shows the Water Division's Fund resources and uses arising from cash transactions for the years 2013-2015.

Table 9-1 Fund Balances

Description	2013	2014	2015
Unreserved Beginning Cash & Investment	$1,749,434	1,731,335	1,995,272
Operating Revenue	$2,120,252	2,191,783	2,950,604
Operating Expenditures	$1,284,123	1,353,526	1,199,886
Net Operating Increase	$836,129	838,526	1,167,820
Non-operating Revenues	$1,130,858	391,403	8,000
Non-operating Expenditures	$1,970,843	965,992	924,699
Net Increase in Cash and Investments	($3,856)	263,937	251,121
Total Ending Cash and Investments	$1,731,335	1,995,272	2,246,393

9.2 RATE FEES AND CHARGES

A Rate Analysis and Cost of Service Study was completed in 2014. In addition to considering the capital improvement projects outlined in the Draft 2013 WSP, there were concerns regarding the equity of charges between residential and commercial customers. As a result the Study recommended changes to the monthly base rate by meter size, and adjustment in consumption charges.

The City has an Equity Fee that is intended to provide a new customer an equitable "buy-in" to the existing water system that is detailed in City Code 13.20120 and is summarized in Table 9-2 as are the meter installation costs. In addition, there in an addition fee for the actual cost of tapping the mainline and installing the service line to the meter and meter box.

Table 9-2 Water System Equity Fee and Meter Installation Costs

Meter Sizes	Equity Fee	Meter Installation
Residential		
¾”	$450.00	$750.00
1”	$500.00	$845.00
1 ½”	$500.00	$1,500
2”	$500.00	$2,500
Commercial		
The larger of the fee shown	a) $500.00 b) $.05 per square feet of the building to which the water connection is being made c) $3.00 per gallon of demand based on size of water meter	For meters larger than 2” the costs will be the actual itemized costs incurred buy the City

The study also recommended an annual water rate increase of 2.5% through 2018. The City Council increased rates on Jan 12, 2015, and has recently approved a 2.5% increase for 2017. The current rates are shown in Table 9-3.

Table 9-3 Current Water Rates

Meter Size	Minimum Monthly Charge
5/8"	$16.88
3/4"	$16.88
1"	$28.13
1-1/2"	$56.27
2"	$90.03
3"	$196.93
4"	$337.60
6"	$703.33
Consumption Charge per 100 cubic feet (CCF)	
Metered Consumption	Charge per CCF
Usage from 3.1 to 12 CCF	$1.73
Usage from 12.1 to 50 CCF	$1.26
Usage from 50.1 to 1,500 CCF	$0.86
Usage over 1,500 CCF	$0.63

Water service outside the City corporate limits shall be furnished where approved by an outside utility agreement at a rate of one and one-half times that stipulated for inside the City corporate limits.

9.3 System Liabilities

The 2005 Water/Sewer Refinance refunded revenue bonds issue in 1993 and 1996 for the purpose of substantial debt service savings. 64.6% of this loan and debt payments is attributed to the Water Division. In 2007 the City issued $3,640,000 in Water/Sewer Revenue Bonds for the purpose of financing capital improvements to the water and sewer systems. 60% of this loan is allocated to the Water Division. The City also secured a $4,040,000 State Revolving Fund Loan to finance the water source improvements (Wells 12 and 13). The City has drawn a total of $3,940,635 on this load and has made payments totaling $1,331,173. A summary for the outstanding liabilities is shown in Table 9-4.

Table 9-4 Schedule of Liabilities

Description	Due Date	2012 Ending Balance	2013 Ending Balance	2014 Ending Balance	2015 Ending Balance
2005 Water/Sewer Revenue Refinance	8/1/2017	$1,070,000	$875,000	$607,000	$460,000
2007 Water/Sewer Revenue	12/1/2027	$2,285,000	$2,285,000	$2,285,000	$2,285,000
DWSRF Loan	10/1/2025	$1,874,417	$2,745,961	$2,870,407	$2,609,461
Total Revenue Obligations		$5,229,417	$5,905,961	$5,762,407	$5,354,461
Additions/Year			$1,018,529	$385,392	-
Reductions/Year			$437,514	$465,946	$470,946

9.4 Annual Budget

As shown in Table 9.1, the City has increased the ending cash and investment amounts in the Water Division budget in recent years. The existing 2016 budget and the proposed 2017 budget continue that approach in order to meet the operating and capital improvement needs of the City.

Table 9-5 Budget

Description	2016 Budget	Proposed 2017 Budget
Revenue		
Water Fund	$3,472,765	$3,538,365
W/S Revenue Fund	$362,484	$356,680
Expenses		
Water Fund	$1,811,965	$1,934,131
W/S Revenue Fund	$362,494	$356,680

9.5 Funding Alternatives

It will be necessary for the City to obtain additional financial resources to accomplish some of the larger maintenance and growth related projects identified on Table 8-1. A list of possible funding options is provided in Table 9-6.

Table 9-6 Funding Alternatives

Funding Source	Description
Drinking Water State Revolving Fund (DWSRF)	This low interest loan fund, managed by DOH, is available for water quality related projects as well as infrastructure projects. The term of the loan is for 20 years and requires at least 10% match.
Public Works Trust Fund (PWTF)	This loan program was established to assist public entities with repair or replacement of various public works projects, including water systems. In addition to repair and replacement of public works systems, growth related projects foreseen within 20 years are also eligible. This money for this fund, however, has not been allocated during the past few years due to the State legislature budgeting other priorities.
Community Development Block Grant (CDBG)	The federal government grant program is administered by the Washington Department of Commerce to help Cities to serve the needs of low and moderate income residents.
Supporting Investments in Economic Development (SIED)	Yakima County's Supporting Investments in Economic Development (SIED) program makes investment loans to support business and economic development projects throughout Yakima County. The program is often used as a resource to help companies defray costs of extending roads and other public utilities to their new facilities.
Revenue Bonds	The most common method of financing water system improvements for a growing community is the issuance of revenue bonds which are paid by earmarking a portion of the City's annual revenue.
Local Improvement District (LIDs)	A mechanism for funding water infrastructure that assesses benefitted properties based on the special benefit received by the construction of specific facilities. Bonds are repaid by an assessment on those customers benefitting from the improvements.
Developer Extension Contribution	The City requires that a developer to extend on-site and sometimes off-site improvements as a condition of extending service. The City may enter into a reimbursement agreement to repay the original developer for a portion of the extension when other customers tap into the original installation within 15 years. (City Code 13.24)

APPENDICES

1. **Appendix 1** City Codes
2. **Appendix 2** Water System Plan Correspondence
    A. Local Government Consistency
    B. Neighboring System Notification
    C. DOE Draft Water System Plan Comment Letter
    D. DOH Draft Water System Plan Comment Letter
    E. Local Fire Authority Letter
    F. Water Users Informational Meeting Memo
3. **Appendix 3** Well Logs
4. **Appendix 4** Water Use Efficiency Program
    A. Water Use Efficiency Program
    B. 2016 Annual Performance Report
    C. 2017 Public Forum Notice
    D. Water Use Efficiency Handout
5. **Appendix 5** Water Rights and Surface Water Adjudication Claim
6. **Appendix 6** Wellhead Protection
7. **Appendix 7** Cross Connection Control Documents
    A. Cross Connection Control Documents
    B. 2016 Annual Summary Report
8. **Appendix 8** Water Quality Documents
    A. Coliform Monitoring Plan
    B. Lead and Copper Monitoring Plan
    C. Disinfection By-Products Monitoring Plan
    D. Water Quality Monitoring Schedule
9. **Appendix 9** Sanitary Surveys
    A. Checklist
    B. DOH Letter
    C. Sunnyside Response
10. **Appendix 10** Standard Specifications
11. **Appendix 11** Miscellaneous Documents
    A. Hydrant Meter Rental Form
    B. Public Works Permit Application
    C. General Complaint Form
    D. Water Quality Complaint Form
    E. SEPA Environmental Checklist and Determination of Non-Significance
    F. Water Facilities Inventory

Appendix 1 City Codes

Chapter 8.24

FIRE HYDRANTS

Sections:

8.24.010 Purpose of provisions.
8.24.020 Requirements generally.
8.24.030 Approval of plans required.
8.24.040 Compliance with specifications – Adoption by reference.
8.24.050 Installation standards.
8.24.060 Water supply requirement.
8.24.070 Location and number requirements – Generally.
8.24.080 Location and number requirements – Certain special buildings.

8.24.010 Purpose of provisions.
This chapter is enacted to provide minimum requirements for installation of fire hydrants designed or approved by the Fire Chief of the City in the exercise of his duties pursuant to Article 9 of the Uniform Fire Code, 1997 Edition. The duties under the fire code shall be deemed changed automatically when future editions of the Uniform Fire Code are amended by the International Fire Code Institute. [Ord. 1960 § 2, 1998; Ord. 1336 § 1, 1981; Ord. 1172 § 1, 1978.]

8.24.020 Requirements generally.
A. All buildings or additions to buildings constructed or located within the City after July 10, 1978, including, without limitation, structures or dwellings within automobile trailer courts, mobile home parks and planned unit developments, shall install sufficient fire hydrants and/or water mains to provide the required fire flow as determined by the Fire Chief, which hydrants and mains shall be installed in accordance with the provisions of the Sunnyside Municipal Code.

B. Fire hydrants installed prior to July 10, 1978, which do not conform with the requirements of this chapter shall, when replaced, be replaced with fire hydrants conforming to the requirements of the Sunnyside Municipal Code and shall be subject to approval by the Fire Chief.

C. All fire hydrants within the City shall be subject to inspection, testing and approval of the Fire Chief and/or the Director of Public Works. [Ord. 1336 § 2, 1981; Ord. 1172 § 2, 1978.]

8.24.030 Approval of plans required.
A. Two copies of detailed plans and specifications, accurately indicating the location of all proposed fire hydrants, valves and attendant water lines, shall be submitted to and approved by the City Fire Chief and Director of Public Works prior to commencement of construction thereof.

B. All required hydrants and mains shall be placed in service prior to issuance of a building permit or commencement of building construction relative to any new structures to be serviced thereby. [Ord. 1172 § 3, 1978.]

8.24.040 Compliance with specifications – Adoption by reference.
A. Fire hydrants, connecting pipelines, valves and appurtenances, including plans and installation details not specifically regulated by this chapter, shall conform to design standards and specifications promulgated by the City.

B. Fire hydrants, connecting pipelines, valves and appurtenances further shall conform to the specifications and standards published in following publications, of which not less than three have been and now are on file in the office of the City Clerk and which are adopted by reference and incorporated herein as fully as if set out in this chapter:

The following AWWA Standards, published by the American Waterworks Association:

1. Standard C100 – Iron pipe;

2. Standard C200 – Steel pipe;

3. Standard C300 – Concrete pipe;

4. Standard C400 – A-C pipe;

5. Standard C500 – Valves;

6. Standard C600 – Pipe laying. [Ord. 1960 § 3, 1998; Ord. 1172 § 4, 1978.]

8.24.050 Installation standards.
A. All public fire hydrants, which shall include without limitation those hydrants situated on a street right-of-way or public utility easement and maintained by the City or a water district, and all private property for firefighting purposes shall be restricted primarily to use for firefighting purposes and shall be maintained accessible for immediate use for such purposes at all times.

B. All fire hydrants shall have two National thread standard hose outlets of two and one-half inches in diameter, and one outlet of four inches in diameter, with a five-inch Storz adapter and cap.

C. All fire hydrants shall stand plumb.

D. All fire hydrants shall be set to finished grade with the lowest outlet thereof no less than 18 inches above grade and with no less than 36 inches of unobstructed area for the operation of hydrant wrenches on all outlets and the control valve. Flush-type hydrants, which hydrants are installed below grade, are prohibited except upon written approval of the Fire Chief pursuant to showing of extreme necessity.

E. All fire hydrants shall be installed with the pumper port facing the nearest street, unless the Fire Chief designates a different direction as a more likely route of fire truck approach or location for pumping.

F. All fire hydrants shall be adequately protected against vehicular damage in a manner prescribed by the Fire Chief.

G. All fire hydrants shall be equipped with an auxiliary gate valve installed between the service line and the hydrant to permit repair or replacement of the hydrant without disruption of water service.

H. All fire hydrant installations on dead-end mains or temporarily dead-end mains shall include provisions for looping, together with minimum easement of 16 feet therefor, unless the Director of Public Works approves for good cause a different installation design.

I. All hydrants installed after the effective date of this section shall be painted yellow. The bonnet of the fire hydrant shall be painted in color code to indicate the available fire flow conforming with N.F.P.A. No. 291, 1980 Edition. [Ord. 2060 § 1, 2003; Ord. 1836 § 1, 1993; Ord. 1336 §§ 3, 4, 1981; Ord. 1172 § 6, 1978.]

8.24.060 Water supply requirement.
A. All fire hydrants shall be supplied with water from a municipal water system or a water district.

B. All fire hydrants installed in residential zones after July 10, 1978, shall be supplied by eight-inch circulating mains; provided, that the Director of Public Works may approve installation of six-inch mains for lines no longer than 600 feet between intersecting mains which complete a desirable gridiron.

C. All leads from service mains to fire hydrants shall be at least six inches in diameter. [Ord. 1172 § 7, 1978.]

8.24.070 Location and number requirements – Generally.
A. The maximum distance between fire hydrants in single-family zones shall be 600 feet, except that areas of single-family zones impressed with public buildings, including schools, shall comply with subsection (B) of this section.

B. The maximum distances between fire hydrants, in other than single-family zones, shall be 400 feet with hydrants being located as nearly as possible at street intersections.

C. The length of any hydrant lead and six-inch dead-end service main shall not exceed 500 feet for any fire hydrant.

D. Not more than one fire hydrant shall be installed on a six-inch main between intersecting mains, and not more than two hydrants shall be installed on an eight-inch line between intersecting mains.

E. All fire hydrant locations shall be subject to the approval of the Fire Chief, considering such factors as utility obstructions, topography, building location, and direct access for fire apparatus from the hydrant to the structure being served without any intervening impediments.

F. All fire hydrants and Fire Department connections shall be accessible to fire apparatus by an all-weather roadway capable of supporting the imposed loads of fire apparatus. The width of the roadway is to be no less than 20 feet with a vertical clearance of 13 feet, six inches. [Ord. 1411 § 1, 1983; Ord. 1336 § 5, 1981; Ord. 1172 § 8, 1978.]

8.24.080 Location and number requirements – Certain special buildings.
Notwithstanding other requirements of this chapter, the following additional regulations shall apply to all buildings, other than single-family or two-family dwellings, any portion of which is more than 150 feet from the curb or edge of the nearest established street or public highway:

A. Fire hydrants shall be a minimum of 50 feet away from a building or structure, unless as determined by the Fire Chief; a longer minimum distance is needed for the safety of firemen and fire vehicles using the hydrant.

B. Buildings having a required flow of 2,500 or more gallons per minute shall be served by fire hydrants with mains which loop around the building or complex of buildings and reconnect or extend to another grid system.

C. Buildings having a required fire flow of less than 2,500 gallons per minute may be permitted to have hydrants on one side of the building only.

D. Location of fire hydrants shall be subject to approval of the Fire Chief, considering such factors as utilities, topography, and building location. [Ord. 1411 § 2, 1983; Ord. 1172 § 9, 1978.]

Chapter 13.08

GENERAL PROVISIONS

Sections:

13.08.010 Water and sewer connections outside City limits – Generally.
13.08.020 Water and sewer connections outside City limits – Terms.
13.08.030 Authority to shut off and repair water lines.
13.08.040 Fire hydrant operation.
13.08.050 After-hours and emergency services.
13.08.060 Interference with systems prohibited.
13.08.070 Liability for expenses incurred in violations.
13.08.080 Action to collect delinquent charges.
13.08.085 Lien for sewer delinquent charges – Enforcement.

13.08.010 Water and sewer connections outside City limits – Generally.
Water and sewer connections or extensions to lands outside the corporate limits of the City shall be permitted, when reasonably available, within the Sunnyside Area Comprehensive Plan, and where the recipient of said services pays for or arranges for payment of the costs of said extension. Extension of utility services to areas outside of the City limits which do not meet the above requirements would need to be reviewed, in advance, by the City Council for approval or denial. Any connections or extensions outside of the City limits shall be subject to the charges and costs specified in the City code and shall be subject to specifications and policies of the City. [Ord. 1614 § 1, 1987; 1956 Code § 3-501, § 801.]

13.08.020 Water and sewer connections outside City limits – Terms.
Domestic water and sewer lines or mains lying outside of the corporate limits of the City shall be installed, owned and maintained by the consumers, unless the City has inspected, approved, and consented to receive the same. Unless the City has inspected and approved acquisition of such water and sewer mains or lines, the City shall have no duty to repair or replace such mains or lines. Water meters on such domestic service outside of the corporate limits shall be placed, installed and maintained within the discretion of the Public Works Department and shall remain the property of the City regardless of location. [Ord. 1614 § 2, 1987; 1956 Code § 3-501, § 802.]

13.08.030 Authority to shut off and repair water lines.
The 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 of Sunnyside. Such water lines shall remain shut off until properly repaired or replaced. In the event the leaks or defects exist on service 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 Director. [1956 Code § 3-501, § 803.]

13.08.040 Fire hydrant operation.
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 Water and Sewer Department. [1956 Code § 3-501, § 805.]

13.08.050 After-hours and emergency services.
In the event that City employees in the Water and Sewer Department are called for services to a consumer after normal business hours during weekdays and on weekends, there shall be charged to the consumer a minimum of $20.00 to be assessed and collected as herein provided in the City's current rate provisions; provided, however, that there shall be no charge for callout employees of the Water and Sewage Department regardless of the time of such call for the purpose of repairing, replacing or maintaining plugged sewer lines, broken water mains, missing and broken stop signs, and downed trees or other public emergency. [1956 Code § 3-501, § 805(A).]

13.08.060 Interference with systems prohibited.
No unauthorized person shall maliciously, willfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenances, or equipment which is a part of the domestic water system or the public sewer and sewage disposal system. [1956 Code § 3-501, § 806.]

13.08.070 Liability for expenses incurred in violations.
Any person who violates any of the provisions of Chapters 13.12 and 13.16 SMC or this chapter shall become liable to the City for any expense, loss or damage occasioned by the City by reason of such violation. [1956 Code § 3-501, § 807.]

13.08.080 Action to collect delinquent charges.
In the event the City commences an action against any property owner to collect delinquent water and/or sewer charges, the prevailing party in such suit shall be entitled to the award of its costs and a reasonable attorney fee. [Ord. 1244 § 1, 1980.]

13.08.085 Lien for sewer delinquent charges – Enforcement.
The City of Sunnyside shall have a lien for delinquent and unpaid rates and charges for sewer service, applicable penalties and connection charges, including interest thereon at the rate of eight percent per annum computed on a monthly basis, against the premises to which such service has been furnished or is available, which lien shall be superior to all other liens and encumbrances except general taxes and local and special assessments. The sewerage lien shall be effective for a total of not to exceed six months' delinquent charges without the necessity of any writing or recording. In order to make such lien effective for more than six months' charges, the City Manager or his designee shall cause to be filed for record in the office of the Yakima County Auditor a notice of lien substantially in the form prescribed pursuant to RCW 35.67.210. The sewerage lien may thereafter be foreclosed in accordance with law.

As an additional and concurrent method of enforcing the lien authorized in this section, the City may enforce such lien by cutting off the water and/or sewer service from the premises to which such sewer service was furnished after the charges become delinquent and unpaid until the charges are paid. The City shall send written notice at least 10 days in advance of cutting off of such service to the last known owner of the property and any occupant of the premises. The written notice shall state the amount of the delinquent account, the date service will be cut off unless such delinquent account is paid in full, and the amount to be paid to restore such service in the event the service is cut off. The right to enforce the lien by cutting off and refusing such service shall not be exercised after two years from the date of the recording of sewerage lien notice, except to enforce payment of six months' charges for which no lien notice is required to be recorded, all pursuant to RCW 35.67.290 as now existing or hereafter amended.

Upon enforcement of such lien by cutting off the water and/or sewer service, such service shall be deemed abandoned, and subject to reinstatement only upon compliance with the provisions of SMC 13.20.035(C) and payment of all costs incurred by the City of Sunnyside in cutting off such service. [Ord. 1992 § 1, 1999; Ord. 1944 § 1, 1997.]

Chapter 13.16

WATER SERVICE

Sections:

13.16.010 Application for service.
13.16.020 Separate connection required for each unit.
13.16.030 Liability for meter or service location.
13.16.040 Pipe depth below ground.
13.16.050 Responsibility for leaks or damages.

13.16.010 Application for service.
All applications for water service installations and for water service shall be made at the office of the City Clerk on forms furnished by the City, which the applicant shall supplement with such information as deemed necessary by the Superintendent. All applications shall be made by the owner of the property to be served or his authorized agent, and all accounts 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 required in this section. [1956 Code § 3-501, § 601.]

13.16.020 Separate connection required for each unit.
In making all future 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 an individual consumer and shall be supplied through a separate service connection; provided, that the term “future connections” shall be deemed to include any and all connections hereinafter made or modifications to existing connections such as the installation of water meters onto domestic supply lines in those instances where such meters have not been installed. [Ord. 1946 § 1, 1997; Ord. 1277 § 1, 1980; 1956 Code § 3-501, § 602.]

13.16.030 Liability for meter or service location.
When it is necessary for the convenience of the City, or because of the installation of new water mains, or for any other reasons, 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 Department, except that the property owner reinstalls his domestic water service pipes to connect with the water main meter as relocated at his own expense. [1956 Code § 3-501, § 603.]

13.16.040 Pipe depth below ground.
All new service pipes shall be placed not less than 36 inches below the surface of the ground. [1956 Code § 3-501, § 604.]

13.16.050 Responsibility for leaks or damages.
Owners of services are responsible for all leaks or damages on account of leaks from privately owned services. Privately owned services shall be deemed to include all domestic service lines between the meter and consumer’s property and all domestic service lines lying in, on or under the consumer’s property. 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 Department whenever deemed necessary. [1956 Code § 3-501, § 605.]

Chapter 13.18

CROSS-CONNECTION CONTROL PROGRAM

Sections:

13.18.010 Authority.
13.18.020 Purpose.
13.18.030 Cross-connections regulated.
13.18.040 Application and responsibilities.
13.18.050 Costs of compliance.
13.18.060 Recovery of costs.
13.18.070 Emergency suspension of service.
13.18.080 Nonemergency suspension of service.
13.18.090 Penalties.
13.18.100 Falsifying information.
13.18.110 Constitutionality and severability.
13.18.120 Effective date.

13.18.010 Authority.
Pursuant to WAC 246-290-490, or as amended, it is the responsibility of the City of Sunnyside to protect its domestic water supply by implementing and enforcing a cross-connection control system. [Ord. 2079 § 1, 2004.]

13.18.020 Purpose.
The purpose of this chapter is to protect the water system of the City of Sunnyside from contamination or pollution due to any existing or potential cross-connections as defined in WAC 246-290-010, or as amended, this chapter and the City of Sunnyside Standard Operating Procedures Manual for Cross Connection Control, which is hereby adopted by reference and shall be administratively amended as necessary to effectively administer this program. [Ord. 2079 § 1, 2004.]

13.18.030 Cross-connections regulated.
A. No cross-connections shall be created, installed, used or maintained at any property served by the City water system, except in accordance with this chapter.

B. The City shall carry out plan reviews and/or inspections to determine if any actual or potential cross-connections exist in all new construction (regardless of type or use) as well as all nonresidential property existing prior to the effective date of this chapter that is served by the City water system. If found necessary by the City, an assembly commensurate with the degree of hazard will be required to be installed at the service connection or other appropriate location(s).

C. The City shall complete an initial survey, and periodically thereafter, of all residential properties existing prior to the effective date of this chapter served by the City water system as a means of determining if and where backflow protection is warranted and whether or not it currently exists. If found necessary by the City, an assembly commensurate with the degree of hazard will be installed at the service connection or other appropriate location(s).

D. The owner, occupant or person in control of the property is responsible for the prevention of all future cross-connections within and upon the premises. [Ord. 2079 § 1, 2004.]

13.18.040 Application and responsibilities.
This chapter applies throughout the City and to all premises and properties served by the City water system. It applies to any premises, public or private, regardless of date of connection to the City water system. Every owner, occupant and/or person in control of any such premises is responsible for compliance with the terms and provisions contained herein. [Ord. 2079 § 1, 2004.]

13.18.050 Costs of compliance.
All costs associated with the purchase, installation, inspections, testing, replacement, maintenance, parts, and repairs of backflow prevention assemblies at all nonresidential facilities served by the City water system and multifamily

residential buildings with water services larger than one inch are the financial responsibility of the property owner. All costs associated with any disconnect fees incurred or assessed pursuant to the enforcement of this chapter are the sole responsibility of the water user and/or property owner.

All costs associated with the purchase and installation of backflow prevention assemblies required at new residential properties served by the City water system, including multifamily residential buildings with one-inch or smaller water services, shall be the responsibility of the owner and shall be paid in conjunction with their water connection fee. The owner of any residential property existing prior to the effective date of this chapter who alters, modifies or improves such property's plumbing or water system in a manner that requires backflow prevention, such as installation of an underground sprinkler system, shall be responsible for the purchase and installation costs of the appropriate backflow prevention assembly.

All costs associated with inspections, testing, replacement, maintenance, parts and repairs of all backflow prevention assemblies required at residential properties served by the City water system, including multifamily residential buildings with one-inch or smaller water services, shall be the responsibility of the City. [Ord. 2079 § 1, 2004.]

13.18.060 Recovery of costs.
Any person violating any of the provisions of this chapter and any person who causes damage to or impairs the City water system, including but not limited to allowing contamination, pollution, or any other contaminating substance or used water to enter the City 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 costs 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 termination of service. [Ord. 2079 § 1, 2004.]

13.18.070 Emergency suspension of service.
The City may, without prior notice, suspend water service to any premises when such suspension is necessary to stop the imminent threat of any actual or potential cross-connection as defined in this chapter or the City of Sunnyside Standard Operating Procedures Manual for Cross Connection Control. [Ord. 2079 § 1, 2004.]

13.18.080 Nonemergency suspension of service.
The City may suspend, with 24 hours' notice, the water supply to any premises where the conditions of this chapter have been violated. [Ord. 2079 § 1, 2004.]

13.18.090 Penalties.
Any person, property owner, firm, corporation or business entity violating (A) this chapter or (B) any regulation, rule, or permit of the City issued pursuant to this chapter shall be liable to the City for civil penalty. The amount of such civil penalty shall be up to $1,000 per violation. Each continuing day's violation under this chapter shall constitute a separate offense. The penal provisions imposed under this chapter shall not preclude the City from filing suit or pursuing any other action to enjoin any violation or remedy such violation. The City retains all legal rights and remedies available to it pursuant to local, State and federal law. [Ord. 2079 § 1, 2004.]

13.18.100 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 prevention assembly, device or method required under this chapter shall (in addition to civil and/or criminal penalties provided in this chapter or State law) be guilty of a misdemeanor subject to the general penalty provisions of the Sunnyside Municipal Code. [Ord. 2079 § 1, 2004.]

13.18.110 Constitutionality and severability.
If any provision, section, sentence, clause or phrase of this chapter, or the application of the same to any person or set of circumstances are for any reason held to be unconstitutional, void, invalid or for any reason unenforceable, the validity of the remaining portions of this chapter or its application to other persons or circumstances shall not be affected thereby, it being the intent of the City's legislative body that no portion hereof or regulation contained herein shall become inoperative or fail by reason of any unconstitutionality or invalidity of any other portion, provision or regulation. [Ord. 2079 § 1, 2004.]

13.18.120 Effective date.

The effective date of this chapter shall be August 1, 2004. [Ord. 2079 § 1, 2004.]

Chapter 13.20

RATES AND CHARGES

Sections:

13.20.010 Water – Schedule of charges for service and consumption.
13.20.015 Minimum monthly rate.
13.20.020 Water – Consumption charges inside the City.
13.20.025 Intermittent service – Abandonment – Reinstatement – Fees.
13.20.030 Water – Service charge billings to be determined by meter size.
13.20.040 Water – Service rates outside City limits.
13.20.050 Reinstatement of water service after turning off for nonpayment.
13.20.060 Water – Tampering with turn-on valve prohibited – Penalty for violation.
13.20.070 Water – Multiple unit charges.
13.20.080 Water – Joint users charges.
13.20.090 Public sewer service – Schedule A – Monthly.
13.20.100 Public sewer service – Charges outside of City limits.
13.20.110 Low-income senior citizen and low-income disabled citizen special utility rates – Eligibility – Application.
13.20.120 Water system equity fees – Meter installation costs.
13.20.130 Sewer system equity fees.
13.20.140 Billings of water, sewer and garbage service.
13.20.150 Fire hydrant meters – Rental agreement – Fees.
13.20.160 Pretreatment charges and fees.
13.20.170 Severability.
13.20.180 Conflicts.

13.20.010 Water – Schedule of charges for service and consumption.
The charges for service and domestic water consumed by customers inside and outside the corporate limits of the City shall be upon the applicable schedule set forth in this chapter, effective June 1, 1983. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1399 § 1, 1983; Ord. 1252 § 2, 1980; 1956 Code § 3-501, § 701.]

13.20.015 Minimum monthly rate.
The minimum monthly rate for water service shall be the applicable meter charge as established from time to time and set forth in SMC 13.20.020. The minimum monthly charge shall include the first 300 cubic feet of water usage each month. All water usage above 300 cubic feet per month shall be charged at the consumption charge rates set forth in SMC 13.20.020. [Ord. 2015-1 § 5, 2015; Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 2108 § 1, 2005.]

13.20.020 Water – Consumption charges inside the City.
For water delivered, based upon monthly meter readings, billings shall be in accordance with the following table. The monthly rate shall be the applicable minimum monthly meter charge plus a consumption charge as stated below:

Meter Charge/Month	
Meter Size	Minimum Monthly Charge
5/8"	$16.88
3/4"	$16.88
1"	$28.13
1-1/2"	$56.27
2"	$90.03

Meter Charge/Month	
Meter Size	Minimum Monthly Charge
3"	$196.93
4"	$337.60
6"	$703.33

Consumption Charge per 100 cubic feet (CCF)	
Metered Consumption	Charge per CCF
Usage from 3.1 to 12 CCF	$1.73
Usage from 12.1 to 50 CCF	$1.26
Usage from 50.1 to 1,500 CCF	$0.86
Usage over 1,500 CCF	$0.63

In calculating water consumption, calculations shall be made in units of 100 cubic feet, with any consumption over a 100 cubic foot unit rounded up to the next nearest 100 cubic feet. Consumption charges shall be cumulative based on the usage. For example, a customer with a one-inch meter using 1,345 cubic feet (13.45 CCF, which rounds up to 14 CCF) of water would be charged as follows:

Monthly Minimum Charge =	$28.13
Charge for usage from 3.1 to 12.0 CCF = 9 x $1.73 =	$15.57
Charge for usage from 12.1 to 14 CCF = 2 x $1.26 =	$2.52
Total Monthly Rate =	$46.22

Tank water shall be sold at the price of $1.40 per 250 gallons.

No charge shall be made for water delivered to fire sprinkler systems for firefighting purposes; however, the entire installation of a separate service connection including necessary valves and detector equipment, all as deemed required by the Director, shall be made by the City and the full cost of this work shall be borne by the owner or owners of the property so served. [Ord. 2015-1 § 5, 2015; Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 2108 § 1, 2005; Ord. 2071 § 2, 2004; Ord. 2063 § 1, 2003; Ord. 1942 § 2, 1997; Ord. 1930 § 2, 1996; Ord. 1839 § 2, 1993; Ord. 1714 §§ 4, 5, 6, 1990; Ord. 1578 § 2, 1986; Ord. 1399 § 3, 1983; Ord. 1357 § 3, 1982; Ord. 1252 § 2, 1980; 1956 Code § 3-501, § 701. Formerly 13.20.030.]

13.20.025 Intermittent service – Abandonment – Reinstatement – Fees.

A. Intermittent Service – Fees. Property owners may request to have their water and/or sewer service turned off for intermittent periods. Any property owner so requesting such temporary termination of service, except for needed repairs to be made during normal City business hours, shall complete and sign an application provided by the City Clerk and shall pay a turn-off/turn-on fee in the amount of $30.00. It is further provided, that the utility charges against said property must be paid current to receive such intermittent turn-off and turn-on.

B. Abandonment of Utility Service. In the event sewer and/or water service is shut off for nonpayment of delinquent utility charges, and the property owner has failed to pay in full all accrued water and/or service charges for a period of one year after such shut-off, the City may declare such water service and/or sewer service abandoned in accordance with the following procedure. To declare abandonment of any service, the City shall mail, by certified mail, return receipt requested, or personally deliver to the property owner a notice of proposed abandonment. Such notice shall state that, unless all accrued unpaid service charges are paid in full within 30 days of the date of such notice, the City

shall declare such service abandoned and cause notice of abandonment to be filed and recorded against such property in the Yakima County Auditor's Office. If the owner of the property intentionally abandons such services and delivers written notice thereof to the City, the City shall thereupon file and record a notice of abandonment with the Yakima County Auditor's Office. Abandonment of such service shall be deemed effective upon such filing and recording with the Yakima County Auditor's Office. Upon abandonment, the City may remove any utility service meters or fixtures serving the property.

C. Reinstatement of Service after Abandonment. If any person desires to reinstate any utility service which has been abandoned pursuant to this section, such request shall be deemed a request for new sewer and/or water utility service installation and hookup. Prior to such reinstatement of service, the person requesting such reinstatement shall first pay in full all applicable hookup and connection charges then current pursuant to this chapter, including costs and charges for new service meter and fixtures regardless of whether or not such meter and fixtures have previously been removed by the City and excluding any applicable equity fee defined in SMC 13.20.120 and 13.20.130, as said sections exist or are hereinafter amended. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1989 § 1, 1999; Ord. 1902 § 1, 1995; Ord. 1839 § 3, 1993; Ord. 1714 §§ 7, 8, 9, 1990; Ord. 1594 § 1, 1987. Formerly 13.20.035.]

13.20.030 Water – Service charge billings to be determined by meter size.
Billings for the service charge shall be determined by the meter size deemed by the Director as necessary to efficiently meter water delivered to the water customer. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1252 § 2, 1980; 1956 Code § 3-501, § 701. Formerly 13.20.040.]

13.20.040 Water – Service rates outside City limits.
Water service outside the City corporate limits shall be furnished where approved by an outside utility agreement at a rate of one and one-half times that stipulated for inside the City corporate limits. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1252 § 2, 1980; 1956 Code § 3-501, § 701. Formerly 13.20.050.]

13.20.050 Reinstatement of water service after turning off for nonpayment.
In addition to the late fee penalty assessed pursuant to SMC 13.20.140, the property owner shall be required to pay in full all accrued and unpaid amounts due and owing on said utility account prior to reinstatement of utility service, plus a fee in the amount of $20.00 for turn-off/turn-on of the utility service. The fee for utility turn-off/turn-on may be adjusted annually by the City Manager to reflect adjustments or changes in maintenance and operations costs of the water utility; provided, however, that no annual increase shall exceed six percent without prior approval of the City Council. In the event such rate is modified, the City Manager shall post the new rate at the offices of City Hall and may distribute or publish such new rate as deemed appropriate to advise the public. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 2136 § 1, 2006; Ord. 2108 § 2, 2005; Ord. 1990 § 1, 1999; Ord. 1252 § 2, 1980; 1956 Code § 3-501, § 701. Formerly 13.20.060.]

13.20.060 Water – Tampering with turn-on valve prohibited – Penalty for violation.
No person shall be permitted to tamper with the water turn-on valve. Any person found guilty of violating this provision shall be deemed guilty of a misdemeanor. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1510 § 1, 1985; Ord. 1252 § 2, 1980; 1956 Code § 3-501, § 701. Formerly 13.20.070.]

13.20.070 Water – Multiple unit charges.
A. General. Except as provided in subsection (C) of this section, in the case of hospitals, apartments, cabins, hotels and business houses, where such units are so situated on property that the individual unit cannot lawfully be deeded as separate property, such units shall be classified as multiple units and are not to be considered as individual units. Also included in this classification of multiple unit shall be the Sunnyside Housing Authority situated on lands owned by said Authority, where water mains within such housing project have been installed and are maintained by said Authority or its predecessor.

B. Multiple Unit Charges. Charges for such multiple unit customers listed above shall be billed to one applicant for the entire unit and consist of a service charge for the applicable meter size serving the overall unit, as shown on the schedule in SMC 13.20.020, plus a charge for water delivered.

C. Manufactured Home Parks.

1. New Manufactured Home Parks. Each manufactured home park constructed after January 31, 2005, shall include separate individual water, sewer and utility service connections for each manufactured home or other residential unit or structure within the park, all pursuant to SMC 16.12.190, Utilities (for mobile home parks). Utility billings shall be sent to the resident or tenant of each manufactured home or other residential unit in the park unless the owner of the park requests in writing that such billing or billings be tendered to such 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. Billings for water provided through meters installed by the owner of the park for purposes of providing water to playgrounds, parks, landscape areas or other areas intended for the benefit of park residents or the public shall be sent to the owner of such park for payment.

2. Existing Manufactured Home Parks. Each manufactured home park existing as of February 1, 2005, shall have the option to maintain the existing billing procedures authorized pursuant to subsection (B) of this section or to install separate individual meters and utility connections serving each manufactured home or other unit within the park. If the latter option is implemented, the manufactured home park shall be governed by subsection (C)(1) of this section and the provisions of SMC 16.12.190, including but not limited to the following procedures: The City shall provide for or perform water meter reading for such meters installed. The resident of the manufactured home or other residential unit in the park shall be directly responsible for payment of the water and other utility charges (utility bill) unless the owner of the manufactured home or other residential unit specifically in writing requests such billing be made to the owner of such manufactured home or other residential unit. The City shall bill the owner and/or resident of such manufactured home or other residential unit served by the utility connection in accordance with the billing rates, schedule and procedures of the City. Billings for water provided through any meters serving playgrounds, parks, landscape areas or other areas intended for use by park residents or the public shall be sent to the owner of the park for payment. The City shall also read the master meter serving the park. Billing for any City water flowing through such master meter in excess of the water accounted through the total water flowing through the individual meters in any billing cycle shall be delivered to, and paid by, the owner of the park. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 2096 § 2, 2005; Ord. 1252 § 2, 1980; 1956 Code § 3-501, § 701. Formerly 13.20.080.]

13.20.080 Water – Joint users charges.
Where two or more individual-unit customers are served by a single meter, and such service has been authorized in view of special considerations by the Director, water bills shall be computed separately for each such individual unit as follows:

A. A monthly service charge, consisting of the meter charge and the consumption charge, shall be made for each individual unit based upon the meter size deemed by the Director as necessary to efficiently meter water delivered to the individual unit as if that individual unit were independently connected to the water system.

B. A minimum of 300 cubic feet of water shall be allotted to each individual unit and included in the minimum meter charge.

C. Any excess water usage exceeding the aggregate of a 300-cubic-foot minimum times the number of individual units shall be divided equally to each individual customer and billed in accordance with the applicable rate schedule set forth in SMC 13.20.020.

D. The billing shall be tabulated as described above and the totaled amount billed to the one applicant responsible for the joint users serviced from a single meter; and, in all such cases, all such individual users shall be jointly and severally liable for the excess of water used above such minimum amount and be jointly affected by any prohibition herein as to use by others and, in case of delinquency of one such joint user, the City shall have the same remedy as though all such joint users were delinquent. [Ord. 2015-1 § 5, 2015; Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1252 § 2, 1980; 1956 Code § 3-501, § 701. Formerly 13.20.090.]

13.20.090 Public sewer service – Schedule A – Monthly.
The charge for public sewer service to locations within the City limits shall be upon the applicable following schedule; provided, that in the event billings are made in alternate months, the following charges are to be doubled:

A. Charges for sewer services shall be based upon monthly water readings, except as otherwise provided in this section. The monthly sewer billings shall be in accordance with the following table:

Water Consumption/ Cubic Feet	Monthly Charges
EFFECTIVE JANUARY 1, 2010:	
Minimum Charge (first 300 cubic feet)	$40.65
301 cubic feet to 10,000 cubic feet	$3.61 per 100 cubic feet
Over 10,000 cubic feet	$2.50 per 100 cubic feet

B. All customers whose water consumption would be affected by the use of water for irrigation purposes shall be charged an average monthly sewer rate, for the months of March through November, based upon the monthly average for water consumption readings for the preceding months of December through February, according to the rates set forth in subsection (A) of this section.

C. Those customers who do not receive City domestic water service but who receive City sewer service, so that a discharge rate cannot be determined from water consumption, shall pay a flat rate of $38.77 per month. Effective January 1, 2009, such flat rate shall be $46.52; and effective January 1, 2010, such flat rate shall be $51.17. Larger dischargers will be required to install a flow meter to determine sewer charges.

D. Commercial/Industrial Users. All commercial customers and processing plant water users, whether minor or significant, whose waste discharge contains a BOD (biochemical oxygen demand) strength not to exceed 300 milligrams per liter shall pay the following monthly sewer charges:

1. Minimum charge (first 300 cubic feet of water consumption per month):

Effective January 1, 2010: $40.65

2. Charge for 301 cubic feet to 10,000 cubic feet water consumption per month:

Effective January 1, 2010: $3.61 per 100 cubic feet

3. Charge for over 10,000 cubic feet water consumption per month:

Effective January 1, 2010: $2.50 per 100 cubic feet

BOD tests may be conducted by the City at any time, and the customer shall cooperate with the City in scheduling and providing for such tests. Waste discharge that exceeds 300 mg/l of BOD and/or TSS shall incur fees that are mathematically adjusted to coincide with the above-listed rates.

E. Customers who have their water turned off for intermittent periods, with no water consumption being reflected in their monthly readings, shall pay a minimum sewer charge of $15.00 per month. It is provided, however, that in order for a customer to receive this reduced minimum sewer rate where water service is temporarily terminated, the water must be turned off during the entire billing period. Otherwise, the customer shall pay the rate as would otherwise apply. For the purposes of this subsection, “billing period” means the time from the last water meter reading to the current water meter reading.

F. Industrial users may be billed for sewer service on the basis of the measured discharge flows rather than water usage. Where water consumption cannot be reasonably used to determine sanitary sewer discharge in manufacturing plants and food processing plants, an estimate of the average number of employees shall be provided to the City and a charge be made calculated as follows, based on the minimum monthly fee plus a monthly fee per employee:

Minimum Monthly Charge:

Effective January 1, 2010: $48.47

Additional Monthly Fee per Employee:

Effective January 1, 2010: $3.54 per employee

After the initial determination, a new determination of employee numbers and corresponding monthly sewer charge shall be made annually, based upon the previous average annual employment level.

G. Where the code requires either a grease trap or a sedimentation trap, there shall be added to the monthly sewer bill a surcharge of $24.52. [Ord. 2010-8 § 1, 2010; Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 2131 § 1, 2006; Ord. 2071 § 3, 2004; Ord. 2063 § 1, 2003; Ord. 1989 § 3, 1999; Ord. 1839 § 4, 1993; Ord. 1714 §§ 10, 11, 12, 1990; Ord. 1594 § 1, 1987; Ord. 1514 § 1, 1985; Ord. 1479 § 1, 1984; Ord. 1468 § 1, 1984; Ord. 1399 § 4, 1983; Ord. 1357 § 4, 1982; Ord. 1261 §§ 1 – 4, 1980; Ord. 1252 § 3, 1980; 1956 Code § 3-501, § 702. Formerly 13.20.100.]

13.20.100 Public sewer service – Charges outside of City limits.
The monthly charges for sewer service to property located outside of the corporate limits of the City, served in whole or in part by public sewer, shall be according to the schedule provided in SMC 13.20.090, increased by 25 percent. It is provided, however, that the rate for qualified low-income senior citizen residents receiving sewer services to property outside of the City limits shall not be increased by said 25 percent. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1594 § 2, 1987; Ord. 1252 § 3, 1980; 1956 Code § 3-501, § 702. Formerly 13.20.110.]

13.20.110 Low-income senior citizen and low-income disabled citizen special utility rates – Eligibility – Application.
A. Minimum Age – Senior Citizen. A person who wishes to apply for the low-income senior citizen special utility rate must be 62 years of age or older on or before the thirty-first of January of the year of his or her application. Proof of age must be presented at the time of application.

B. Proof of Disability – Disabled Citizen. A person who wishes to apply for the low-income disabled citizen special utility rate must qualify for and be entitled to receive special parking privileges established pursuant to RCW 46.16.381(1)(a) through (f), or be blind as defined in RCW 74.18.020(4). Proof of such disability must be presented at the time of application.

C. Utility Account. At the time of the application, the person making the application must reside on the property being served and the utility account must be in the applicant's name. Persons in federally subsidized housing are not eligible for low-income senior citizen and low-income disabled citizen special utility rates.

D. Low Income. A person who wishes to apply for a low-income senior citizen or low-income disabled citizen special utility rate, in addition to the above, must qualify for and be entitled to the exemption from regular real property taxes as set forth in RCW 84.36.381(5)(b)(i) or (ii). Proof of such exemption must be presented at the time of application. Appropriate tax statements issued by Yakima County establishing such exemption shall be satisfactory proof of eligibility for the special utility rate.

E. Application and Processing. The City Manager of the City shall be authorized and empowered to implement the procedures for application and processing of requests for low-income senior citizen and low-income disabled citizen special utility rates and to adjust the discount rate as set forth in subsection (F) of this section. The application for low-income senior citizen or low-income disabled citizen special utility rate must be filed annually with the City Finance Department prior to the thirty-first of March of each year and, if approved, shall be effective for the year of application until the following thirty-first of March. Any filing of an application after the thirty-first of March of any year shall apply only to utility accounts mailed after the date of filing and shall not be applied retroactively.

F. Discount Rate. The low-income senior citizen and low-income disabled citizen special utility rate shall consist of the applicable water and sewer rates set forth above adjusted and reduced by the following amounts:

Effective January 1, 2010*

Water – $6.06 reduction (base rate)

Sewer – $12.15 reduction (base rate)

* The amounts of the discounts are subject to revision by the City Manager in accordance with future adjustments to the water and sewer rates. Such adjustments may be made from time to time based upon percentage increases or decreases of the water and/or sewer rates.

The amount of reductions shall be deducted from the utility bills otherwise payable by the qualified low-income senior citizen or low-income disabled citizen. [Ord. 2010-9 § 1, 2010; Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 2110 § 1, 2005; Ord. 2016 § 1, 2000; Ord. 1714 § 13, 1990. Formerly 13.20.120.]

13.20.120 Water system equity fees – Meter installation costs.

A. Definitions. For the purpose of this section, the following definitions apply:

1. "Residential" means any building or structure designed for occupancy by one or more families.

2. "Commercial" means retail and wholesale business for home, farm, construction, business, food and auto-related purchases, including but not limited to those uses of property described in SMC 17.36.020, 17.40.020, and 17.44.020, and for purposes of this section includes churches.

3. "Industrial" means those buildings and facilities used for major manufacturing, assembly and processing plants; small manufacturing, processing, assembly or storage facilities, including but not limited to those uses described in SMC 17.56.020 and 17.60.020.

B. Water System Equity Fees. A water system equity fee intended to provide the customer an equitable "buy-in" to the existing water system shall be paid to the City by persons, firms, companies, associations, organizations or other customers at the time of the application for connection to the City's water system as follows:

1. Residential. The water system equity fee for residential connections shall be as follows:

Meter Size	Water System Equity Fee
3/4"	$450.00
1"	$500.00
1-1/2"	$500.00
2"	$500.00

For connections involving meters larger than two inches, the water system equity fee shall be as determined in subsection (B)(2) of this section.

2. Commercial and Industrial Water System Equity Fees. The water system equity fees for commercial and industrial connections shall be the larger of (a) $500.00; (b) $0.05 per square feet of the building or structure to which the water connection is being made; or (c) $3.00 per gallon of demand, based upon the size of the water meter.

C. Water Meter Installation Fee. In addition to the water system equity fee, the applicant for water service from the City of Sunnyside shall pay a water meter installation connection charge, intended to cover the cost to the City of Sunnyside for installation of water lines, meters and other facilities to provide water service to the applicant's property, as follows:

Meter Size	Meter Installation Costs
3/4"	$750.00
1"	$845.00

Meter Size	Meter Installation Costs
1-1/2"	$1,500.00
2"	$2,500.00

The meter installation costs for water services involving meters larger than two inches shall be the actual, itemized costs incurred by the City's Public Works Department.

D. Adjustment of Fees.

1. Annual Review by City Council. The schedule of water system equity fees and meter installation fees set forth above may be reviewed annually by the City Council to determine if the rates need adjustments. For the purpose of such adjustments, the City Council may use the Engineering News-Record Construction Cost Index for Seattle published by McGraw-Hill, or any other additional information which may give actual costs of construction in the area of Sunnyside.

2. Adjustment of Meter Installation Fees by Public Works Director. Notwithstanding the above, the Public Works Director may reduce the meter installation fee described in subsection (C) of this section by any amount deemed appropriate by the Public Works Director, in any case for which the Public Works Director determines that such reduction is equitable. In making any determination to reduce the applicable meter installation fee in any particular case, the Public Works Director shall consider the following factors:

a. The amount and cost of water meter installation work performed, or to be performed, by the applicant;

b. The amount of work and cost of any water meter installation work to be performed by the City; and

c. Any other factor deemed reasonable and appropriate by the Public Works Director.

Reduction of the water meter installation fee in any particular case or application shall not constitute a waiver of the City's right to impose and require the full water meter installation fee for any other connection to the City's water system. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1837 § 1, 1993; Ord. 1750 § 1, 1991; Ord. 1733 § 1, 1991; Ord. 1509 § 1, 1985; Ord. 1322 § 1, 1981; Ord. 1309 §§ 1, 2, 1981; Ord. 1252 § 2, 1981; 1956 Code § 3-501, § 705. Formerly 13.20.130.]

13.20.130 Sewer system equity fees.
Sewer connection equity fees shall be charged according to the following schedule for connecting to the City's sanitary sewer:

A. Definitions. For the purposes of this section, the following definitions apply:

1. "Single-family" residential dwelling unit means a detached building designed for occupancy by one family.

2. "Duplex" means a detached building designed for occupancy exclusively by two families living independently of each other.

3. "Multiple dwelling unit" means a building or portion thereof designed as a residence for three or more families living independently of each other.

4. "Apartment house" means a building or portion thereof used or intended to be used as a home by three or more families or householders living independently of each other, in separate apartments, and containing three or more dwelling units.

5. "Mobile home park" means any tract of land used or designated to accommodate two or more automobile trailers or mobile homes.

6. “Commercial” means large-site retail and wholesale business such as shopping centers for home, farm, construction, business, food and auto-related purchases, including but not limited to those uses of property described in SMC 17.36.020, 17.40.020 and 17.44.020 and, for purposes of this section, includes churches.

7. “Industrial” means those buildings and facilities used for major manufacturing, assembly and processing plants; small manufacturing, processing, assembly or storage facilities, including but not limited to those uses described in SMC 17.56.020 and 17.60.020.

8. “Domestic wastewater” means water carrying human wastes, including kitchen, bath and laundry wastes, from residences, buildings, industrial establishments or other places.

9. “Industrial wastewater” means water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These waters may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feedlots, poultry houses or dairies. The term includes contaminated storm water and also leachate from solid waste facilities.

B. Equity Fee Schedule.

1. Residential.

a. Single-family residential dwelling unit: $400.00.

b. Duplex and multidwelling unit, apartment house, mobile home park: $450.00 basic equity fee plus $0.08 per square foot of residential living space.

2. Commercial. Four hundred fifty dollars basic equity fee plus $0.05 per square foot of building floor space. Increases in building floor space shall result in an additional charge of $0.05 per square foot for the additional building floor space.

3. Industrial. Four hundred fifty dollars basic equity fee plus $0.10 per square foot of the building or structure to which the sewer connection is being made. Increases in building floor space shall result in an additional charge of $0.10 per square foot for the additional building floor space.

C. Additional Connection Fee for Industrial and Commercial Connections. If the flow of industrial wastewater and domestic wastewater from a commercial or industrial connection is estimated to be over 50,000 cubic feet per day, an additional connection fee shall be charged for each 10,000 cubic feet per day in excess of the 50,000 cubic feet per day. The additional connection fee shall be $0.10 per square foot of building floor space for each 10,000 cubic feet per day in excess of the 50,000 cubic feet per day; provided, that if the commercial or industrial buildings and facilities are to be connected to the sewer system and wastewater treatment facilities of the Port of Sunnyside, the additional connection fee described herein shall be waived, and the commercial or industrial connection shall be computed using the equity fee schedule for “commercial” described above. All persons, corporations, businesses and entities seeking commercial or industrial connection to the City sewerage system shall comply with all applicable wastewater discharge and permit requirements of Chapter 173-216 WAC.

D. Annual Review of Fees. The above schedule of charges may be reviewed annually for inflation, and adjusted, if necessary, to maintain an equitable fee structure. For the purpose of this adjustment, the City Council may use the Engineering News-Record Construction Cost Index for Seattle, as published by McGraw-Hill. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1794 § 1, 1992; Ord. 1627 § 1, 1988; Ord. 1509 § 1, 1985. Formerly 13.20.140.]

13.20.140 Billings of water, sewer and garbage service.

The monthly charge for water, sewer and garbage service shall be billed to the owner of record or purchaser of record of the serviced property, who shall be responsible for the payment thereof. It shall be the duty of each owner or purchaser of said serviced property to maintain said charges in a current paid condition.

In addition to other remedies available to the City for collection of its charges and enforcement of its liens for water, sewer and garbage services, the City shall charge a penalty on the unpaid balance of delinquent water, sewer and

garbage accounts at the rate of $10.00, which shall be imposed in the following manner: The due date for water, sewer and garbage accounts is 6:00 p.m. on the twentieth day of each month, and unpaid accounts become delinquent thereafter. If payment is not received on or before 6:00 p.m. on the twentieth day of such month, the late payment shall be charged on the unpaid balance of the delinquent account until the total of such charges and penalty have been paid in full. In the event of suit by the City to collect said charges and penalty, the Court shall award the City its reasonable attorneys' fees and costs incurred thereby, together with interest at the rate of 12 percent per annum on the unpaid balance of said account charges and penalties.

Billing invoices for such accounts shall include a statement substantially conforming to the following:

> Bills are due and payable by 6:00 p.m. on the 20th day of each month and become delinquent thereafter and shall be assessed a late payment penalty of $10.00 if not paid by 6:00 p.m. on the 20th day of such month.

[Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 2136 § 2, 2006; Ord. 2108 § 3, 2005; Ord. 2017 § 1, 2000; Ord. 1992 § 1, 1999; Ord. 1990 § 2, 1999; Ord. 1509 § 4, 1985. Formerly 13.20.150.]

13.20.150 Fire hydrant meters – Rental agreement – Fees.

A. General. The Department of Public Works may enter into rental agreements for use of the City's fire hydrant meters, to be used by the renter to assist in any construction project or other project approved by the City, subject to the conditions provided below.

B. Hydrant Meter Rental Agreement – Terms and Conditions. Any person desiring to rent any available fire hydrant meter shall sign a written hydrant meter rental agreement. The hydrant meter rental agreement shall provide that the meter assembly shall be used as per instructions to measure all water used, that all water used and daily rental fees shall be billed to the user on a monthly basis and such fee shall not be prorated for periods less than one-month increments. Water will be billed at the current City water usage rate. All deposits paid by the user will be retained until all bills are paid in full and the meter is returned to the City in proper working condition. Such agreement shall further provide that only City personnel are authorized to make any adjustments, repairs or modifications to the meter assembly. If the assembly is lost, damaged or altered by the user, the user shall be responsible for any necessary repair or replacement costs, which shall be deducted from the deposit. The contractor shall notify the Public Works Department upon completion of the project to retrieve the meter for final billing.

The hydrant meter rental agreement shall also require other information deemed necessary and appropriate by the Department of Public Works in order to facilitate the rentals of such hydrant meters.

C. Fees. The following fees shall be charged for any hydrant meter rental agreement. All fees will be adjusted annually based upon the consumer price index:

FEE SCHEDULE

Set-Up Fee	$100.00
Rental (3/4")	$1.50 per day
(3")	$2.50 per day
Deposit (3/4")	$250.00
(3")	$800.00
Backflow Device	$150.00

[Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 2134 § 1, 2006; Ord. 1992 § 1, 1999; Ord. 1944 § 1, 1997; Ord. 1855 § 1, 1994. Formerly 13.20.160.]

13.20.160 Pretreatment charges and fees.
The City may adopt reasonable fees for reimbursement of costs of setting up and operating the City's pretreatment program, which may include:

A. Fees for industrial user discharge contract applications including the cost of processing such applications.

B. Fees for monitoring, inspection and surveillance procedures including the cost of collection and analyzing a user's discharge and reviewing monitoring reports submitted by users.

C. Fees for reviewing and responding to accidental discharge procedures and construction.

D. Fees for filing appeals.

E. Other fees as the City may deem necessary to carry out the requirements contained herein. These fees relate solely to the matters covered by this program and are separate from all other fees, fines and penalties chargeable by the City.

F. Contract Fees. Contracted significant industrial users shall be charged $200.00 per year.

G. Sampling Fees. The expenses for annual sample analysis required by the industrial user discharge contract will be charged to the user based on current outside analytical lab fees. Any user establishing a pattern for noncompliance, or having a history of noncompliance, or suspected of being in noncompliance, may require additional monitoring visits as deemed appropriate by the City. Any additional analysis performed which detects noncompliance will be billed directly to the user.

H. A discharge authorization shall be $250.00 for a one-time batch discharge.

I. Contract transfer fee: $250.00.

J. Contract modification fee: $250.00. Contract modification fees will only be charged in a case where changes in the user's operation require the modification or when the user requests a modification.

K. High Strength Waste Fees. Users having effluent concentrations of BOD in excess of 300 mg/l and/or TSS in excess of 300 mg/l, and/or FOG concentrations in excess of 100 mg/l, may be billed a high strength waste surcharge. Surcharge rates will be established by the City and based on cost of conveyance and treatment in the POTW. All fees or charges will be collected by direct billing. Unless the City has been made aware of extenuating circumstances that would prevent prompt payment, all fees are payable within 30 days of the billing. Fees past due will be considered a violation of this chapter. Users not paying fees within 60 days of the billing period will be subject to termination of service. The City may change existing or adopt new fees. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1992 § 1, 1999. Formerly 13.20.170.]

13.20.170 Severability.
If any provision of the program is invalidated by any court of competent jurisdiction, the remaining provisions shall not be affected and shall continue in full force and effect. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1992 § 1, 1999. Formerly 13.20.180.]

13.20.180 Conflicts.
All other ordinances and parts of other ordinances inconsistent or conflicting with any part of the program are hereby repealed to the extent of the inconsistency or conflict. [Ord. 2009-24 § 1 (Exh. A), 2009; Ord. 2205 § 1, 2008; Ord. 2181 § 1, 2007; Ord. 1992 § 1, 1999. Formerly 13.20.190.]

Chapter 13.24

REIMBURSEMENT AGREEMENTS FOR UTILITY IMPROVEMENTS

Sections:

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13.24.030 Minimum project size.
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13.24.050 City Manager's determination – Review by City Council.
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13.24.120 Collection of reimbursement fees – No liability for failure to collect.
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13.24.010 Purpose.

The purpose of this chapter is to prescribe rules and regulations for exercise of the authority to enter into utility reimbursement agreements granted to the City by Chapter 35.91 RCW. [Ord. 1799 § 1, 1992.]

13.24.020 Definitions.

As used in this chapter, the terms listed below shall be defined as follows:

A. "Reimbursement agreement" means a written contract between the City and one or more property owners providing for construction of water or sewer facilities and for partial reimbursement to the party causing such improvements to be made of a portion of the costs of such improvements by owners of property benefited by the improvements, as more specifically described in Chapter 35.91 RCW.

B. "Water or sewer facilities" shall have the meaning specified in RCW 35.91.020 as it now reads or as hereafter amended.

C. "Cost of construction" shall mean those costs incurred for design, acquisition of right-of-way and/or easement, construction, materials and installation required in order to create an improvement which complies with City standards. In the event of a disagreement between the City and the applicant concerning the cost of the improvement the City Manager's determination shall be final.

D. "City Manager" shall mean the City Manager of the City of Sunnyside or his or her designated representative. [Ord. 1799 § 1, 1992.]

13.24.030 Minimum project size.

In order to be eligible for a reimbursement agreement, the estimated cost of the proposed improvement must not be less than $3,500. [Ord. 1799 § 1, 1992.]

13.24.040 Application.

An application for reimbursement agreement shall be submitted to the City at least 90 days prior to planned construction of the sewer or water facilities. The application for reimbursement agreement shall be on a form provided by the City. The application fee for a reimbursement agreement shall be $500.00, which shall be submitted to the City with the written application and shall be accompanied by:

A. Preliminary utility design drawings showing the location and design of the water or sewer facilities;

B. Itemized statement of estimated construction costs prepared, signed and sealed by a licensed civil engineer or in the form of a bid submitted by a qualified contractor (if more than one bid has been obtained, all bids must be submitted to the City);

C. Such other information as the City Manager or his or her designee determines is necessary to properly review the application. [Ord. 1799 § 1, 1992.]

13.24.050 City Manager's determination – Review by City Council.
The City Manager shall review all applications and shall make recommendation that preliminary approval be granted by the City Council only if the following requirements are met:

A. The project satisfies the minimum size requirements set forth in SMC 13.24.030.

B. The proposed improvements fall within the description of "water or sewer facilities" as those terms are described and defined in Chapter 35.91 RCW.

C. The application submitted is complete and the application fee has been paid.

D. The proposed reimbursement agreement is in the best interest of the City and its residents;

E. The applicant seeking the reimbursement agreement is the proper party to receive such reimbursement.

F. The person seeking a reimbursement agreement agrees, in writing, to convey, dedicate and deliver the completed water or sewer facilities to the City upon final completion of construction, subject to City inspection, approval and final acceptance; and the person seeking the reimbursement agreement agrees, in writing, to acquire, dedicate and convey to the City all easements and rights-of-way appurtenant to said water or sewer facilities deemed necessary and appropriate by the City, which conveyance, dedication and delivery to the City shall be in writing by deed or other written instrument deemed appropriate by the City; and the person seeking the reimbursement agreement agrees, in writing, to provide "as-built" record drawings satisfactory to the City of the completed water or sewer facilities.

In the event any of the above criteria are not satisfied, the City Manager may condition the recommendation to the City Council as necessary in order for the application to conform to such criteria or shall deny the application. In the event an application is denied, the applicant may obtain a review of the final determination by filing a request therefor with the City Clerk no later than 10 days after a copy of the final determination is mailed to the applicant at the address listed on the application. In reviewing any final determination of the City Manager denying the application, the City Council shall apply the criteria set forth above and shall uphold the decision of the City Manager unless evidence presented by the applicant clearly demonstrates that the criteria had been satisfied. [Ord. 1799 § 1, 1992.]

13.24.060 Determination of reimbursement area boundary and preliminary reimbursement fee.
In the case of all applications which are recommended by the City Manager for a preliminary approval by the City Council, the City Manager shall define the reimbursement area based upon a determination of which parcels did not contribute to the original cost of the water or sewer facility for which the reimbursement agreement applies, and which may subsequently tap into or use the same, including not only those which may connect directly thereto but also those who may connect two laterals or branches connecting thereto. An estimated amount of the reimbursement fee shall be established so that each party will pay a share of the cost of the improvements, which is proportional to the benefits which accrue to the property. In determining the proportional share of the costs of the improvements to be paid by each party, the City may use any method deemed appropriate, including, but not limited to, the front footage of the property or the square footage of the property. [Ord. 1799 § 1, 1992.]

13.24.070 Interest – When authorized – Accrual.
A. Interest charges may be included in a reimbursement agreement, subject to City Council approval, if the City Manager finds the following criteria satisfied:

1. The person seeking a reimbursement agreement has submitted an application requesting inclusion of interest in the reimbursement agreement; and

2. The person seeking a reimbursement agreement has incurred interest charges in financing the cost of construction of the water or sewer facilities, which interest charges shall not be recouped by the developer in the sale of the development and/or properties benefited by installation of the water or sewer facilities; and

3. The inclusion of interest charges in the reimbursement agreement is otherwise fair and equitable.

B. The City Manager shall review all requests for inclusion of interest charges and shall make recommendation that preliminary approval be granted to the City Council in accordance with the procedures in SMC 13.24.050, if the requirements of subsection (A) of this section are met.

In the event the City Manager determines the requirements of subsection (A) of this section are not met, the City Manager may condition the recommendation to the City Council as necessary in order for the application to conform to such criteria or shall deny the request for inclusion of interest charges. In the event the request for inclusion of interest charges is denied, the applicant may obtain review of the final determination by filing a request therefor with the City Clerk no later than 10 days after mailing a copy of the final determination to the applicant at the address listed on the application. The City Council shall review the City Manager's determination in accordance with the provisions of SMC 13.24.050 and/or 13.24.080, as applicable.

C. If the inclusion of interest charges is approved by the City Council pursuant to SMC 13.24.080, such charges shall be deemed included in the proportionate reimbursement fee to be borne by each property within the reimbursement area boundary.

D. The interest rate to be included within any reimbursement agreement shall be six percent, per annum; provided, that interest shall not begin to accrue until two years after the date the reimbursement agreement is executed pursuant to SMC 13.24.110.

E. Accrued interest shall not exceed 50 percent of the proportionate share of construction costs borne by each property within the reimbursement area boundary. [Ord. 1799 § 1, 1992.]

13.24.080 Preliminary approval by City Council.

A. Upon recommendation of approval of the application, determination of the estimated costs of construction, request for inclusion of interest charges, the reimbursement area and fees by the City Manager, the application and supporting documentation shall be submitted to the City Council for preliminary approval. The City Council shall thereupon set at least one public hearing to determine whether or not preliminary approval should be granted, and shall cause appropriate notice of the public hearing to be published, and shall cause written notification by letter to be sent to each property owner included within the reimbursement boundary area proposed to pay a share of the costs of the improvements.

B. After public hearing, and after consideration of the application, supporting documentation, City Manager's recommendation, and testimony presented at the public hearing, the Council shall grant preliminary approval for a reimbursement agreement, deny the application for reimbursement agreement, or condition or modify preliminary approval as the City Council determines appropriate. The City Council may set further public hearing or hearings as it deems necessary or appropriate prior to making a determination regarding the application.

C. If preliminary approval is granted, such preliminary approval shall constitute, subject to any modification or condition imposed by the City Council:

1. Acceptance and approval of the application for reimbursement agreement;

2. Approval of the reimbursement area boundary;

3. Approval of the proportionate share of construction costs to be borne by each property within the reimbursement area boundary, expressed as a percentage of the final construction costs;

4. Approval of inclusion of interest charges, if granted by the City Council. [Ord. 1799 § 1, 1992.]

13.24.090 Construction project – Acceptance by City.

A. Upon final completion of construction of the water or sewer facility, the person seeking a reimbursement agreement shall convey, dedicate and deliver the completed water or sewer facility to the City, subject to City instruction, approval and final acceptance. The person seeking the reimbursement agreement shall also acquire, dedicate and convey to the City all easements and rights-of-way appurtenant to said water or sewer facilities deemed necessary and appropriate by the City, which conveyance, dedication and delivery shall be in writing by deed or other written instrument deemed appropriate by the City. The person seeking a reimbursement agreement shall also provide to the City "as-built" record drawings satisfactory to the City of the completed water or sewer facilities.

B. Upon final completion of construction, dedication and conveyance to the City of the completed water or sewer facilities, together with necessary easements and rights-of-way and "as-built" record drawings of the completed water or sewer facilities, and upon acceptance of the completed facilities, easements and rights-of-way and "as-built" record drawings, the City Manager shall recommend to the City Council final approval and execution of a reimbursement agreement.

C. Prior to submission of recommendation by the City Manager for final approval, the person seeking the reimbursement agreement shall submit an itemized statement of actual construction costs prepared, signed and sealed by a licensed civil engineer or by affidavit of the applicant. The City Manager shall forward the itemized statement of actual construction costs to the City Council with the recommendation for final approval and execution of a reimbursement agreement. The City Manager shall also submit to the City Council a designation of actual amounts of the reimbursement fee to be assigned to each property within the reimbursement area boundary, so that each property will pay a share of the costs of the improvements which is proportional to the benefits which accrue to the property. [Ord. 1799 § 1, 1992.]

13.24.100 Final approval by City Council.

A. Upon receipt of the City Manager's recommendation for final approval of a reimbursement agreement, together with supporting documentation and assignment of proportional reimbursement fees to the subject properties within the reimbursement area boundary, the City Council shall approve and authorize a written reimbursement agreement, subject to such conditions deemed necessary or appropriate by the City Council.

B. In the event that costs incurred by the City for engineering or other professional consultant services required in processing the application exceed the amount of the application fee, the City Manager shall so advise the City Council and Council approval shall be conditioned upon receipt of payment by the applicant of an additional amount sufficient to compensate the City for its costs in excess of the application fee.

C. Failure of the person seeking a reimbursement agreement to convey the completed water or sewer facilities to the City together with necessary easements and rights-of-way thereto, the itemized list of actual construction costs, the "as-built" record drawings of the completed project, and any other required documentation within 60 days of the date of final completion of the water or sewer project shall be grounds for denial of a reimbursement agreement. [Ord. 1799 § 1, 1992.]

13.24.110 Written agreement – Term of agreement – Recording.

A. Upon final approval of all outstanding fees to the City, the applicant shall sign a reimbursement agreement in the form supplied by the City, and the City Council shall authorize the Mayor to sign the reimbursement agreement on behalf of the City.

B. No reimbursement agreement shall provide for reimbursement for a period longer than 15 years from the date of final acceptance of the improvement by the City.

C. In order to become effective, a reimbursement agreement must be recorded with the office of the Yakima County Auditor. It shall be the sole responsibility of the beneficiary of the reimbursement agreement to record said agreement and to provide verification satisfactory to the City that said agreement has been duly recorded. A copy of the executed and recorded reimbursement agreement shall be kept on file by the City Clerk and available for public inspection. [Ord. 1799 § 1, 1992.]

13.24.120 Collection of reimbursement fees – No liability for failure to collect.

A. After the recording of a reimbursement agreement, the City shall not permit connection of any property within the reimbursement area to any water or sewer facility constructed pursuant to the reimbursement agreement, unless the share of the costs of such facilities required by the recorded agreement is first paid to the City.

B. Upon receipt of any reimbursement fees, the City shall deduct a five-percent administrative fee and remit the balance of the reimbursement fees to the party entitled to the fees pursuant to the agreement; provided, that the total administrative fee collected by the City shall not exceed $500.00 for any water or sewer facility subject to a particular reimbursement agreement. In the event that through error, the City fails to collect a required reimbursement fee prior to approval of connection to a sewer or water facility, the City shall make diligent efforts to collect such fee, but the City shall under no circumstances be obligated to make payment to the party entitled to the reimbursement, or in any other way be liable to such party, unless such reimbursement fee has actually been paid to the City. [Ord. 1799 § 1, 1992.]

13.24.130 Disposition of undeliverable reimbursement fees.

In the event that, after reasonable effort, the party to which the reimbursement fees are to be paid pursuant to a reimbursement agreement cannot be located, and upon the expiration of 180 days from the date the fees were collected by the City, the fees shall be subject to disposition pursuant to applicable unclaimed property laws of the State of Washington. [Ord. 1799 § 1, 1992.]

13.24.140 Severability.

If any section, sentence, clause or phrase of this chapter should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this chapter. [Ord. 1799 § 1, 1992.]

Chapter 16.36

SHORT AND LONG SUBDIVISION – IMPROVEMENT REQUIREMENTS

Sections:

16.36.010 Conformity with provisions required.
16.36.020 Design and engineering plans required.
16.36.030 Conformance with design and engineering plans – Inspection of improvements.
16.36.040 Submission of "as-built" drawings.
16.36.050 Street improvements.
16.36.060 Utilities.
16.36.070 Street lights.
16.36.080 Sidewalks.
16.36.090 Improvements for flood, inundation or swamp conditions.

16.36.010 Conformity with provisions required.
In the planning of each subdivision regulated by the provisions of this chapter, the subdivider shall comply with the subdivision improvement requirements of this chapter. [Ord. 1257 § 2, 1980.]

16.36.020 Design and engineering plans required.
The subdivider shall submit design and engineering plans to the City for all improvements required pursuant to the provisions of this chapter. No construction of improvements shall begin until the City has approved the plans. [Ord. 1257 § 2, 1980.]

16.36.030 Conformance with design and engineering plans – Inspection of improvements.
A. A subdivider shall construct all required improvements in conformance with the approved design and engineering plans.

B. All improvements shall be inspected under the supervision of a registered engineer for conformance with the City standard specifications. [Ord. 1257 § 2, 1980.]

16.36.040 Submission of "as-built" drawings.
The subdivider shall submit to the City reproducible "as-built" drawings detailing actual construction of alleys, streets, and underground utilities which are being dedicated to the City prior to final acceptance of the improvements and release of construction bond. "As-built" drawings shall conform with the Sunnyside standards and specifications requirements. [Ord. 1257 § 2, 1980.]

16.36.050 Street improvements.
Existing or proposed streets in or adjacent to a proposed subdivision shall be improved at the expense of the subdivider by the construction of curb, gutters and pavement surface in conformance with the City standard specifications. Street widths, exclusive of curb and gutter, shall be in conformance with the Local Agency Guidelines published by the Washington State Department of Transportation as such guidelines now exist or are hereafter amended or modified, or as otherwise recommended and approved by the Director of Public Works or the Planning Commission and City Council, as applicable. [Ord. 1821 § 1, 1993; Ord. 1257 § 2, 1980.]

16.36.060 Utilities.
A. A sanitary sewer system shall be installed with a separate connection to the City sewer system for each lot and shall be constructed and installed in conformance with the City standards and specifications, and the City comprehensive water and sewer plans.

B. A complete domestic water distribution and fire protection system shall be installed and connected to the City water system. The water distribution system shall conform to the City standards and specifications, the City comprehensive water plan, and be approved by the Department of Social and Health Services.

C. Each subdivision shall provide a drainage system for the collection, control, and/or disposal of surface water runoff.

D. All new utilities 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.

E. All franchised utilities, including City utilities, shall have access to and use of all utility easements except special purpose easements such as those for high-voltage electrical lines.

F. Easements for unusual facilities, such as high-voltage electric lines; irrigation canals, lines and facilities; and high-capacity gas transmission lines shall be approved by the Director of Public Works. In subdivisions located in whole or in part within an irrigation district organized pursuant to Chapter 87.03 RCW, and where the lands of that subdivision have been classified as irrigatable, easements for water rights-of-way and irrigation facilities to each parcel of land in said subdivision may be required by the irrigation district and by the City, prior to approval of the plat, with such easements and facilities being shown on the plat of the subdivision.

G. 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. 1584 § 1, 1986; Ord. 1532 §§ 2, 3, 1985; Ord. 1257 § 2, 1980.]

16.36.070 Street lights.
The subdivider shall install at his expense street lights in accordance with the standard specifications of the City. [Ord. 1257 § 2, 1980.]

16.36.080 Sidewalks.
Sidewalks shall be constructed of concrete in conformance with the City standards and specifications. [Ord. 1257 § 2, 1980.]

16.36.090 Improvements for flood, inundation or swamp conditions.
Land which the City Council or City Planning Commission has found to be unsuitable for development due to flood, inundation, insufficient drainage, swamp conditions, or any other condition likely to be harmful to the health, safety and welfare of future residents shall be provided with protective improvements approved by the Director of Public Works and which are accepted by the administrator. [Ord. 1257 § 2, 1980.]

Appendix 2 Water System Plan Correspondence

A. Local Government Consistency
B. Neighboring System Notification
C. DOE Draft Water System Plan Comment Letter
D. DOH Draft Water System Plan Comment Letter
E. Local Fire Authority Letter
F. Water Users Informational Meeting Memo

Washington State Department of Health

Local Government Consistency Determination Form

Water System Name: City of Sunnyside PWS ID: 854003

Planning/Engineering Document Title: 2016 Comprehensive Water Plan Plan Date: _____

Local Government with Jurisdiction Conducting Review: City of Sunnyside

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.		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.		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.		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.		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.		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.

Signature _____ Date 3-27-17

Tamey Ayling, Planning Supervisor, City of Sunnyside

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.

The Department of Health is an equal opportunity agency. For persons with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TTY 1-800-833-6388).

Washington State Department of Health

Local Government Consistency Determination Form

Water System Name: City of Sunnyside PWS ID: 85400

Planning/Engineering Document Title: 2016 Water System Plan Plan Date: _____

Local Government with Jurisdiction Conducting Review: Yakima County

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.	3,4,8	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.	10	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.	7,8,9	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.	7,8,9	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	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.

Phil Hoge
Signature

5-1-17
Date

Phil Hoge, Project Planner, 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.

The Department of Health is an equal opportunity agency. For persons with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TTY 1-800-833-6388).

From: **Phil Hoge** <phil.hoge@co.yakima.wa.us>
Date: Mon, May 1, 2017 at 1:31 PM
Subject: RE: Sunnyside WSP
To: Dan Sander <dsander138@gmail.com>

Hi Dan,

Thanks for sending me the revised maps, text, and clarifications over the past month. Based on those revisions to the draft WSP that was transmitted on CD (via letter dated 1-24-17 from Mary L. Howell, CEO of Backflow Management Inc.) to Yakima County Planning Manager Lynn Deitrick, I'm attaching Yakima County's Consistency Determination Form.

My indication that the growth projection is inconsistent the County's population projection is based on the County's population projection being lower than the WSP's population projection. In the past Yakima County has made similar findings for the WSPs of other communities and DOH has accepted the justifications provided by the communities for their alternative growth projection and methodology. I fully understand and appreciate your explanation that "new major industries or other facilities will have a much larger impact on the system than population growth." But as I understand it, Yakima County's responsibility is to make a finding on the consistency of the population projections, and Sunnyside's response will be to justify/explain.

As a side note, I don't believe the WSP has a map of Sunnyside's Retail Service Area and/or the place of use, which I understand may be important to Ecology in establishing Sunnyside's groundwater withdrawal rights. But your explanation of these areas is adequate for Yakima County's determination.

I'll be out most of this afternoon, but feel free to contact me if you have any questions or comments and I'll reply when I'm back.

Phil Hoge
Project Planner - Long Range
Planning Division | Yakima County Public Services
Fourth Floor County Courthouse | 128 N. 2nd Street | Yakima, WA 98901
509-574-2254 direct voice | 509-574-2301 fax
phil.hoge@co.yakima.wa.us
www.yakimacounty.us/planning

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This email and replies to it are subject to public disclosure under Washington state statute (RCW 42.56 - Public Records Act).

Contact person
Near-by Water systems

Subject: City of Sunnyside 2016 Water System Plan

Dear _____

The City of Sunnyside has drafted a new Water System Plan. This plan updates population and commercial water use, and projects future growth and demand to the year 2035. The projections are based on the existing Growth Management Boundaries, and while there will be minor changes in those boundaries, the City does not anticipate major impact on the water system resulting from these changes.

The plan identifies a number of improvements to the existing system, and growth related projects if needed. Additional source(s) may be needed if the future projections are accurate. The plan calls for additional study to determine which aquifer to pursue and the location of future sources.

A copy of the draft water system plan is available at the Water Division office if you would like to review it. Any comments that you may have regarding the plan will be welcomed. For further information, please contact: Kirk Weeks, Water Division Supervisor,

City of Sunnyside
818 E. Edison Ave
Sunnyside WA 98944
O: 509-836-6365
C: 509-305-0583

Sincerely,

Lynn Deitrick, AICP
Manager/Planning Official
Planning - 4th Floor
128 N 2nd Street
Yakima, WA 98901

Subject: City of Sunnyside 2016 Water System Plan
Department of Health Planning Consistency Review Form

Dear Lynn,

Backflow Management Inc. (BMI) has prepared a new Water System Plan (WSP) plan for the City of Sunnyside. This plan updates population and commercial water use, and projects future growth and demand to the year 2035. The projections are based on the existing Growth Management Boundaries, and while there will be minor reconfiguration of these boundaries as a result of the update of the County Plan, the City does not anticipate major impact on the water system resulting from these changes. Future population and water demand projections used a 2% annual growth rate.

The plan identifies a number of improvements to the existing system, and growth related projects if needed. Additional source(s) may be needed if the future projections are accurate. The plan calls for additional study to determine which aquifer to pursue and the location of future sources.

As part of the WSP development process, Washington Department of Health requires a review to be completed to determine consistency with other local plans and regulations. Enclosed you will find a Consistency Review Checklist and a copy of the draft WSP. Please review the applicable sections of the plan and then complete and return the Checklist to: : Kirk Weeks, Water Division Supervisor,
City of Sunnyside
818 E. Edison Ave
Sunnyside WA 98944

Your assistance is greatly appreciated,

Mailing List of Nearby Group A Water Systems

DOH Id #	Name	Type	Connections	Distance/Direction
28970	Cus Arteaga City of Grandview 207 W Second St. Grandview, WA 98930	Community	3334	2.5 miles / SE
65919	Bennett Osborne Panorama Place Water Assn. 4001 Summitview Ave #5-191 Yakima, WA 98908	Community	47	2.5 miles / S
04157	Matt Charvet Teddy Bear Corner 50 Grey Road Grandview, WA 98930	NTNC	5	3 miles / S
64937	Bennett Osborne Outlook Community Water 4001 Summitview Ave #5-191 Yakima, WA 98908	Community	56	2 miles / W
64940	Bennett Osborne Outlook Elementary School 4001 Summitview Ave #5-191 Yakima, WA 98908	NTNC	1	2 miles / NW
29000	Jodie Luke City of Granger PO Box 1100 Granger, WA 98932	Community	728	5 miles / NW
02351	Shane Fisher Sunnyview Park 818 E. Edison Sunnyside, WA 98944	TNC	2	Within City Limits/SW

Local Government Consistency

Lynn Deitrick, AICP Manager/Planning Official Planning 128 N 2nd Street 4th Floor Yakima, WA 98901	Jamey Ayling Planning Division Supervisor City Hall 818 E. Edison Ave. Sunnyside, WA 98944

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
4601 N Monroe Street • Spokane, Washington 99205-1295 • (509)329-3400

January 13, 2017

Mr. Kirk Weets
City of Sunnyside
818 E. Edison Ave
Sunnyside, WA 98944

Dear Mr. Weets:

Re: City of Sunnyside; PWS ID # 85400; Yakima County
Second Draft Water System Plan; DOH Project #13-0115

I have reviewed the above referenced document in accordance with the *2007 Memorandum of Understanding* between Department of Health (DOH) and Department of Ecology (Ecology), and in accordance with RCW 90.03.386. Ecology's review is focused only on the subject water system's water rights legitimacy, adequacy and related issues affecting the submitted report.

The City of Sunnyside has 8 water rights for municipal water supply and one surface water right for irrigation purpose of use. The water right self-assessment Tables 4-1A, 4-1B and 4-1C appear to be current. For water right permit G4-31581P, there is different primary and supplement proportion acre-feet values listed in the three Tables vs. the values in the water right superseding permit. This difference in G4-31581P Qa values need to be clarified.

The City has a total instantaneous right Qi of 8,090 gpm, and annual quantity Qa of 5,044 acre-ft/yr. The City has an adequate water right for current operation, 6 year and 20 year forecast growth. For the surface water adjudication claim 1752, a copy of the water right document should be attached to the appendix.

These are my comments at this time. Please contact me should you have any questions regarding this letter. I can be reached at (509) 329-3451 or by email at yifu461@ecy.wa.gov.

Sincerely,

Ying Fu
Water Resources Program

YF:sh

cc: Brian Sayrs, DOH
Tom Perkow, DOE/CRO

Kirk,

DOH has completed its review of the third draft of the City of Sunnyside (PWS ID#85400, Yakima County) Water System Plan. We believe that the remaining comments can be addressed without the need to proceed to a fourth draft.

1. The City of Sunnyside is required to provide six (6) additional water use efficiency (WUE) demand side measures. As described, it appears that there are only three, perhaps five, water use efficiency measures in Subsection 4.2.2, namely:

a. Additional information for single family residences (SFR).

b. Additional information for multifamily residences (MFR).

c. Voucher program for free conservation items (though, this appears to be extremely limited) for single family residences.

d. Voucher program for free conservation items (again, this appears to be extremely limited) for multifamily residences.

e. A water use audit for its largest industrial users.

Please provide a total of six (6) measures and a description of the voucher program that shows that all SFR and MFR customers have access to the program, not just those who have children. Additionally, please rephrase the industrial measure as something that will be implemented because, upon adoption of this plan, it will be. Finally, if the City determines that no additional measure(s) will be implemented, evaluate an additional method utilizing the rigorous evaluation standards contained in WAC 246-290-810(3)(d)(iv).

2. The system currently has a declining block rate. Evaluate the feasibility of adopting and implementing a rate structure that encourages water demand feasibility as required by WAC 246-290-100(4)(j)(iv)(B). Evaluate both a uniform block rate, and either an inclining block rate or seasonal rate. This is not a rate study, merely the identification of the pros and cons of the chosen rate structure for both your system and your customers. For guidance, please see Section 5.4 of DOH Publication 331-375 Water Use Efficiency Guidebook.

3. A copy of the Local Government Consistency Determination Form (DOH Publication 331-568) from Yakima County. Solicit and address concerns expressed by the County in the next submittal.

4. The State Environmental Policy Act (SEPA) environmental checklist and threshold determination were not found in this submittal.

Please provide responses to these comments by August 10, 2017. Please contact me should you need additional time or if you have any questions.

Brian A. Sayrs, Regional Planner

Department of Health ~ Office of Drinking Water

16201 E. Indiana Ave., Suite 1500

Spokane Valley, WA 99216

Phone: 509.329.2137 ~ Fax: 509.329.2104

Healthy Places – Healthy People

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 E Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-6388

February 14, 2017

Kirk Weets
City of Sunnyside
818 E Edison Ave
Sunnyside, WA 98944

Subject: Sunnyside, City of; PWS ID #85400; Yakima County
Water System Plan; Submittal #13-0115; DOH Comments

Dear Mr. Weets:

Thank you for providing the second draft Water System Plan (WSP) for the City of Sunnyside received in this office on November 14, 2016. The following comments will need to be addressed before the Department of Health (DOH) can approve the document:

Chapter 1

1) In Section 1.6, state that the City has a duty to serve within its retail service area. Utilize the language of the four threshold factors in DOH Publication 331-366 *Duty to provide service requirement*, enclosed.

Chapter 2

2) Provide as an improvement under Chapter 2 or 3 how the city will move towards using metered data for future demand calculations. A purpose or tool for using metered data (source and service), is comparing the difference between the volume of water produced and consumed or the Distribution System Leakage (DSL). As well as, to track the performance of the meters installed and as an alert for possible leaks within the distribution system.
   - The improvement should link customer class between the metered data reported and the billing system.

Chapter 3

3) Provide the boundary lines to identify the separate pressure zones within the city distribution system. The information or labels provided on Figure 3-2 would be helpful in identifying facilities and zones on Figure 3-1.
   - Identifying the pressure zones on the map could help determine the total number and type of connections served within each zone.

4) Provide the static elevations established within each of the reservoirs for the following storage volumes that apply; Operational, Equalization, Stand-by, Fire Flow and Dead. The enclosed worksheet shows a diagram of a typical reservoir, which also shows the control elevations for the pumps, alarms, and overflow.

5) Provide a copy in this chapter or the appendices of the approval letter from the Local Fire Authority approving the use of nested storage in the design of the water system.

Chapter 4

6) The City of Sunnyside is required to provide six (6) additional water use efficiency (WUE) demand side measures. As described, it appears that there are only two, perhaps four, water use efficiency measures in Subsection 4.2.2, namely:

   - Additional information for single family residences (SFR)
   - Additional information for multifamily residences (MFR)
   - Voucher program for free conservation items (though, this appears to be extremely limited) for single family residences
   - Voucher program for free conservation items (same as above) for multifamily residences.

   Please provide a total of six (6) measures and a description of the voucher program that shows that all SFR and MFR customers have access to the program.

7) The system currently has a declining block rate. Evaluate the feasibility of adopting and implementing a rate structure that encourages water demand feasibility. Evaluate both a uniform block rate, and either an inclining block rate or seasonal rate. Identify the pros and cons of the chosen rate structure for both your system and your customers.

8) Correct the following under section 4.5.1 Water Supply Reliability.

   - Paragraph 1, Sentence 1 – Well 14 is actually Well 13 (S13).
   - Clarify and correlate the statement in the second paragraph with the loss of production shown on Table 3-1 for Well 6 (S06). The loss in production is more than half of the developed capacity.

9) The Department of Ecology has issued a comment letter regarding this submittal. A copy of the review letter dated January 13, 2017, from the Department of Ecology is enclosed. Please address the issues, if any, contained in the letter in the second draft submittal.

Chapter 6

10) Provide a copy of the Lead and Copper and Disinfection By-Product monitoring plans under Appendix 8 – Water Quality Monitoring Plans. Please note the following:

   - The Coliform Monitoring Plan:

i. Indicates there are 16 samples taken each month, with 8-samples taken Bi-monthly.

ii. The map provided did not highlight the locations of the sources, booster station, reservoirs, and the pressure zones.

iii. Note the requirement in the plan for the completion of Level 1 and Level 2 Assessments, as required by the Revised Total Coliform Rule.

- The Lead and Copper monitoring plan must include the Public Notice requirements and boiler plate letters provided to the residents of the sites sampled.

11) The water quality monitoring section did not note the requirement, tracking, and submittal process for the daily chlorine residuals taken from the distribution system.

Chapter 7

12) Provide a procedure for developers to follow, if the city intends to request the waiver from DOH review and approval process for distribution related projects. The procedure must include details for:

- The City's licensed Professional Engineer (PE) that will review and approve the project.
- Submittal requirements for projects, such as, report or construction documents, must be completed by or under the direction, stamped and signed by a licensed PE, design standards used, acceptable design standards, and so forth.
- Identify acceptable design standards available for use by consultants. The design standards provided in Chapter 1 (City Codes) and 10 (Standard Specifications), appear to be WSDOT standard specifications (Specifically Division 7 for Water Design).

Chapter 8

13) Please provide a description of each project in the 20-year capital improvement plan (CIP).

Appendices

14) Please provide some kind of separation between the Appendices.

15) Provide an updated and signed Water Facilities Inventory (WFI) in the third submittal. The well capacities on the WFI and Table 3-1 must be consistent.

16) City codes were not found in Appendix 1. The information inserted into the appendix were the Standard Specifications that are also located in Chapter 10.

17) Appendix 2 was missing in this document. The following documents must be provided:

- A copy of the Local Government Consistency Determination Form (DOH Publication 331-568) from both the City of Sunnyside and Yakima County. The form is available at http://www.doh.wa.gov/portals/1/documents/pubs/331-568.docx

- A sample copy of the letter sent to adjacent water systems.

18) The contents of Appendix 6 is marked draft. Is there a final version available?

19) Appendix 10, note the references made in the city standards refer to the WSDOT specifications. In addition

- Change the references to the required Health Samples (See Pages 4-4 and 4-5), to be consistent with the procedure located in Section 4-22 – Bacteria Sampling Procedure. It would be best to note in the standards whether the city would require 1 or 2 bacteria or coliform samples, and whether a specific certified lab is required.

20) In Appendix 11, provide a signed copies of the State Environmental Policy Act (SEPA) Environmental Checklist and Threshold Determination in the next submittal.

Other

21) The water system must meet the consumer input process outlined in WAC 246-290-100(8). Please include documentation of a consumer meeting in Appendix 2 discussing the Water System Plan prior to its approval.

22) 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.

Recommendations

23) Consider adding a parcel map that depicts the service area for each pressure zone.

END OF COMMENTS

The department's review of your water system plan 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 WSP. We ask that you submit **two copies** of the revised WSP **on or before May 14, 2017.** In order 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 **$926.25** for the review of the Water System Plan. This fee covers our cost for review of the third submittal. 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 either of us at (509) 329-2123 or (509) 329-2137, respectively.

Sincerely,

for

Andres Cervantes, P.E.
Regional Engineer
Office of Drinking Water
Division of Environmental Public Health

Brian A. Sayrs
Regional Planner
Office of Drinking Water
Division of Environmental Public Health

Enclosures: Invoice
Comment Response Form
Department of Ecology correspondence
Table 9-1: Reservoir Storage Component Cross-Section Diagram
DOH Publication 331-366 *Duty to provide service requirement*

cc: Ying Fu, Department of Ecology, Eastern Regional Office
Yakima Health District
Yakima County Planning Division
Dan Sander, PE, Sander Enterprises
George Simon, DOH Regional Compliance Program Director
Alyssa Gersdorf, DOH WFI Coordinator

DOH COMMENT RESPONSE FORM

City of Sunnsyide Water System Plan Amendment

DOH Comment No.	DOH Comment	Water System Response	Page Number of Response	Other Water System Comments
1.	State duty to serve requirements	Added the four duty to serve factors	10	
2.	How will City use metered data for future demand calculations	Addition information is provided in Section 2.3 regarding current practices, and how the switch to fixed base meter reading will help detect abnormal readings in the future.	13 and 14	Future demand calculations in this Water System Plan are based upon meter readings. The actual meter readings are recorded for each customer number and transferred to the billing department which calculated the water bill based on meter size and user class. The billing program also notifies the water division of unusual readings which are then followed up on with a confirmation reading.
3.	Provide pressure zone boundary lines	Figure 3-5 shows the portion of the service area that is served by pressure zones 2 and 3	43	
4.	Provide static elevations within each reservoir	Tank diagrams and elevations are shown on new Figures 3-4 and 3-5 as well as in Table 3-6 and 3-7	38 and 39	
5.	Local Fire Authority approval of nested storage	New Fire Chief letter has been included in Appendix 2.	Appendix 2	The Fire Chief letter also includes confirmation of fire flow and duration figures.

6	Additional Water Use Efficiency Measure	A sixth Water Use Efficiency Measure has been added. That measure will offer water audits to the major industrial users.	55	
7.	Concern regarding declining block rate	Added information regarding last rate analysis study. And moved future Cost of Service study to 2018 to coincide with last scheduled rate increase, and in preparation for 2019 WUE program update	55	Consumption rates changes will be complicated by the large amount of water used by the food processors in Sunnyside which provide the City's economic base.
8.	Mis-labelled S13, explain why Well 6 has reduced pumping rate	Corrected. Well 12 (S12) and Well 13 (S13) are wells in wellfield (S14). Added discussion reduced pumping rate of Well 6	61	The reasons for the reduced pumping rate of Well 6 is unknown
9.	DOE comments	Revised Tables 4-1 A, B and C. Included surface water adjudication claim in Appendix 5	58, 59 and 60 Appendix 4	Also replaced permit status paragraph in 4.4.1 (page 55)
10.	Coliform monitoring Plan and Lead and Copper monitoring plan comments	Coliform Monitoring Plan has been updated and the Lead and Copper plan has been included	Appendix 8	
11.	WQMS did not include chlorine residual monitoring, tracking and reporting	Added chlorine monitoring, recording and reporting to Section 6.5	73	
12.	Developer procedures and waiver request for DOH plan submittal process	Added introductory paragraph to Section 7 requesting a waiver to DOH review and Approval process, and description of the City's plan review practice	77	
13.	Describe each 20 year CIP project	Added more detailed description of each project in Section 8.1 and 8.2	78, 79, and 80	
14.	Separation between Appendices	Separation added to Appendices as well as each Section of the Plan	Appendix	Draft plan oversight

15.	Updated WFI	2017 WFI is provided in Appendix 3 Well pump capacities are consistent with Table 3-1	Appendix 11 33	
16.	City Codes not found in Appendix 1	City Codes are now in Appendix 1	Appendix 1	Draft plan oversight in presenting two copies of City Standards
17.	Appendix 2 was not complete	Copies of correspondence and Local Government Consistency Determination Forms are now included. Consumer input open house information is also included in this Appendix	Appendix 2	Documents were not available at time of Draft WSP submittal
18.	Appendix 6 was draft Wellhead Protection Program	Appendix 6 now includes the final WHP plan	Appendix 6	Final plan has been located
19.	WSDOT reference	The Sunnyside Water Standard Specifications (SWSS) are meant to stand alone with the exception the AWWA references. Disinfection and testing sections refer to Section 4-22 which specifies samples to be delivered to AG Health or other DOH Certified laboratory. No changes made.	Appendix	No apparent conflict in the standard with respect sampling procedure or number of samples required (1 every 500-800 feet). HLA is current updating the City Standards, if DOH would like specific clarifications or additions, please contact the City or HLA.
20.	SEPA Checklist and Threshold Determination	SEPA Checklist, Determination of Non-Significance and e-mail regarding no comments on SEPA included in Appendix 3	Appendix 11	
21.	Consumer Input Process	Documentation of the March 30 Open House presented in Appendix 3	Appendix 2	
22.	City Council approval	Will send when completed		Pending DOH notification of pending approval

City of SUNNYSIDE WASHINGTON

Office of the Fire Chief
513 South 8th Street
Sunnyside, Washington 98944
Office (509) 837-3999, Fax (509) 836-6419

April 13, 2017

Kirk Weets
WDM III, CCS
Water Division Supervisor
City of Sunnyside
818 E. Edison Ave.
Sunnyside, WA 98944

Re: City of Sunnyside Water System Plan

Dear Mr. Weets,

This letter is in reference to the response comments for the City of Sunnyside Water System Plan. As the local fire authority, I will allow the nesting of fire suppression storage and standby water supplies. Currently the city has two water storage reservoirs that store water for this combined use that meets the necessary fire flow requirements. It is the policy of the fire department to notify the public works water division in the event of a major structure fire. This notification is to ensure the water levels are monitored during the event to maintain their minimum water levels. The necessary storage amount should be maintained to provide a minimum of 5,500 gallons per minute for a four (4) hour duration. Our fire flow requirements for the city have not significantly increased over the past several years. Several of the new projects that have been recently completed have included the installation of automatic fire sprinkler systems as required by the International Fire Code requirements.

Sincerely,

Aaron J. Markham
Fire Chief

Memo

City of Sunnyside Water System Plan

Public Involvement Open House

Date:	March 30, 2017 5:30 pm
Notice	The City of Sunnyside has prepared a draft updated of its Water System Plan. A presentation on the Water System Plan update will be given at an information meeting on Thursday March 30, 2016 at 5:30 PM in the Water Division Building 409 E. Lincoln Avenue, Sunnyside, WA 98944. The presentation will include information on the projected water system demands, anticipated capital improvements, financing alternatives, and updated water use efficiency goals will be available for review at this meeting. For more information, or if special accommodations are needed please contact Kirk Weets, Water Division Supervisor at 509-837-5206 during regular business hours.
Delivery	Meeting advertised Facebook page, website, TV at City Hall, and the newspaper.
Discussion Leaders	Kirk Weeks, Water Division Supervisor; Dan Sander, Sander Enterprises/BMI
Attendees:	No one attended

Comments: No comments were received by Kirk prior to, or after the scheduled meeting

Appendix 3 Well Logs

File Original and First Copy with the Division of Water Management
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

 Application No

STATE OF WASHINGTON

Permit No

(1) OWNER: Name Sunnyside Port District Address Box 353; Sunnyside, Washington

(2) LOCATION OF WELL: County Yakima — SW ¼ NW ¼ Sec. 36 T. 10 N., R. 22E. W.M.

and distance from section or subdivision corner 750' NNE of W ½ Corner Sec. 36

(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 24" - 8" inches.
Drilled 1,057 ft. Depth of completed well 1,057 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 24" Diam. from 0 ft. to 98'7" ft.
Threaded ☐ 20" Diam. from 0 ft. to 421'6" ft.
Welded ☒ 16" Diam. from 0 ft. to 541'2" 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? 541 ft.
Material used in seal Cement
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.... 720 ft.
Static level ft. below top of well Date
Artesian pressure 4 lbs. per square inch Date 3-13-74
Artesian water is controlled by Cap and Valve (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? driller
Yield: 458 gal./min. with 300 ft. drawdown after 8 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 7 Nov 73
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow 30 g.p.m. Date 7 Nov 73
Temperature of water 75 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
Soil	0	5
Gray Sand and Silt	5	11
Brown Silt, Trace Fine Sand	11	52
Brown Silt and Coarse Sand	52	69
Brown Silt	69	71
Brown Silt and Coarse Sand	71	88
Red Sand and Silt	88	91
Brown Silt, Sand & Small Gravel	91	118
Light Brown Clay, Sand, and Small Gravel	118	186
Light Brown Sticky Clay and Small Gravel	186	216
Blue Clay	216	249
Brown Clay	249	257
Green Brown Clay and Sand	257	280
Hard Green Brown Sandstone	280	299
Soft Brown Sandstone	299	321
Green Brown Clay	321	354
Blue Clay	354	389
Dark Brown Clay	389	445
Blue Clay	445	534
Gray Basalt Rock	534	540
Hard Gray Basalt Rock	540	678
Hard, Sticky Blue Clay	678	731
White fine Sand (Well started flowing)	731	739
Gray Sticky Clay	739	818
Hard Gray Basalt Rock	818	903
Cracks in Gray Basalt Rock (Well started flowing over 12" Pipe)	903	906
Very Hard Gray Basalt Rock	906	941
Gray-Black Hard Rock and Cinders (Caving Formation)	941	967
Very Hard Gray Basalt Rock	967	1010

Work started 24 Nov, 19 72 Completed 13 Mar, 19 74

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

S. F. No. 7356—OS—(Rev. 5-69)—5-69. 1/25/74 (USE ADDITIONAL SHEETS IF NECESSARY)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

File Original and First Copy with the Division of Water Management
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No
Permit No

(1) OWNER: Name Sunnyside Port District Address Box 353 Sunnyside, Washington

LOCATION OF WELL: County . ¼ ¼ Sec T N, R W M

Fig 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 inches
Drilled ft Depth of completed well ft

(6) CONSTRUCTION DETAILS:

Casing installed: 12 " Diam from 0 ft to 828 ft.
Threaded ☐ 10 " Diam from 767 ft to 967 ft.
Welded ☒ 8 " Diam from 926 ft to 1026 ft

Perforations: Yes ☒ No ☐
Type of perforator used Torch
SIZE of perforations ½ in by 4 in.
4 per/ft perforations from 887 ft to 927 ft.
6 per/ft perforations from 986 ft to 1026 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 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? driller
Yield 600 gal./min with 6' 10½" ft. drawdown after 10 hrs.
" 800 " 18' 6½" " 18 "
" 1000 " 31' 2½" " 32 hr. 30 Min

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	32' 5"	10 mn.	3' 2"	1 hr.	1' 11"
1 mn.	5' 0"	20 mn.	2' 7"	1 hr15mn	1'83/4"
1.	4' 4"	30mn	2' 4"	Flowing	

Date of test 2 Mar 74
Bailer test gal./min with ft. drawdown after hrs.
Artesian flow 500 g.p.m. Date 13 Mar 74
Temperature of water 75 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
Soft Black Basalt Cinders	1010	
(Increased from 30 GPM to 500 GPM) Flowing		1022
Porous Black Basalt Rock	1022	1057

Work started 24 Nov, 1972. Completed 13 Mar 1974

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 Chas. Jungman Drilling Co. (Person, firm or corporation) (Type or print)

Address 115 Rees - P.O. Box 624 Walla Walla, Wa.

[Signed] (Well Driller)

License No. 428 Date 18 Mar. 1974

(USE ADDITIONAL SHEETS IF NECESSARY)

S.F. No 1338—02—(Rev 5-69)—5-69

Department of Ecology Well Log Image System

DOH No. 065

WASHINGTON STATE DEPARTMENT OF ECOLOGY

UNIQUE WELL I D. NUMBER ABR059
X Y Z 1 2 3

WELL TAGGING FORM

Date of Field Visit 7-20-94 By R. Handley

ADDITIONAL WELL IDENTIFIERS

Department of Health System ID Number 854003 Source Number SO07

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 SUNNYSIDE

Street address 818 E. EDISON AVE. SUNNYSIDE, WA 98944

City _____ State _____

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address 200 50 Hill RD

City Sunnyside County Yakima

T. 10 N. R. 22 E WM Sec. 36 SW ¼ of the NW ¼

Latitude ____° ____' ____"

Longitude ____° ____' ____"

- [ ] GPS (raw data)
- [ ] GPS (corrected)
- [ ] Topographic Map
- [ ] Survey
- [ ] Computer generated
- [ ] Other _____

Elevation at land surface 227. (feet)/meters *(circle one)*

- [ ] Digital Altimeter
- [ ] Topographic Map
- [ ] Other _____

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Additional information, if available:

☒ Location marked on ~~topographic~~ CITY map *(please attach)*

☐ Location marked on air photo *(please attach)*

Water Right # _____ Priority Date June 28 1973

Circle one: Application Permit (Certificate) Claim Exempt

WELL CHARACTERISTICS

Physical Description of Well (size of casing, type of well, housing, etc.): _____

SEE ATTACHED

Location of Well Identification Tag: NONE

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 _____

COMMENTS: _____

Please attach this form to the Well Report and submit it to the Department of Ecology Water Resources Program Headquarters, Well Identification Program, P.O. Box 47600, Olympia, WA 98504-7600

WELL # 7

Note: Carbon paper will not work from the original. Use pen or pencil which will automatically reproduce the written material on each underlying copy.

File Original and First Copy with the Department of Water Resources
Land Copy — Owner Copy
Third Copy — Driller's Copy

WATER WELL REPORT

Page 1 of 2 Application No. _____

STATE OF WASHINGTON

Permit No. _____

(1) OWNER Name Sunnyside Port District Address Box 353, Sunnyside, Washington

(2) LOCATION OF WELL County Yakima SW ¼ NW ¼ Sec 36 T 10 N R 22E WM

Bearing and distance from section or subdivision corner 750' NW of N ¼ Corner Sec. 36

(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 24" — 8" inches
Drilled 1,057 ft. Depth of completed well 1,057 ft.

(6) CONSTRUCTION DETAILS

Casing installed 24 Diam from 0 ft to 98' 7" ft
Threaded ☐ 20 Diam from 0 ft to 421' 6" ft
Welded ☒ 16 " Diam from 0 ft to 541' 2" 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? 541 ft
Material used in seal Cement
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 _____ HP _____

(8) WATER LEVELS Land surface elevation above mean sea level 720 ft
Static level _____ ft below top of well Date _____
Artesian pressure 4 lbs per square inch Date 3-13-74
Artesian water is controlled by Cap and Valve (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? driller
Yield 450 gal/min with 300 ft drawdown after 8 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 7 Nov 73
Bailer test _____ gal/min with _____ ft drawdown after _____ hrs.
Artesian flow 30 g.p.m. Date 7 Nov 73
Temperature of water 75 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
Soil	0	5
Gray Sand and Silt	5	11
Brown Silt, Trace Fine Sand	11	52
Brown Silt and Coarse Sand	52	69
Brown Silt	69	71
Brown Silt and Coarse Sand	71	88
Red Sand and Silt	88	91
Brown Silt, Sand & Small Gravel	91	118
Light Brown Clay, Sand, and Small Gravel	118	186
Light Brown Sticky Clay and Small Gravel	186	216
Blue Clay	216	249
Brown Clay	249	257
Green Brown Clay and Sand	257	280
Hard Green Brown Sandstone	280	299
Soft Brown Sandstone	299	321
Green Brown Clay	321	354
Blue Clay	354	389
Dark Brown Clay	389	445
Blue Clay	445	534
Gray Basalt Rock	534	540
Hard Gray Basalt Rock	540	678
Hard, Sticky Blue Clay	678	731
White fine Sand	731	
(Well started flowing)		739
Gray Sticky Clay	739	818
Hard Gray Basalt Rock	818	903
Cracks in Gray Basalt Rock (Well started flowing over 12" Pipe)	903	906
Very Hard Gray Basalt Rock	906	941
Gray-Black Hard Rock and Cinders (Caving formation)	941	967
Very Hard Gray Basalt Rock	967	1010

Work started 24 Nov 1973 Completed 13 Mar 1974

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)

F-1 (3)6-05 (Rev 5-69)-5-69

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

WELL #7

P.S. Carbon paper and other forms are impregnated with chemical which automatically reproduces the written material on each underlying copy

File Original and First Copy with the Division of Water Management
Second Copy – Owner's Copy
Third Copy – Driller's Copy

WATER WELL REPORT Page 2 of 2

STATE OF WASHINGTON

Application No. _____
Permit No. _____

(1) OWNER Name Sunnyside Fire District Address Box 353 Sunnyside, Washington

(2) LOCATION OF WELL County _____ ¼ ¼ Sec _____ T _____ N R _____ W M

Location and distance from section or subdivision corner _____

(3) PROPOSED USE Domestic [ ] Industrial [ ] Municipal [ ]
Irrigation [ ] Test Well [ ] Other [ ]

(4) TYPE OF WORK (Check one and give details of well)
If new well [ ] Deepening [ ] Reconditioned [ ]
Reconditioned [ ] Cable [ ] Rotary [ ] Driven [ ] Jetted [ ]

(5) DIMENSIONS Diameter of well _____ inches
Drilled _____ ft. Depth of completed well _____ ft.

(6) CONSTRUCTION DETAILS

Casing installed: Threaded [ ] 12 Diam. from 0 ft. to 820 ft.
10 Diam. from 767 ft. to 997 ft.
Welded [X] 8 Diam. from 926 ft. to 1026 ft.

Perforations Yes [X] No [ ]
Type of perforator used Torch
Size of perforations 3/8 in by 4 in
4 per/ft perforations from 807 ft. to 927 ft.
6 per/ft perforations from 986 ft. to 1026 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 _____ 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 pump test made? Yes [X] No [ ] If yes, by whom? Driller
Yield: 500 gal./min. with 6' 10" ft. drawdown after 10 hrs.
800 " 10' 6" " " 18 "
1000 " 31' 2" " " 6 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	32' 5"	10 min.	2' 9"	1 hr.	1' 11"
1 min	5' 0"	20 min.	2' 7"	1 hr 15 min	1' 03/4"
2 min	4' 4"	30 min.	2' 4"	Pleasant	

Date of test Jan. 74
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Artesian flow 500 g.p.m. Date 13 Jan. 74
Temperature of water 75 Was a chemical analysis made? Yes [ ] No [X]

(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
Soil, Black Volcanic Cinders	0	10
(Increased from 30 GPM to 500 GPM) Flowing		1022
Porous Black Basalt Rock	1022	1057

Work started 24 Nov. 19 73 Completed 13 Jan. 19 74

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 Chas. Jungmann Drilling Co.
(Person, firm, or corporation) (Type or print)

Address 115 Pree – P.O. Box 624 Walla Walla, Wa.

[Signed] _____
(Well Driller)

License No. 428 Date 18 Jan. 19 74

(USE ADDITIONAL SHEETS IF NECESSARY)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

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
June 28, 1973	G3-21323	G3-21323P	G3-21323C

NAME
CITY OF SUNNYSIDE

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
719 Edison Avenue	Sunnyside	Washington	98944

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
	950	1500

QUANTITY TYPE OF USE PERIOD OF USE
950 gallons per minute, 1500 acre feet per year continuously for municipal supply

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
400 feet East and 645 feet North from the West quarter corner of Section 36

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N	RANGE (E OR W)	W R I A	COUNTY
SW¼NW¼	36	10	22 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

City of Sunnyside, Washington

PROVISIONS

icate holder shall maintain an access port as described in Ground Water
tin No 1

YAKIMA COUNTY
FILED
SEP 7 10 28 AM '78
COUNTY AUDITOR

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described except as provided in RCW 90 03 380 90 03 390 and 90 44 020

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90 14 180

Given under my hand and the seal of this office at Yakima, *Washington this* 5th *day of* September *19* 78

Department of Ecology

ENGINEERING DATA
OK
le

by Russell K Taylor
Russell K Taylor, Regional Manager

FOR COUNTY USE ONLY

John C Poston
Gray and Osborne
603 West "A" Street
Yakima, WA 98902

ORIGINAL RECORD VOL 1030 330

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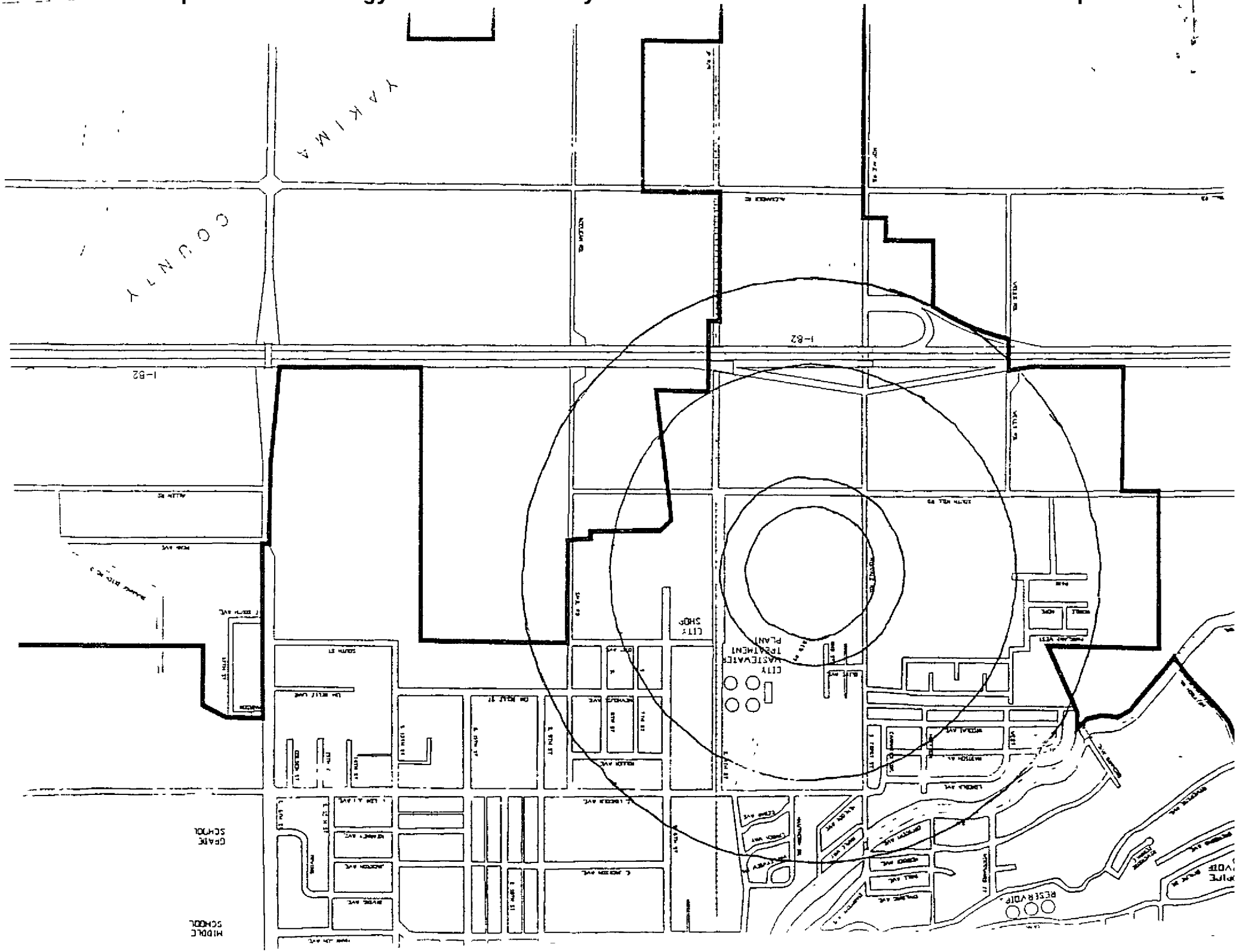
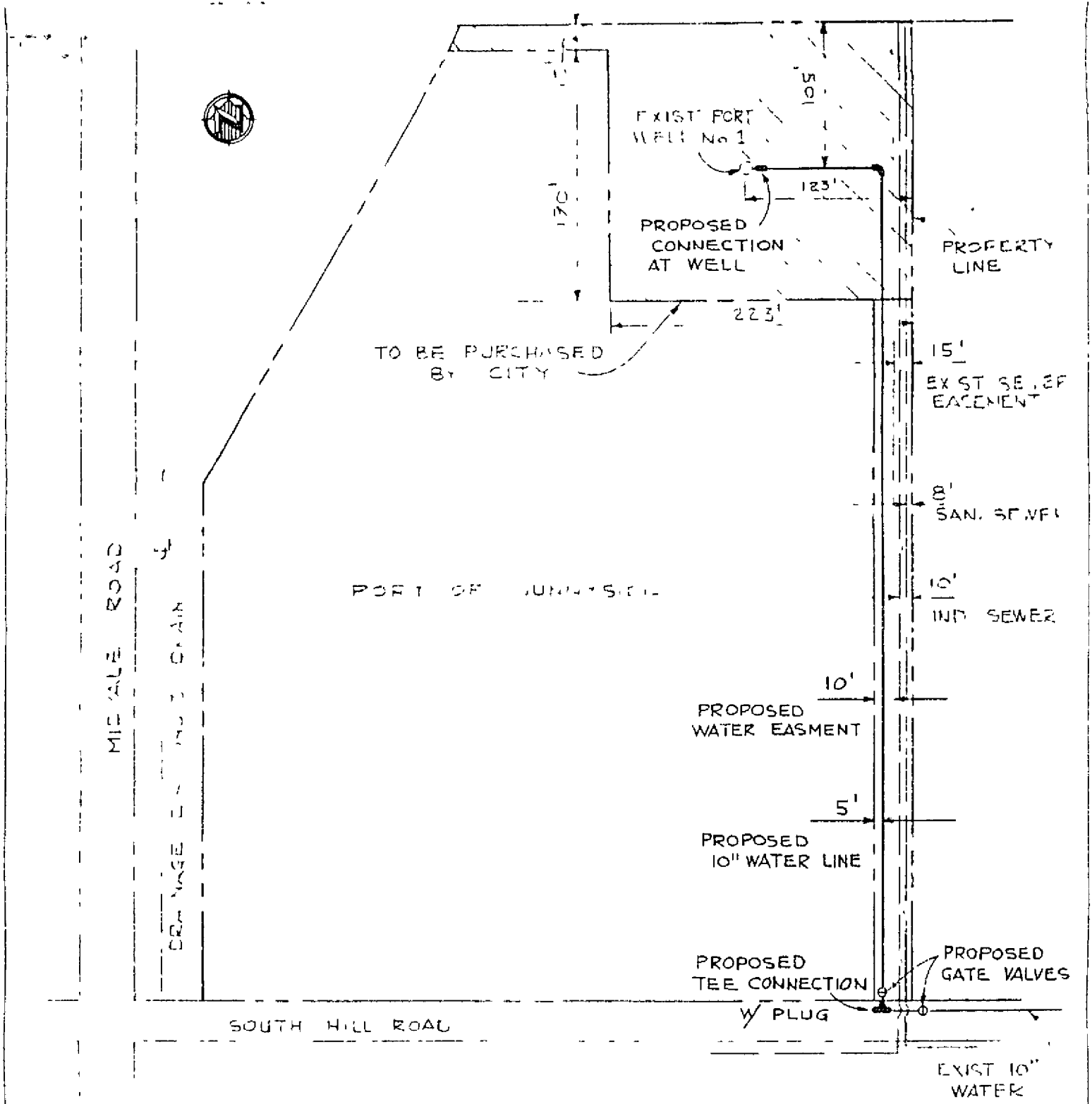


The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

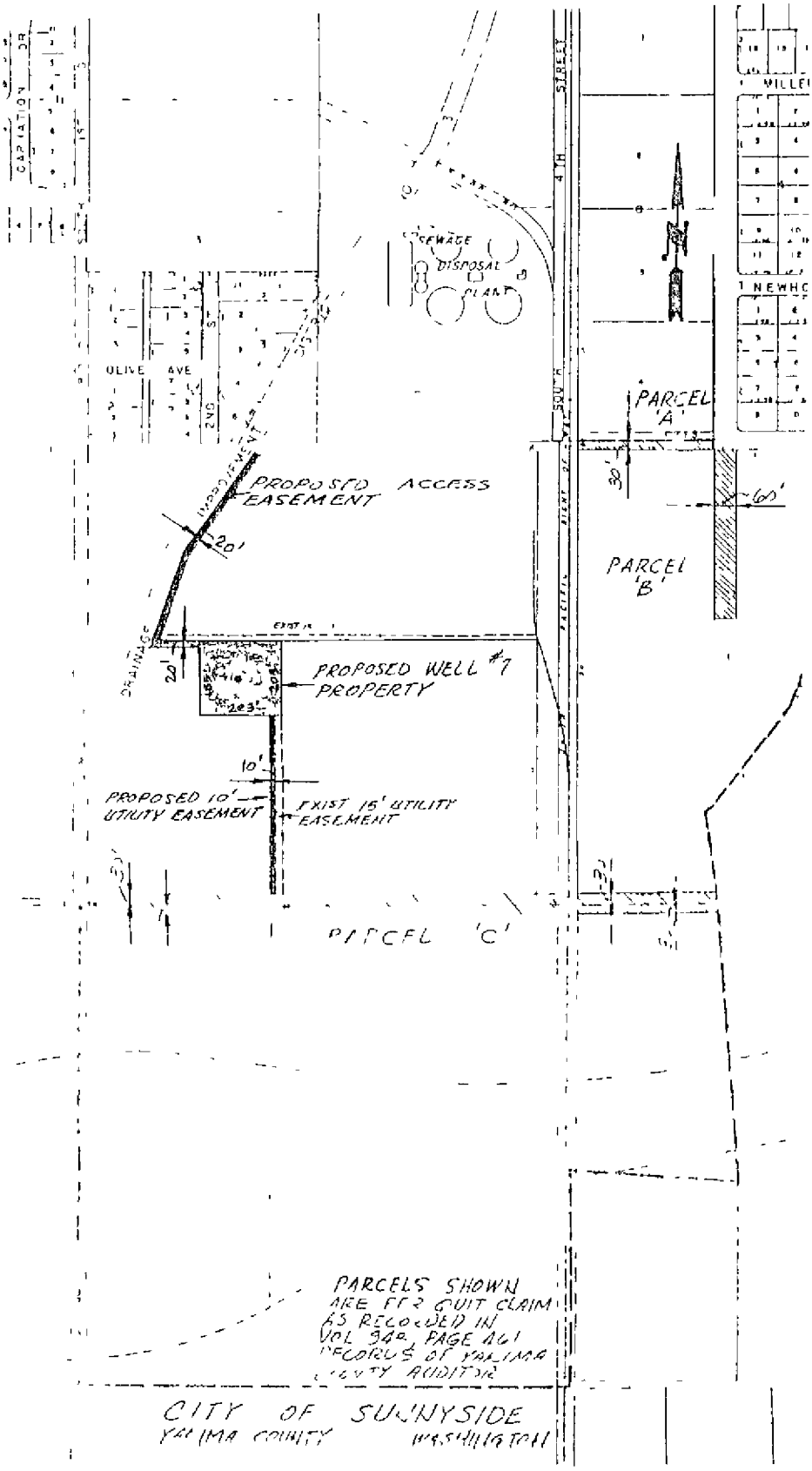


WELL #7

CITY OF SUNNYSIDE		
REF 27 WATERWORKS APPLICATION		
TRANSMISSION LINE PLAN		
DATE 12-74	Gray + Osborne	SCALE 1" = 100
DRAWN M O	CONSULTING ENGINEERS	SHEET 1
CHKD R J S	SEATTLE & YAKIMA	OF 1
APPD	WASHINGTON	

JOB NO 7408

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.



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 460273
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W34671

PAGE 1 of 2

Water Right Permit No. _____

(1) OWNER: Name City of Sunnyside Address 818 E. Edison, Sunnyside, WA 98944

(2) LOCATION OF WELL: County Yakima NE ¼ NE ¼ Sec 26 T. 10 N., R. 22E W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 340 Homer Street A

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal ☒ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) #8

Abandoned ☐ New well ☒ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☒ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 20 inches.
Drilled 440 feet. Depth of completed well 385 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 20 " Diam. from +2 ft. to 325 ft.
Welded ☒ 16 " Diam. from +2 ft. to 300 ft.
Liner installed ☐
Threaded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used N/A
SIZE of perforations N/A in. by N/A in.
— perforations from — ft. to — ft.
— perforations from — ft. to — ft.
— perforations from — ft. to — ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Houston
Type 304 Stainless Steel Model No. 304
Diam. 10 Slot size .30 from 305 ft. to 308 ft.
Diam. 10 Slot size .30 from 325 ft. to 375 ft.

Gravel packed: Yes ☒ No ☐ Size of gravel 10-20 Colorado Sand
Gravel placed from 295 ft. to 385 ft.

Surface seal: Yes ☒ No ☐ To what depth? 325 ft.
Material used in seal Cement
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 44 ft. below top of well Date 6-18-94
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? Irrigators Inc
Yield: 800 gal./min. with 183 ft. drawdown after 48 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
10:00	227.2	12:00	77.40	10:00pm	62.35
10:00	98.7	2:00	73.8	10:00am	56.8
:00	83.4	4:00	68.6		

Date of test 6-20-94
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 57° 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
Fill Dirt and Concrete .	0	5
Sandy Loam	5	30
Dark Brown Sand Med.	30	50
Sand Grey and Black Fine	50	62
Slitstone Grey with Brown	62	68
Fragments Gravel	68	77
Grey Slitstone With Black Gravel	77	88
Clay Tan and Green With Black	88	
Shale Frags.		98
Clay Light Grey	98	102
Clay Dark Grey Black Gravel Frags.	102	120
Gravel	120	123
Grey Clay With Gravel	123	135
Sand Brown Med. With Mica	135	148
Sand And Gravel With Mica	148	151
Sand Brown Med. to Fine	151	167
Gravel With Sand	167	175
Gravel Larger	175	182
Sand With Gravel	182	190
Sand Brown With Small Gravel	190	195
Sand Med. To Fine with Mica	195	200
Sand And Gravel	200	211
Sand Fine To Med. Grained	211	215
Sand And Gravel	215	222
Gravel Med.	222	224
Sand Fine To Course	224	230
Gravel	230	233
Sand Med Fine	233	237
Gravel Well Rounded	237	239
Gravel	239	241
Sand With Some Gravel	241	250
Gravel	250	255
Silt Sand And Gravel	255	262
Cont. on Next Page		

Work started 3-11-94, 19. Completed 6-7-94, 19

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.

RECEIVED JUL 12 1994 DEPARTMENT OF ECOLOGY CENTRAL REGION OFFICE

NAME STACO WELL SERVICES, INC. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 220 Academy St. Mt. Angel, OR 97362

(Signed) [signature] (WELL DRILLER) License No. 1789

Contractor's Registration No. STACOWS13-10H Date 7-8, 19 94

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329- 3

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

460273

WATER WELL REPORT

STATE OF WASHINGTON

PAGE 2 of 2

Start Card No. W 34671
UNIQUE WELL I.D. # 8
Water Right Permit No.

OWNER: Name City of Sunnyside Address 818 E. Edison, Sunnyside, WA 98944

(2) LOCATION OF WELL: County Yakima NE 1/4 NE 1/4 Sec 26 T. 10 N., R 22E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 340 Homer Street A

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (If more than one)
Abandoned ☐ New well ☐ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☐ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well _____ inches.
Drilled _____ feet. Depth of completed well _____ ft.

(6) CONSTRUCTION DETAILS:
Casing Installed: _____" Diam. from _____ ft. to _____ ft.
Welded ☒ _____" Diam. from _____ ft. to _____ ft.
Liner installed ☐
Threaded ☐ _____" 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 _____ 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.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ 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
Tuft Bluegreen	262	280
Tuft Greygreen	280	298
Tuft Tan	298	307
Tuft Grey	307	319
Grey Sand Med. Grained	319	327
Sand Dark Brown	327	355
Gravel And Sand	355	360
Sand And Gravel	360	364
Sand Grey Med.	364	366
Sand Very Fine To Course	366	368
Gravel With Small Amounts of Sand	368	374
Gravel With Fine Sand	374	380
Gravel With Very Fine Sand And Mica	380	388
Gravel With Grey Tuft Fine To Med	388	
Sand		390
Brown Tuft With Gravel	390	392
Multi Colored Tuft	392	428
Basalt Black And Weathered	428	440

Work Started 3-11, 1994 Completed 6-7, 1994

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.

RECEIVED JUL 1 1994 DEPARTMENT OF ECOLOGY CENTRAL REGION OFFICE

NAME STACO WELL SERVICES, INC. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address 220 Academy St. MT. Angel, OR 97362
(Signed) [signature] (WELL DRILLER) License No. 1789
Contractor's Registration No. STACOWS13-101 Date 7-8, 1994

(USE ADDITIONAL SHEETS IF NECESSARY)

ECL 050-1-20 (2/93) * * f

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

28535

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. W07379
UNIQUE WELL I.D. # AAR 996
Water Right Permit No. G4-31581P

(1) OWNER: Name City of Sunnyside Address 818E. Edison, Sunnyside, WA. 98944

LOCATION OF WELL: County Yakima - SW 1/4 NE 1/4 Sec 29 T. 10 N., R 23E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) Edison Road, Sunnyside, WA G

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal XX Other ☐

(4) TYPE OF WORK: Owner's number of well (If more than one) 9
Abandoned ☐ New well XX Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☐ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 30x28x22x15 inches.
Drilled 919 feet. Depth of completed well 919 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 24 " Diam. from 0 ft. to 51 ft.
Welded X 16 " Diam. from +2.5 ft. to 471 ft.
Liner installed X 14 " Diam. from 447 ft. to 453 ft.
Threaded ☐ 12 " Diam. from 453 ft. to 919 ft.
cept screen

Perforations: Yes X No ☐
Type of perforator used factory mill cut
SIZE of perforations 3/16 in. by 3 in.
3300 perforations from 465 ft. to 535 ft.
13560 perforations from 613 ft. to 904 ft.
perforations from ft. to ft.

Screens: Yes XX No ☐
Manufacturer's Name Johnson
Type V shape wire wrap-XX strong Model No. 304SS
Diam. 12 Slot size .250 from 535 ft. to 613 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No XX Size of gravel
Gravel placed from ft. to ft.

Surface seal: Yes X No ☐ To what depth? 471 ft.
Material used in seal cement grout
Did any strata contain unusable water? Yes X No ☐
Type of water? Different aquifer system Depth of strata <451'
Method of sealing strata off cement grout seal

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level 756± ft.
Static level ft. below top of well Date
Artesian pressure 28 lbs. per square inch Date 10/22/97
Artesian water is controlled by 12" valve, etc., per variance (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes XX No ☐ If yes, by whom? Schneider
Yield: gal./min. with ft. drawdown after hrs.
" SEE ATTACHED GRAPHS OF STEP "
" AND CONSTANT RATE TESTS "

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 Graph					

Date of test 9/15-17/97 (constant rate pumping)
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow 800 g.p.m. Date 10/7-13/97
Temperature of water 78°F Was a chemical analysis made? Yes X 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		

RECEIVED NOV 26 1997 DEPARTMENT OF ECOLOGY CENTRAL REGION OFFICE

Work Started 3/19/97, 19. Completed 11/21, 19 97

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 21891 River Rd. NE St. Paul, OR. 97137
(Signed) Stephen Schneider (WELL DRILLER) Vice President License No. 0643
Contractor's Registration No. SCHNEI*226LG Date 11/21, 19 97

(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

SEI 9726

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

The Dep The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

City of Sunnyside Well No. 9 Log

By Schneider Drilling Co.

Unique Well I.D. # AAR 996

From	To	Description
0	7	Sandy silt, brown
7	27	Clay, silty, brown, w/some coarse sand
27	30	Sand & gravel
30	37	Clay, silty, brown, w/some coarse sand
37	51	Sand & gravel, cemented, w/clay
51	68	Sand & gravel
68	75	Sand & gravel, w/clay, gray, & sand, coarse, cemented
75	106	Gravel & claystone, brown
106	148	Clay, brown, soft
148	160	Clay, brown & blue-gray
160	165	Claystone, blue, med-soft
165	187	Clay, blue
187	201	Claystone, white, & clay, blue
201	248	Basalt, blue, hard
248	250	Basalt, blue & claystone, brown
250	282	Basalt, blue, hard
282	286	Basalt, blue, hard, slightly fractured
286	293	Basalt, blue, hard, fractured
293	297	Basalt, blue & sandstone, brown
297	298	Basalt, weathered, sandstone, brown & some clay, gray
298	302	Sandstone & clay, gray
302	310	Sand, coarse & clay
310	317	Sand, fine & clay
317	319	Sand, med-fine & clay, gray
319	326	Clay, white-gray
326	337	Clay, white
337	339	Sand, coarse & clay
339	343	Clay, white-gray
343	347	Sand, coarse
347	348	Sand, coarse, & sandstone
348	375	Clay & some sand, coarse, sticky
375	383	Clay, white-gray, & sand
383	393	Claystone, gray
393	400	Clay, brown & sand, coarse
400	422	Sand, coarse, & clay
422	426	Claystone, gray, & sandstone, brown
426	427	Sand, coarse, & clay, brown
427	434	Clay, brown, sandstone, brown & claystone, brown
434	436	Sandstone, brown, claystone, gray & basalt, weathered
436	440	Basalt, weathered, broken

The Dep The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

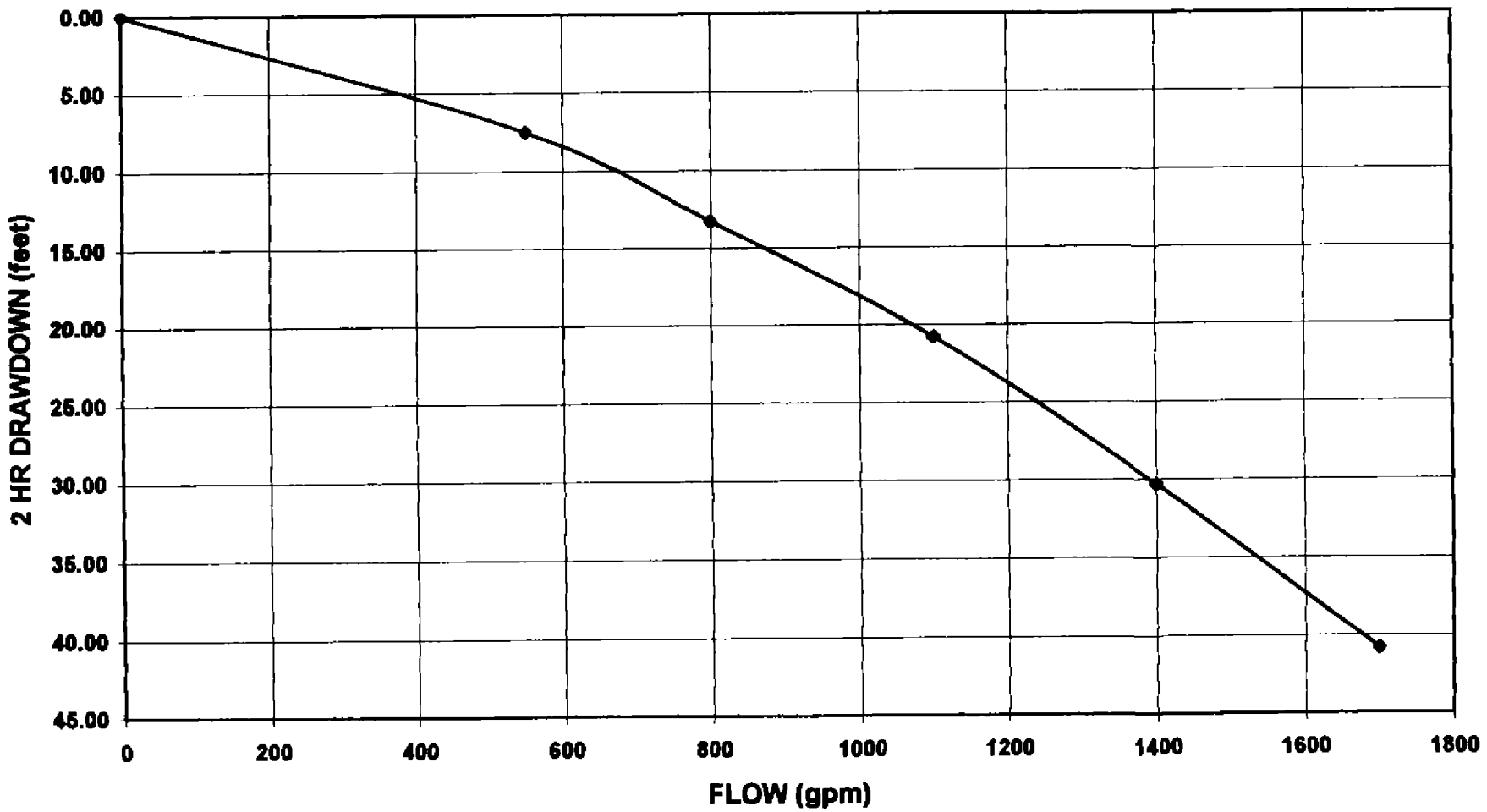
440	451	Basalt, fractured, & claystone, blue-green
451	474	Basalt, black, hard
474	476	Basalt, fractured, w/some vesicular, gray, med
476	490	Basalt, fractured, w/claystone, blue
490	495	Basalt, some fractures, gray, med-hard
495	515	Basalt, fractured, w/claystone, blue, med-hard
515	530	Basalt, fractured, gray, med-hard
530	535	Basalt, fractured, light gray, med-hard
535	539	Basalt, gray, hard
539	546	Basalt, weathered, brown, vesicular
546	547	Basalt, gray, vesicular, w/some basalt, weathered, brown, & quartz, multi-colored
547	549	Basalt, vesicular, gray, medium, fractured
549	550	Basalt, fractured, medium
550	555	Basalt, fractured, gray, w/claystone, blue, medium
555	562	Basalt, weathered, multi-colored, w/quartz, medium
562	574	Basalt, broken, vesicular, gray, w/basalt, weathered, multi-colored, medium
574	584	Basalt, fractured, gray, vesicular, medium, some quartz
584	585	Basalt, broken, gray, vesicular, some weathered
585	591	Basalt, broken, vesicular, multi-colored, med-soft
591	598	Basalt, broken, weathered, vesicular, multi-colored, medium
598	602	Basalt, fractured, gray, some vesicular, & quartz, medium
602	607	Basalt, weathered, vesicular, brown, w/claystone, brown, medium
607	609	Basalt, fractured, vesicular, green-gray, w/some claystone, brown, medium
609	613	Clay, green, w/basalt, fractured, medium
613	618	Basalt, fractured, gray, w/weathered, basalt, brown, medium
618	620	Basalt, gray, hard
620	623	Basalt, fractured, w/siltstone, gray, & shale, blue, medium
623	624	Siltstone, blue, w/basalt, fractured, gray, medium
624	626	Basalt, fractured, gray, med-hard
626	666	Basalt, gray, hard
666	668	Basalt, fractured, gray, med-hard
668	696	Basalt, gray, very hard
696	697	Siltstone, blue, w/basalt imbedded
697	705	Basalt, gray, very hard
705	730	Basalt, slightly fractured, gray, med-hard
730	736	Basalt, fractured, gray, med-hard
736	760	Basalt, gray, hard
760	761	Basalt, gray, fractured, w/quartz, med-hard
761	790	Basalt, fractured, gray, med-hard
790	798	Basalt, gray, hard
798	806	Basalt, gray, very hard
806	807	Basalt, gray, medium
807	811	Basalt, gray, hard
811	815	Basalt, frac, gray, ves, w/obsidian, black, medium
815	817	Basalt, weathered, brown & gray, medium
817	820	Basalt, vesicular, gray-brown, medium

The Dep The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

820	823	Basalt, weathered, red-brown-gray, w/silty clay, brown, soft
823	832	Basalt, weathered, brown, w/silty clay, brown & blue, & claystone, soft
832	833	Basalt, weathered, vesicular, brown-green, soft
833	842	Clay, silty, gray, w/claystone, gray, soft
842	846	Clay, silty, green, w/claystone, blue, soft
846	853	Sand, coarse, w/claystone, red, medium
853	856	Clay, sticky, green, w/claystone, green, soft
856	863	Clay, sticky, gray, w/claystone, green, soft
863	869	Clay, sticky, green, w/claystone, green, some basalt, soft, red
869	875	Clay, sticky, gray, w/siltstone, flaky, green, soft
875	885	Siltstone, flaky, green, w/clay, sticky, gray, some cinders
885	890	Cinders, brown & gray, medium-soft
890	893	Cinders, vesicular, brown, medium-soft
893	895	Basalt, brown, vesicular, w/siltstone, green, med
895	896	Claystone, green, soft
896	900	Basalt, vesicular, brown, w/claystone, gray, med
900	901	Shale, green, soft
901	903	Basalt, broken, brown, med
903	919	Basalt, gray, hard

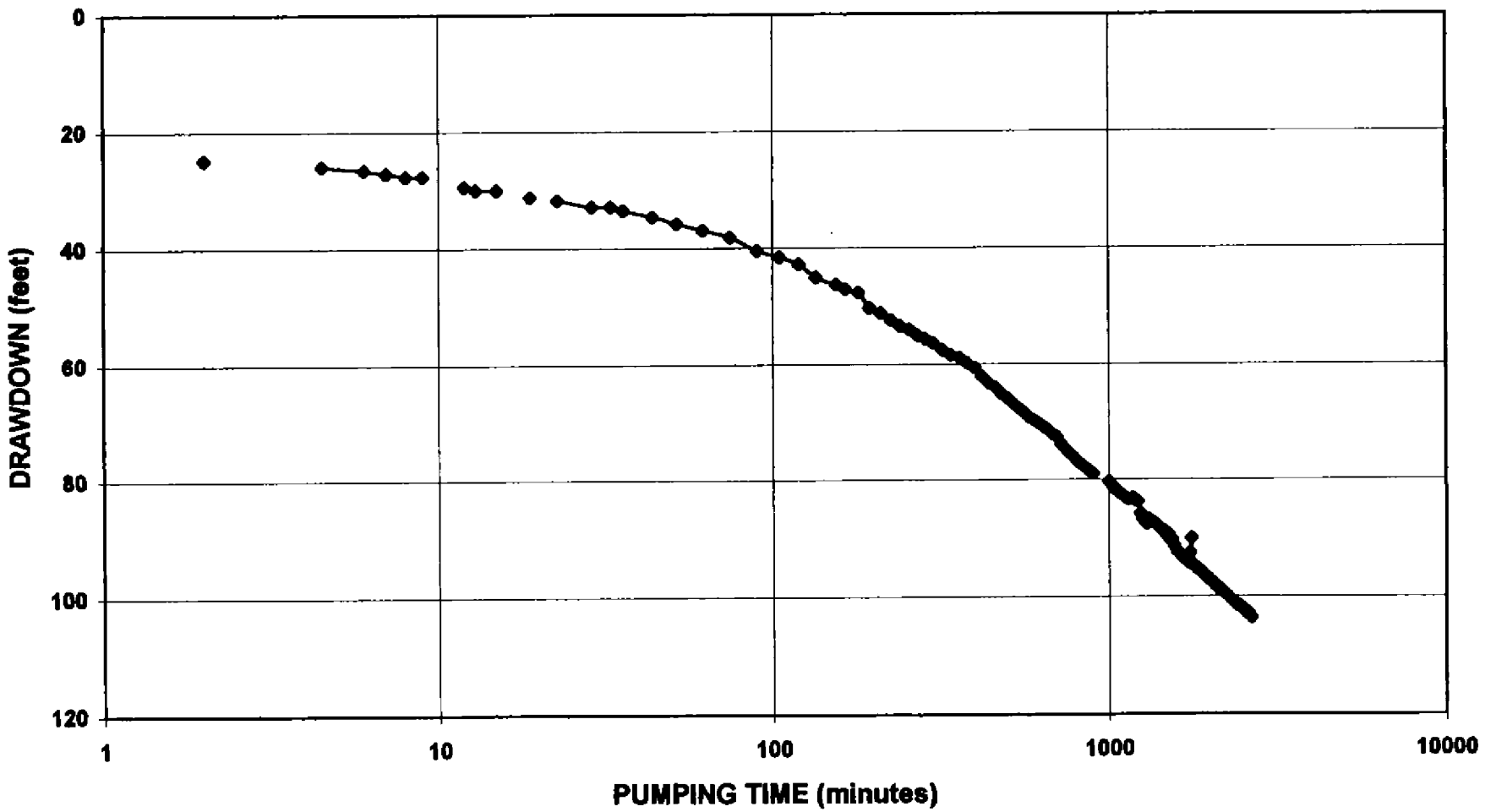
The Dep The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

SUNNYSIDE WELL NO. 9 STEP TEST
FLOW vs DRAWDOWN



The Dep The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

SUNNYSIDE WELL NO. 9
2000 GPM Constant Rate Pump Test

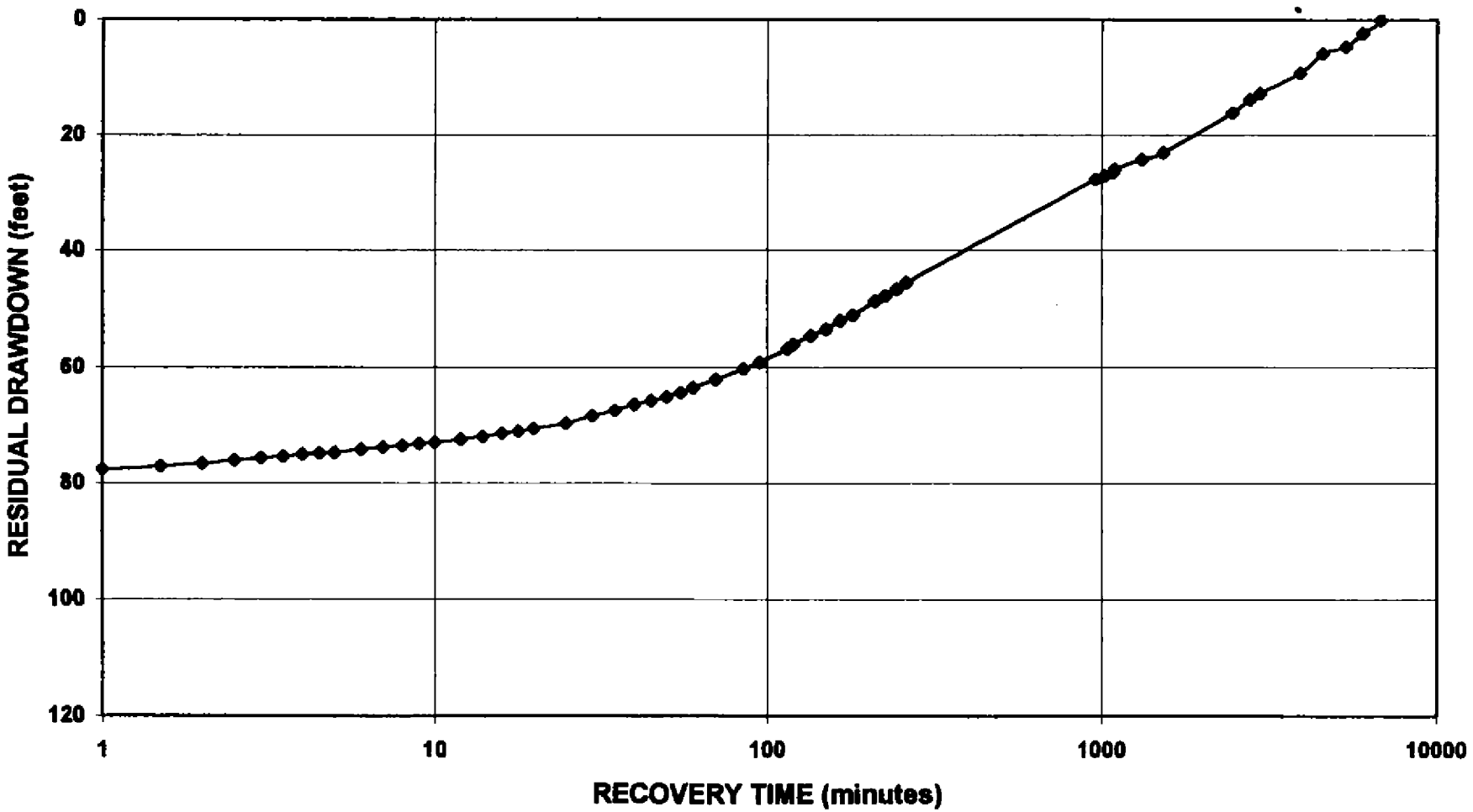


Sunnyside well 9 tests.xls MAN TEST GRAPH

SCHNEIDER DRILLING CO.

The Dep The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

SUNNYSIDE WELL NO.9
Recovery from 2000 GPM Pump Test



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 W07383
UNIQUE WELL I D # AAS285
Water Right Permit No GWC 49-A

(1) **OWNER** Name City of Sunnyside Address 818 E Edison, Sunnyside, WA 98944

(2) **LOCATION OF WELL** County Yakima SE 1/4 NW 1/4 Sec 25 T 10 N R 22E WM

(2a) **STREET ADDRESS OF WELL** (or nearest address) 200-220 S 7th St Sunnyside, WA 98944

(3) **PROPOSED USE** ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal XX Other ☐

(4) **TYPE OF WORK** Owner s number of well (If more than one) 4A
Abandoned ☐ New well XX Deepened ☐ Reconditioned ☐ Method Dug ☐ Cable ☐ Rotary XX Bored ☐ Driven ☐ Jetted ☐

(5) **DIMENSIONS** Diameter of well 16 X 12 cased/lined inches
Drilled 1701 feet Depth of completed well 1701 ft

(6) **CONSTRUCTION DETAILS**
Casing Installed 16 Diam from +2 ft to 1202 ft
Welded XX 24 Diam from 0 ft to 50 ft
Liner installed ☐ Threaded ☐ 12 Diam from see (10) to ft

Perforations Yes XX No ☐
Type of perforator used factory mill cut
SIZE of perforations 3/16 in by 3 in
48/ft perforations from see (10) ft to ft
perforations from ft to ft
perforations from ft to ft

Screens Yes XX No ☐
Manufacturer s Name Houston
Type V shape wire wrap Model No 304SS
Diam 12 Slot size 200 from see (10) ft to ft
Diam Slot size from ft to ft

Gravel packed Yes ☐ No XX Size of gravel
Gravel placed from ft to ft

Surface seal Yes XX No ☐ To what depth? 50' o/s 24" csg ft
Material used in seal cement grout 0-1202' o/s 16" csg
Did any strata contain unusable water? Yes ☐ No XX
Type of water? Depth of strata
Method of sealing strata off

(7) **PUMP** Manufacturer s Name
Type HP

(8) **WATER LEVELS** Land surface elevation above mean sea level 745± ft
Static level 136 bgs ft below top of well Date 12/21/98
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 XX No ☐ If yes by whom? Schneider
Yield gal /min with ft drawdown after hrs

See attached graph

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 graph					

Date of test 12/8/98
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 78°F Was a chemical analysis made? Yes XX 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		
Top of 24" has plate welded between itself and 16" casing		
24" is cement grout sealed	0	50
16" is cement grout sealed	0	1202
12" liner assembly		
J receptor & K packer	1182	1187
blank	1187	1283
perforated	1283	1325
blank	1325	1359
screen	1359	1402
blank	1402	1423
screen	1423	1435
perforated	1435	1448
blank	1448	1490
perforated	1490	1541
blank	1541	1552
perforated	1552	1615
blank	1615	1655
screen	1655	1676
blank	1676	1701

Work Started 7/22/98 19 Completed 12/23 19 98

CENTRAL REGION OFFICE JAN 21 1999 Received DEPT OF ECOLOGY

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 Rd NE, St Paul, OR 97137
(Signed) [signature] (WELL DRILLER) License No 643
Contractor s Registration No SCHNEI 226LG Date 1/15 19 99

(USE ADDITIONAL SHEETS IF NECESSARY)

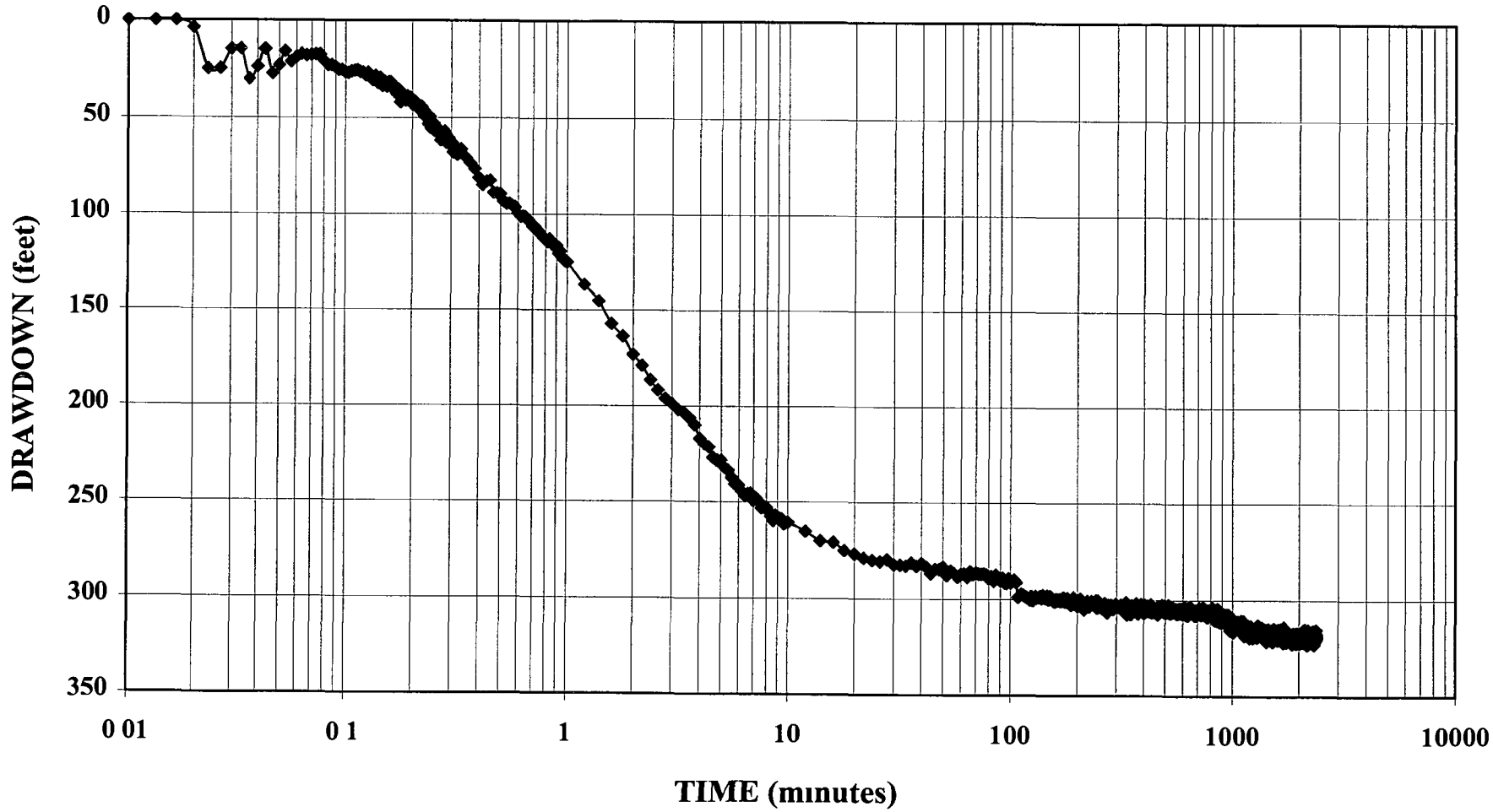
Ecology is an Equal Opportunity and Affirmative Action employer For special accommodation needs contact the Water Resources Program at (206) 407 6600 The TDD number is (206) 407 6006

ECY 050 1 20 (9/93) f by owner

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

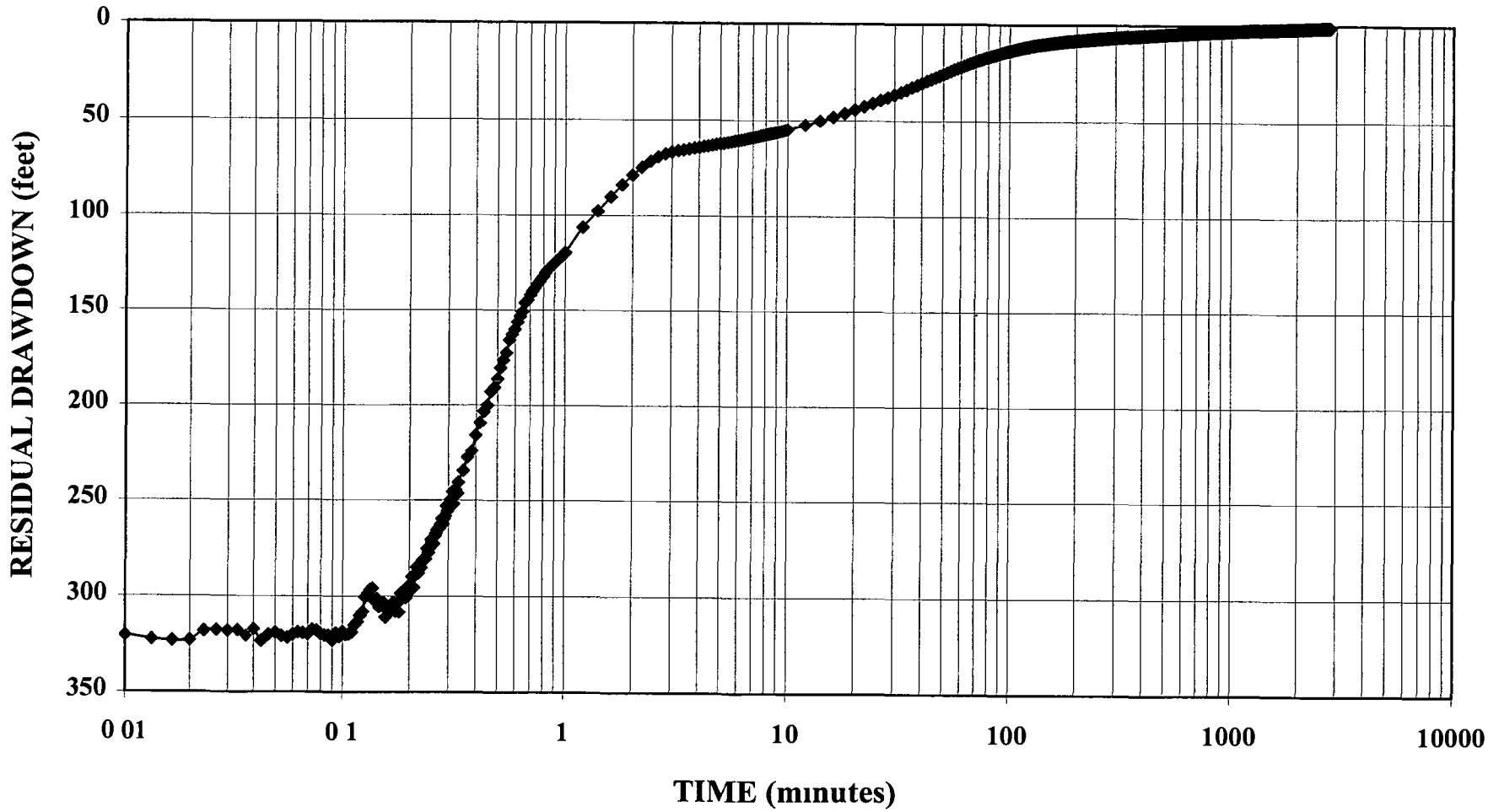
The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

SUNNYSIDE WELL 4A
Pump Test @ 1200 GPM Beginning 12/7/98 (SWL 136' bgs)



The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

SUNNYSIDE WELL 4A
Recovery Beginning 12/9/98



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City of Sunnyside Well No. 4A Log

By Schneider Drilling Co

Unique Well I D # AAS 285

Depth From	Depth To	Description
0	12	Sandy loam, brn, sft
12	22	Clay brn, w/ course sand
22	27	Clay brn, w/some gravel sm
27	46	Clay brn
46	62	Gravels to sand
62	72	Gravel, pea w/sand brn
72	109	Gravels, cemented w/sand brn
109	140	Clay, silty, tan, sft
140	142	Clay, Hy, tan w/gravel
142	162	Clay, silty, brn w/some sandstone brn
162	169	Sitty, clay, brn w/claystone, tan sft
169	182	Clay, silty w/claystone, tan
182	212	Clay, silty, brn
212	232	Clay, sandy, tan
232	237	Clay, tan w/claystone, gray
237	242	Gravels, cemented
242	281	Gravels, cemented, mult-colored w/white shale stone
281	296	Clay, tan, med, sitty
296	326	Clay, tan, sandy, w/green tint
326	377	Clay, sandy, brn
377	387	Gravels, cemented
387	408	Gravel, w/sand
408	427	Gravel, multi-colored w/sand
427	432	Clay, tan, med, sand, med
432	446	Clay, green, med, sturdy
446	456	Basalt, dark gray, some vescular
456	502	Basalt, gray, hrd
502	512	Basalt, gray w/green, Claystone & red sinder
512	519	Basalt, gray, hrd w/some blue claystone
519	521	Basalt, black, fractured, med/hd
521	529	Basalt, gray w/blue quartz interbeded, frac
529	538	Basalt, gray w/blue quartz, frac, hd
538	549	Basalt, gray, frac, hd
549	566	Clay, brown and yellow
566	569	Clay, brn & tan, sticky, med

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569	603	Clay, gray, sticky, med
603	612	Clay, gray & yellow, sticky, med sft
612	630	Claystone, brn & tan, w/brn claystone, sft
630	637	Sand, with brn & tan claystone, sft
637	641	Clay, tan, sticky, med-sft
641	648	Clay, blue, claystone, med-sft
648	655	Clay, gray - tan, sticky, w/claystone, brn
655	660	Clay, gray-yellow & brn, silt stone, med
660	685	Sand, brn sandstone, sft
685	710	Clay, sandy, sft
710	713	Basalt, multi-colored, ves, w/claystone, tan sft/med
713	718	Basalt, gray, slightly ves, w/claystone blue, frac, med
718	721	Basalt, brn/gray, ves, frac
721	733	Basalt, w/clay, dark brn, ves, frac
733	752	Basalt, gray/brn, ves, frac, w/some claystone grn, hd
752	761	Basalt, gray, frac, med/hd
761	762	Basalt, gray, frac, med/hd
762	772	Basalt, blk & gray, frac, med/hd
772	777	Basalt, gray, frac, hrd/med
777	779	Basalt, gray & blk, frac, hd
779	822	Basalt, gray, frac, hd/med
822	838	Basalt, gray, less frac, hd, w/blue quartz interbed
838	842	Basalt, gray, some frac, little blue/grn claystone interbeded
842	855	Basalt, gray, some frac, little blue/grn claystone interbeded
855	868	Basalt, gray w/quartzise blue, frac, hrd
868	871	Basalt, gray w/some quartioxte, blue, frac, hd
871	901	Basalt, gray,ves
901	906	Basalt, gray, ves, w/quartz, little mud
906	912	Basalt, gray w/brn, some frac, hd
912	927	Basalt, gray w/brn streak, frac, med/hd
927	949	Basalt, gray, frac, med/hd
949	953	Basalt, gray w/inbeded blue quartz, frac, hrd/med
953	959	Basalt, gray, frac, med/hd
959	1024	Basalt, gray, hd, some frac
1024	1026	Basalt, gray & blk w/grn quartz inbeded, med/hd
1026	1032	Basalt, gray & some brn w/grn quartz, frac, med/hd
1032	1037	Basalt, gray, frac, hrd/med
1037	1055	Basalt, gray, frac, hd
1055	1111	Basalt, gray, hd
1111	1112	No returns
1112	1125	Basalt, blk w/blue claystone, ves
1125	1167	Claystone, grn

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1167	1180	Basalt, blk, frac
1180	1182	Basalt, gray, frac, med/hd
1182	1201	Basalt, gray w/brn tint, med/hd
1201	1233	Basalt, gray, med/hd
1233	1239	Basalt, gray w/inbeded blue quartz, frac, hrd/med
1239	1243	Basalt, gray, med/hd
1243	1253	Basalt, gray w/quartz inbeded, frac, med/hd
1253	1285	Basalt, gray, frac, med/hrd
1285	1290	Basalt, w/clay & grn claystone, ves, sft
1290	1294	Basalt, blk w/wood & grn claystone, ves, sft
1294	1295	Clay, grn, silty w/wood, sft
1295	1297	Basalt, blk, ves, med
1297	1301	Basalt, gray/grn, slightly ves, med
1301	1305	Basalt, gray/brn, frac, med
1305	1308	Basalt, gray/brn, frac, w/some ves, med
1308	1313	Basalt, gray, frac, ves, med
1313	1361	Basalt, gray, frac, med/hrd
1361	1367	Basalt, gray w/brn, frac, ves, med
1367	1371	Basalt, w/grn quartzite, frac, ves
1371	1376	Basalt, w/grn quartz inbeded, frac, med/hrd
1376	1380	Basalt, brn w/blue quartz, frac, ves, med
1380	1384	Basalt, gray w/veg brn quartz, frac, ves, med
1384	1388	Basalt, gray, frac, some poris, med/hrd
1388	1394	Basalt, w/quartz veg Brn, frac, ves, soft/hrd
1394	1401	Basalt, gray, frac, ves, med
1401	1418	Basalt, gray, frac, med/hrd
1418	1424	Basalt, gray, slightly frac, med/hrd
1424	1433	Basalt w/quartz blue, broken ves, med
1433	1435	Basalt, brn/gray w/pet wood, ves, sft/med
1435	1437	Basalt, brn w/brn clay, ves, sft/med
1437	1442	Basalt, brn, frac, med
1442	1448	Basalt, brn/gray, frac, med
1448	1453	Basalt, gray/redish, frac, med/hrd
1453	1493	Basalt, gray, hrd
1493	1494	Basalt, brn w/gray clay, sft
1494	1495	Basalt, gray w/grn claystone, ves, sft
1495	1497	Basalt, brn w/cinders red, ves, sft
1497	1503	Basalt, brn, frac, ves, sft/med
1503	1504	Basalt, brn/gray, ves, frac, med
1504	1518	Basalt, gray, frac, ves, med
1518	1538	Basalt, gray, frac, med/hrd
1538	1559	Basalt, gray, frac, hrd

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

1559	1562	Basalt, gray w/ves brn claystone, ves, med
1562	1564	Basalt, gray, frac, med/hrd
1564	1568	Basalt, gray, frac w/weatherd basalt, brn, ves, med
1568	1578	Basalt, gray w/gray clay, frac, sft
1578	1583	Basalt, gray, ves, frac, w/silt stone, gray, ves, sft
1583	1584	Basalt, multi-color, frac, ves, w/clay, gray, sft
1584	1586	Basalt, multi-color, frac, ves, sft/med
1586	1593	Basalt, gray, frac, ves, med
1593	1599	Basalt, gray, frac, med/hrd
1599	1609	Basalt, gray, hrd
1609	1611	Basalt, gray, gray, med/hrd
1611	1655	Basalt, gray, v hrd
1655	1656	Basalt, gray, frac, hrd
1656	1663	Basalt, gray, frac, w/weathered basalt, brn, ves, med
1663	1669	Basalt, gray, frac, ves, med
1669	1673	Basalt, gray, frac, slightly ves, med
1673	1675	Basalt, gray, frac, med/hrd
1675	1687	Basalt, gray, frac, w/brn speckles, med/hrd
1687	1692	Basalt, gray, frac, med/hrd
1692	1701	Basalt, gray, hard

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

Construction/Decommission *("x" in circle)*

[x] Construction 309978

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

CURRENT Notice of Intent No. WE07912

Unique Ecology Well ID Tag No. AKN517

Water Right Permit No. CG4-GWC2553-A

Property Owner Name City of Sunnyside

Well Street Address 210 S 7th St

City Sunnyside County Yakima

Location SE 1/4-1/4 NW 1/4 Sec 25 Twn 10 R 22 EWM [x] or WWM [ ] circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg 46 Lat Min/Sec 19/40 Long Deg -120 Long Min/Sec 0/34

Tax Parcel No. 22102524544

PROPOSED USE: [ ] Domestic [ ] Industrial [x] Municipal [ ] DeWater [ ] Irrigation [ ] Test Well [ ] Other _____

TYPE OF WORK: Owner's number of well (if more than one) 11

[ ] New well [x] Reconditioned [ ] Deepened

Method: [ ] Dug [ ] Bored [ ] Driven [x] Cable [ ] Rotary [ ] Jetted

DIMENSIONS: Diameter of well 16 inches, drilled 435 ft.

Depth of completed well 419.5 ft.

CONSTRUCTION DETAILS

Casing Installed: [x] Welded 16" Diam. from +1 ft. to 380.4 ft.

[ ] Liner installed _____" Diam. from _____ ft. to _____ ft.

[ ] Threaded _____" Diam. from _____ ft. to _____ ft.

Perforations: [ ] Yes [ ] No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: [x] Yes [ ] No [ ] K-Pac Location _____

Manufacturer's Name _____

Type stainless steel V-wire Model No. _____

Diam. 8 Slot size 0.040 from 377 ft. to 417 ft.

Diam. 14 Slot size 0.080 from 377 ft. to 417 ft.

Gravel/Filter packed: [x] Yes [ ] No [x] Size of gravel/sand 10/20

Materials placed from 360 ft. to 420 ft.

Surface Seal: [x] Yes [ ] No To what depth? 300 ft.

Material used in seal neat cement 0-18, bentonite grout 18-300

Did any strata contain unusable water? [ ] Yes [x] 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 750 ft.

Static level 13.2 ft. below top of well Date 1/7/08

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? [x] Yes [ ] No If yes, by whom? Foremost Pmp.

Yield: 700 gal./min. with 100 ft. drawdown after 1 hrs.

Yield: 700 gal./min. with 108.5 ft. drawdown after 2 hrs.

Yield: 700 gal./min. with 116.3 ft. drawdown after 3 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.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ 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. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
This reconditioning consisted of lowering a 63' x 8"		
screen assembly inside the existing 14" screen.		
The annular space between the screens was then		
filled with 10/20 sand.		
8" stainless steel riser	357	360
8" x 0.040" slot releif screen	360	363
8" stailess steel blank	363	377
8' x 0.40" screen	377	417
8" x stailess steel sump	417	420
A diagram of the screen installation is attached.		
Job #07-1519-03		

Start Date 1/7/08 Completed Date 1/10/08

DEPT OF ECOLOGY Received FEB 13 2008 CENTRAL REGION OFFICE

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) James Vignali

Driller/Engineer/Trainee Signature James Vignali

Driller or trainee License No. 0987

If TRAINEE,
Driller's Licensed No. _____
Driller's Signature _____

Drilling Company Tacoma Pump & Drilling Co., Inc.

Address 30316 Mountain Highway

City, State, Zip Graham, WA 98338

Contractor's Registration No. TACOMPD203PF Date 2/11/08

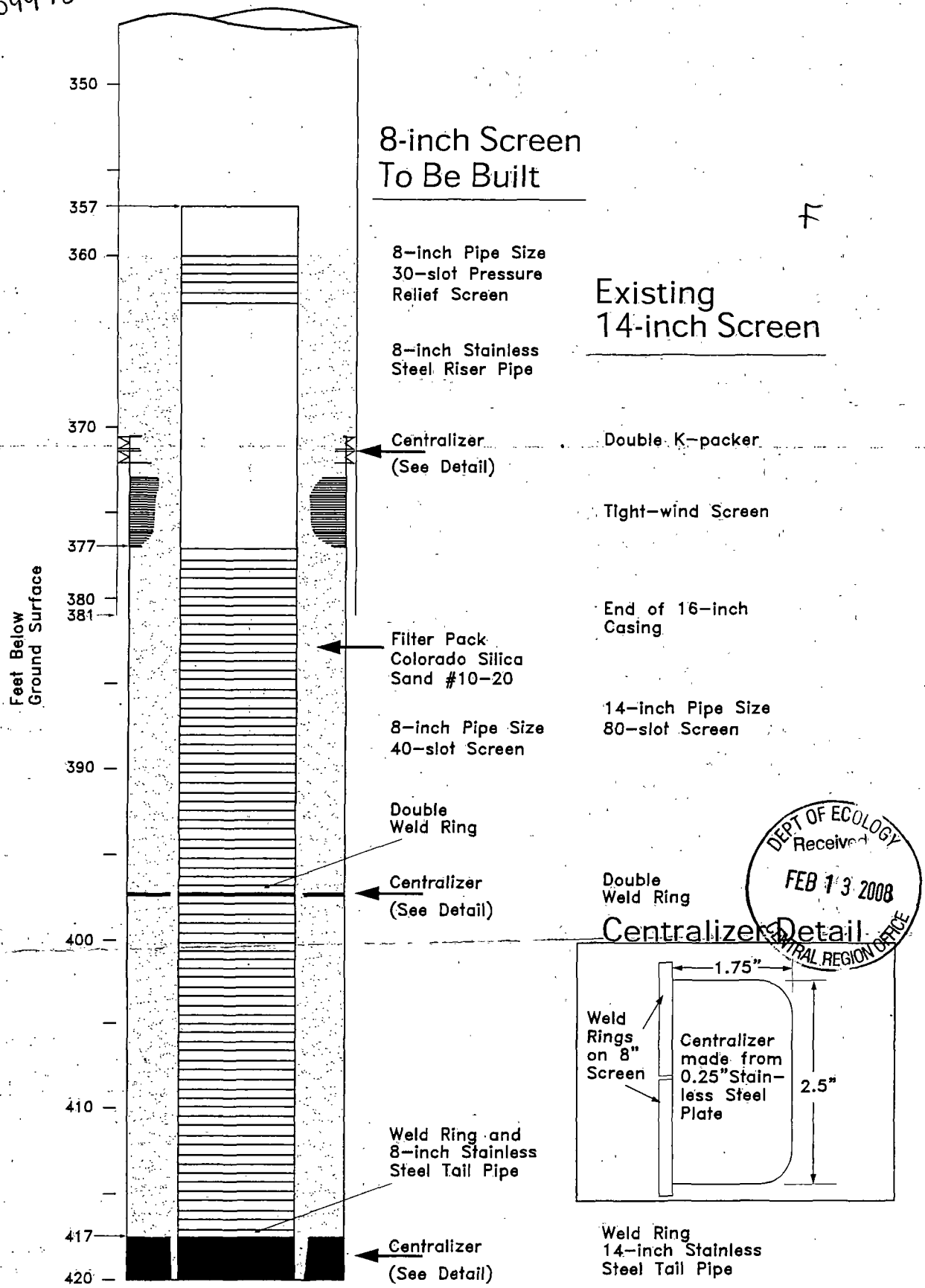
Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev. 3/05)

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

309978



DEPT OF ECOLOGY Received FEB 13 2008 CENTRAL REGION OFFICE

Russ 206-979-3230

SUNNYSIDE WELL 11
PROPOSED SCREEN DESIGN

Please print, sign and return to the Department of Ecology

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

Water Well Report

Original – Ecology, 1st copy – owner, 2nd copy – driller

Construction/Decommission

☑ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* 18170

Current Notice of Intent No. W165117

Unique Ecology Well ID Tag No. AKN 517

Water Right Permit No. CG4-GWC2553-A

Property Owner Name City of Sunnyside

Well Street Address 7th Street and Custer Avenue

City Sunnyside County Yakima

Location SE 1/4-1/4 NW 1/4 Sec 25 Twn 10 R 22 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. _____

PROPOSED USE: ☐ Domestic ☐ Industrial ☑ Municipal ☐ DeWater ☐ Irrigation ☐ Test Well ☐ Other _____

TYPE OF WORK: Owner's number of well (if more than one) #5 Replacement

☑ New well ☐ Reconditioned ☐ Deepened

Method: ☐ Dug ☐ Bored ☐ Driven ☐ Cable ☑ Rotary ☐ Jetted

DIMENSIONS: Diameter of well 16 inches, drilled 435 ft.

Depth of completed well 419.5 ft.

CONSTRUCTION DETAILS

Casing Installed: ☑ Welded 16 " Diam. from +3 ft. to 380.4 ft.

☐ Liner installed _____ " Diam. from _____ ft. to _____ ft.

☐ Threaded _____ " Diam. from _____ ft. to _____ ft.

Perforations: ☐ Yes ☑ No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: ☑ Yes ☐ No ☑ K-Pac Location 370.75

Manufacturer's Name Johnson

Type Stainless Steel Model No. _____

Diam. 14 Slot size 80 from 376.95 ft. to 417.41 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? 300 ft.

Material used in seal 30% Aquagard 18'-300' Neat Cement 0-18'

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 _____ ft.

Static level 6 ft. below top of well Date 6/10/05

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? Jim Vignali

Yield: 800 gal./min. with 249 ft. drawdown after 24 hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

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 June 28, 2005

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Airtest 650-70 gal./min. with stem set at 380-415 ft. for 8 hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water 66° 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
Brown sandy loam.	0	15
Light brown clay.	15	42
Brown gravel small cobbles sand silt.	42	72
Brown soft sandstone.	72	80
Brown sand gravel silt.	80	98
Light brown soft sandstone.	98	103
Light brown gravel sand clay.	103	106
Light brown clay some sand gravel.	106	125
Olive sand clay.	125	140
Light brown clay.	140	162
Brown sand clay.	162	221
Brown gravel sand mica clay.	221	229
Brown clay.	229	231
Brown cobbles gravel sand silt.	231	248
Greenish gray shale stone with clay	248	
lenses.		252
Brown gravel sand silt..	252	279
Grayish brown clay.	279	282
Light gray sand clay.	282	300
Light brown sand clay.	300	315
Light brown clay.	315	345
Light brown fairly soft clay.	345	377
Gray brown gravel water sand silt.	377	427
Light brown clay.	427	435
NOTES:		
0' - 18' Neat cement grout.		
18' - 300' 30% Aquagard Bentonite		
Grout. (200+ Bags)		
05-1449-03		

Start Date 4/27/05 Completed Date 6/10/05

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) Mark Wiese

Driller/Engineer/Trainee Signature _____

Driller or trainee License No. 2432

If TRAINEE,

Driller's Licensed No. _____

Driller's Signature _____

Drilling Company Tacoma Pump & Drilling Co., Inc.

Address 30316 Mountain Highway

City, State, Zip Graham, WA 98338

Contractor's Registration No. TACOMPD203PF Date 6/28/05

RECEIVED OCT 24 2005 Washington State Department of Ecology

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.

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Construction/Decommission *("x" in circle)*

[x] Construction 274261

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

CURRENT Notice of Intent No. RE01959

Unique Ecology Well ID Tag No. ALM-337

Water Right Permit No. _____

Property Owner Name City of Sunnyside E

Well Street Address 719 Edison

City Sunnyside County Yakima

Location SW 1/4-1/4 NW 1/4 Sec 25 Twn 10 R 22 EWM [x] or WWM [ ] circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. 22102532492

PROPOSED USE: [ ] Domestic [ ] Industrial [x] Municipal [ ] DeWater [ ] Irrigation [x] Test Well [ ] Other TW-3

TYPE OF WORK: Owner's number of well (if more than one) _____

[x] New well [ ] Reconditioned [ ] Deepened

Method: [ ] Dug [ ] Bored [ ] Driven [ ] Cable [x] Rotary [ ] Jetted

DIMENSIONS: Diameter of well 6 inches, drilled 397 ft.

Depth of completed well 399.5 ft.

CONSTRUCTION DETAILS

Casing Installed: [x] Welded 6" Diam. from +2.5 ft. to 382.5 ft.

[ ] Liner installed _____" Diam. from _____ ft. to _____ ft.

[ ] Threaded _____" Diam. from _____ ft. to _____ ft.

Perforations: [ ] Yes [x] No

Type of perforator used: _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: [x] Yes [ ] No [x] K-Pac Location 378.5

Manufacturer's Name Johnson

Type S.S. Telescopic Model No. _____

Diam. 5 Slot size 40 from 383.5 ft. to 399.5 ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel/Filter packed: [ ] Yes [x] No [ ] Size of gravel/sand _____

Materials placed from _____ ft. to _____ ft.

Surface Seal: [x] Yes [ ] No To what depth? 135 ft.

Material used in seal Neat Cement

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 _____ ft.

Static level +23 ft. below top of well Date _____

Artesian pressure 10 lbs. per square inch Date 9/20/07

Artesian water is controlled by 8 Bolt Flange, Valve, Gauge (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? [ ] Yes [x] No If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

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.

Airtest 200+ gal./min. with stem set at 378 ft. for 2+ hrs.

Artesian flow 110 g.p.m. Date 09/20/2007

Temperature of water _____ Was a chemical analysis made? [ ] Yes [x] 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. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Brown silty fine sand.	0	2
Grayish-brown clayey silt.	2	10
Moist brown silty sand.	10	33
Slightly dense brown sandy silt.	33	52
Lightly cemented course brown sand, water bearing	52	95
60+ gpm		
Looser brown clayey sand & gravel, medium.	95	104
Brown silty clay with fine gravel.	104	110
Light brown silty clay.	110	123
Blue clay.	123	133
Gray clay.	133	167
Brown coarse silty cemented sand, water bearing,	167	203
flowing.		
Brown silty sand with medium gravels.	203	223
Brownish-gray clay.	223	226
Brown silty sand & gravel, water bearing.	226	232
Light brown silty clay.	232	234
Brown silty coarse sand & gravel.	234	266
Light brown silty clay.	266	276
Brown fine to medium silty sand & medium gravel,	276	397
water bearing.		
Job 07-1533-07		

DEPT OF ECOLOGY Received SEP 26 2007 CENTRAL REGION OFFICE

Start Date 09/12/2007 Completed Date 09/20/2007

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.

[x] Driller [ ] Engineer [ ] Trainee Name (Print) Matt Call

Driller/Engineer/Trainee Signature Matt Call

Driller or trainee License No. 2571

Drilling Company Tacoma Pump & Drilling Co., Inc.

Address 30316 Mountain Highway

City, State, Zip Graham, WA 98338

Contractor's Registration No. TACOMPD203PF Date 09/21/2007

If TRAINEE, Driller's Licensed No. _____

Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05)

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

CORRECTED COPY

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

Construction/Decommission *("x" in circle)*

[x] Construction

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* 415594

CURRENT Notice of Intent No. WE11330

Unique Ecology Well ID Tag No. BAL 875

Water Right Permit No. CG4-GWC2553-A@1;YAKI-07-21

Property Owner Name City of Sunnyside

Well Street Address 2320 Outlook Road

City Sunnyside County Yakima

Location NW 1/4-1/4 NE 1/4 Sec 27 Twn 10 R 22 EWM [x] or WWM [ ] circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg 46 Lat Min/Sec 19/53 Long Deg 120 Long Min/Sec 1/20

Tax Parcel No.

PROPOSED USE: [ ] Domestic [ ] Industrial [x] Municipal [ ] DeWater [ ] Irrigation [ ] Test Well [ ] Other Well #13

TYPE OF WORK: Owner's number of well (if more than one)

[x] New well [ ] Reconditioned [ ] Deepened

Method: [ ] Dug [ ] Bored [ ] Driven [ ] Cable [x] Rotary [ ] Jetted

DIMENSIONS: Diameter of well 12 inches, drilled 450 ft.

Depth of completed well 430.5 ft.

CONSTRUCTION DETAILS

Casing Installed: [x] Welded 16" Diam. from +2 ft. to 265.5 ft.

[ ] Liner installed 12" Diam. from +2.5 ft. to 350.9 ft.

[ ] Threaded " Diam. from ft. to ft.

Perforations: [ ] Yes [x] No

Type of perforator used

SIZE of perfs in. by in. and no. of perfs from ft. to ft.

Screens: [x] Yes [ ] No [x] K-Pac Location See attached drawing

Manufacturer's Name Alloy Machine Works

Type Stainless Steel Model No.

Diam. 10 Slot size Mult from 351 ft. to 430.5 ft.

Diam. 6 Slot size 30 from 346 ft. to 430.5 ft.

Gravel/Filter packed: [x] Yes [ ] No Size of gravel/sand 10-20

Materials placed from 320.4 ft. to 430.5 ft.

Surface Seal: [x] Yes [ ] No To what depth? 267.5 ft.

Material used in seal Neat Cement

Did any strata contain unusable water? [ ] Yes [x] 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 760 ft.

Static level Flowing ft. below top of well Date

Artesian pressure 9 lbs. per square inch Date 8/25/2010

Artesian water is controlled by Flange, valves (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? [x] Yes [ ] No If yes, by whom? TP&D

Yield: 850 gal./min. with 100 ft. drawdown after 1 hrs.

Yield: 850 gal./min. with 120 ft. drawdown after 12 hrs.

Yield: 850 gal./min. with 122 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

Date of test 08/25/2010

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 64 Was a chemical analysis made? [ ] Yes [x] 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. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Damp brown silty fine sand	0	3
Damp brown clayey silt	3	52
Lightly cemented coarse brown sand (60 gpm)	52	95
Brown clayey medium sand and gravel	95	105
Brown silty clay with fine gravels	105	110
Light brown silty clay	110	125
Blue clay	125	167
Brown silty sandstone, water bearing	167	203
Brown silty medium sand and gravel	203	234
Tan fine sandy clay	234	239
Brown silty coarse sand and gravel	239	263
Tan clay	263	270
Blue clay	270	278
Tan sandy clay	278	285
Brown silty fine to medium sand and gravel	285	314
Brown sandy silt	314	317
Brown silty medium sand and gravel with cementation bands. Water bearing.	317	397
Tan silty sandy clay with trace medium gravel	397	407
Blue clay	407	418
Medium to coarse sand, gravel with cemented layers	418	450
Water bearing		

RECEIVED

JUN 15 2011

DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Job #10-1599-03

Start Date 04/28/2010 Completed Date 11/04/2010

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.

[x] Driller [ ] Engineer [ ] Trainee Name (Print) Matt Call For MC 0193

Driller/Engineer/Trainee Signature

Driller or trainee License No. 2467-2571

If TRAINEE, Driller's Licensed No.

Driller's Signature

Drilling Company Tacoma Pump & Drilling Co. Inc.

Address 30316 Mountain Highway

City, State, Zip Graham, WA 98338

Contractor's Registration No. TACOMPD203PF Date 12/03/2010

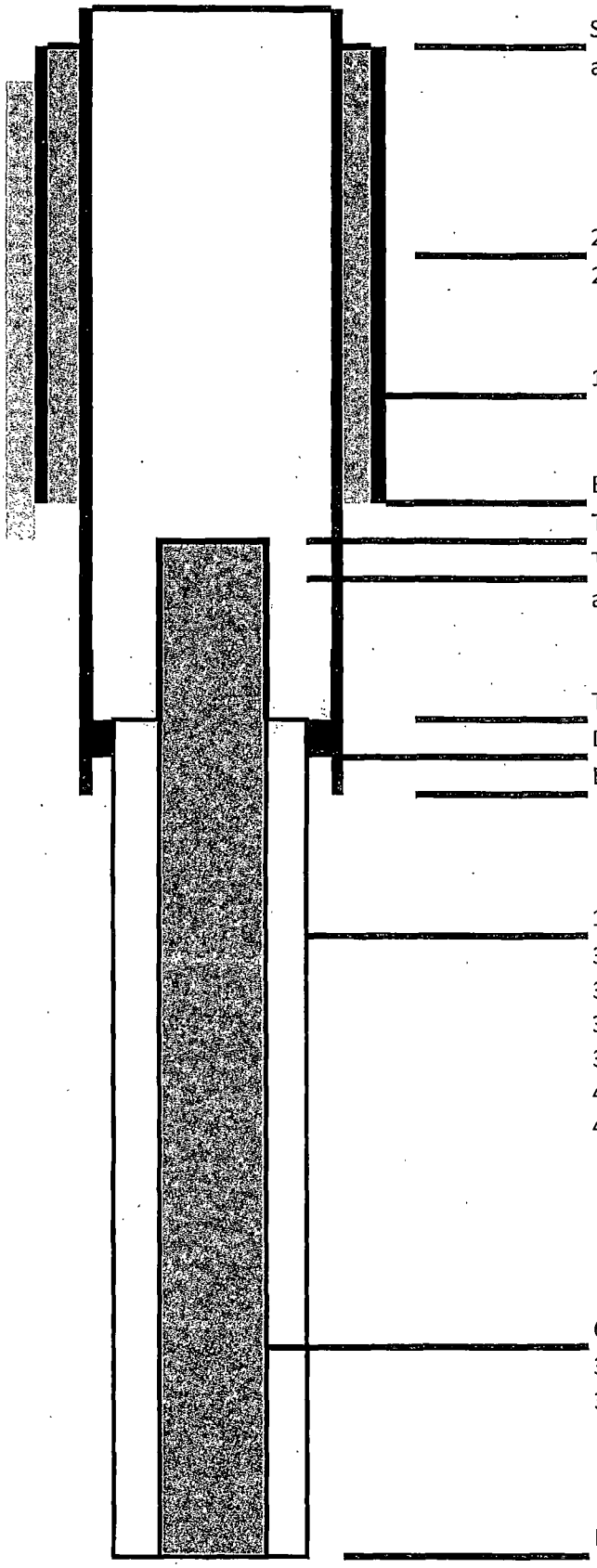
Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05) **The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.**

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

415594

Sunnyside Well #13 drawing.xlsx



Split pipe flange welded to 12" and 16" casings, sealing annulus

20" X 16" cement well seal
267.5' to surface

16" X .375 casing

Bottom of 16" @ 265.5'
Top of 6" riser @ 318'
Top Of 10-20 Colorado Silica Sand at 320.4 Ft.

Top of 10" riser @ 345.9'
Double K-Packer 10" x 12"
Bottom of 12" casing @ 350.9'

10" pipe size riser & screen
345.9'-350.9' K-packer & riser
350.9'-377.4' @ .040 slot
377.4' - 397.4' @ .015 slot
397.4' - 405.4' @ .030 slot
405.4' - 420.4' @ .000 titewind
420.4' - 430.5' @ .040 slot

RECEIVED
JUN 15 2011
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

6" pipe size riser & screen
318' - 345.9' casing blank riser
345.9' - 430.5' @ .030 slot

Bottom @ 430.5 feet, no sumps

No Scale

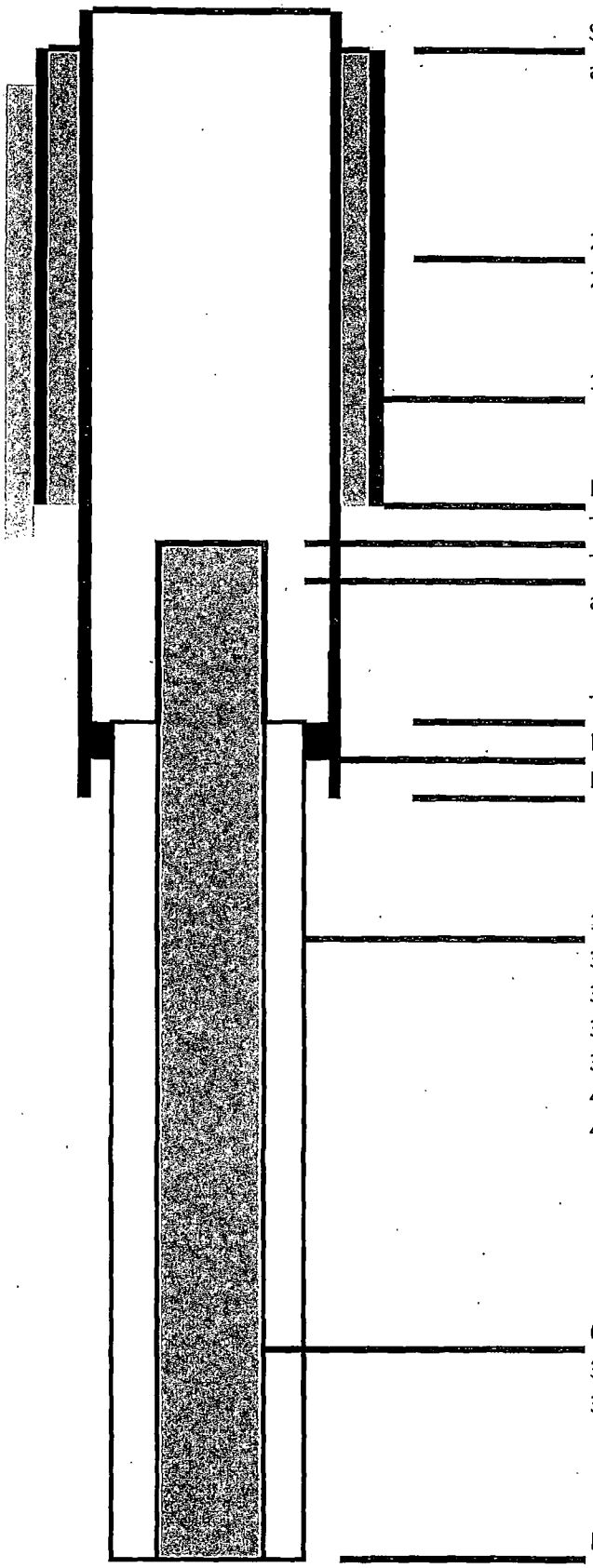
All screen sections are pipe size

12/6/2010

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

415594

Sunnyside Well #13 drawing.xlsx



Split pipe flange welded to 12" and 16" casings, sealing annulus

20" X 16" cement well seal 267.5' to surface

16" X .375 casing

Bottom of 16" @ 265.5'

Top of 6" riser @ 318'

Top Of 10-20 Colorado Silica Sand at 320.4 Ft.

Top of 10" riser @ 345.9'

Double K-Packer 10" x 12"

Bottom of 12" casing @ 350.9'

10" pipe size riser & screen
345.9'-350.9' K-packer & riser
350.9'-377.4' @ .040 slot
377.4' - 397.4' @ .015 slot
397.4' - 405.4' @ .030 slot
405.4' - 420.4' @ .000 titewind
420.4' - 430.5' @ .040 slot

RECEIVED
JUN 15 2011
DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

6" pipe size riser & screen
318' - 345.9' casing blank riser
345.9' - 430.5' @ .030 slot

Bottom @ 430.5 feet, no sumps

No Scale

All screen sections are pipe size

12/3/2010

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

WATER WELL REPORT

Original & 1st copy – Ecology, 2nd copy – owner, 3rd copy – driller

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Construction/Decommission *("x" in circle)*

[x] Construction

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* 415594

CURRENT Notice of Intent No. WE11330

Unique Ecology Well ID Tag No. BAL875

Water Right Permit No. _____

Property Owner Name City of Sunnyside

Well Street Address 2320 Outlook Rd.

City sunnyside County Yakima

Location NW/4-1/4 NE 1/4 Sec 27 Twn 10 R 22 EWM [x] or WWM [ ] circle one

Lat/Long (s, t, r Still **REQUIRED**) Lat Deg 46 Lat Min/Sec 19/53 Long Deg 120 Long Min/Sec 1/20

Tax Parcel No. 22102712004

PROPOSED USE: [ ] Domestic [ ] Industrial [x] Municipal [ ] DeWater [ ] Irrigation [ ] Test Well [ ] Other Well #13

TYPE OF WORK: Owner's number of well (if more than one) _____

[x] New well [ ] Reconditioned [ ] Deepened

Method: [ ] Dug [ ] Bored [ ] Driven [ ] Cable [x] Rotary [ ] Jetted

DIMENSIONS: Diameter of well 12 inches, drilled 450 ft.

Depth of completed well 430.5 ft.

CONSTRUCTION DETAILS

Casing Installed: [x] Welded 12" Diam. from 0 ft. to 350.9 ft.

[ ] Liner installed _____" Diam. from _____ ft. to _____ ft.

[ ] Threaded _____" Diam. from _____ ft. to _____ ft.

Perforations: [ ] Yes [x] No

Type of perforator used _____

SIZE of perfs _____ in. by _____ in. and no. of perfs _____ from _____ ft. to _____ ft.

Screens: [x] Yes [ ] No [x] K-Pac Location 345.9

Manufacturer's Name Alloy Machine Works

Type Stainless Steel Model No. _____

Diam. 10 Slot size Mult from 351 ft. to 430.5 ft.

Diam. 6 Slot size 30 from 346 ft. to 430.5 ft.

Gravel/Filter packed: [x] Yes [ ] No [ ] Size of gravel/sand 10-20

Materials placed from 320.4 ft. to 430.5 ft.

Surface Seal: [x] Yes [ ] No To what depth? 265 ft.

Material used in seal Neat Cement

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 760 ft.

Static level _____ ft. below top of well Date _____

Artesian pressure 9 lbs. per square inch Date 8/25/2010

Artesian water is controlled by Flange, valves (cap, valve, etc.)

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? [x] Yes [ ] No If yes, by whom? TP&D

Yield: 850 gal./min. with 100 ft. drawdown after 1 hrs.

Yield: 850 gal./min. with 120 ft. drawdown after 12 hrs.

Yield: 850 gal./min. with 122 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

Date of test 8/25/2010

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 64 Was a chemical analysis made? [ ] Yes [x] 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. (USE ADDITIONAL SHEETS IF NECESSARY.)

MATERIAL	FROM	TO
Damp brown silty fine sand.	0	3
Damp brown clayey silt.	3	52
Lightly cemented coarse brown san. (60 gpm)	52	95
Brown clayey medium sand and gravel.	95	105
Brown silty clay with fine gravels.	105	110
Light brown silty clay.	110	125
Blue clay	125	167
Brown silty sandstone, water bearing.	167	203
Brown silty medium sand and gravel.	203	234
Tan fine sandy clay.	234	239
Brown silty coarse sand and gravel.	239	263
Tan clay.	263	270
Blue clay	270	278
Tan sandy clay.	278	285
Brown silty fine to medium sand and gravel.	285	314
Brown sandy silt.	314	317
Brown silty medium sand and gravel with cementation bands. Water bearing.	317	397
Tan silty sandy clay with trace medium gravel.	397	407
Blue clay.	407	418
Medium to coarse sand, gravel with cemented layers. Water bearing.	418	

RECEIVED NOV 24 2010 DEPARTMENT OF ECOLOGY - CENTRAL REGIONAL OFFICE

Job #10-1599-03

Start Date 4/28/2010 Completed Date 6/17/2010

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.

[x] Driller [ ] Engineer [ ] Trainee Name (Print) Matt Call

Driller/Engineer/Trainee Signature Matt Call

Driller or trainee License No. 2467-2571

Drilling Company Tacoma Pump & Drilling Co., Inc.

Address 30316 Mountain Highway

City, State, Zip Graham, WA 98338

Contractor's Registration No. TACOMPD203PF Date 11/15/2010

If TRAINEE,

Driller's Licensed No. _____

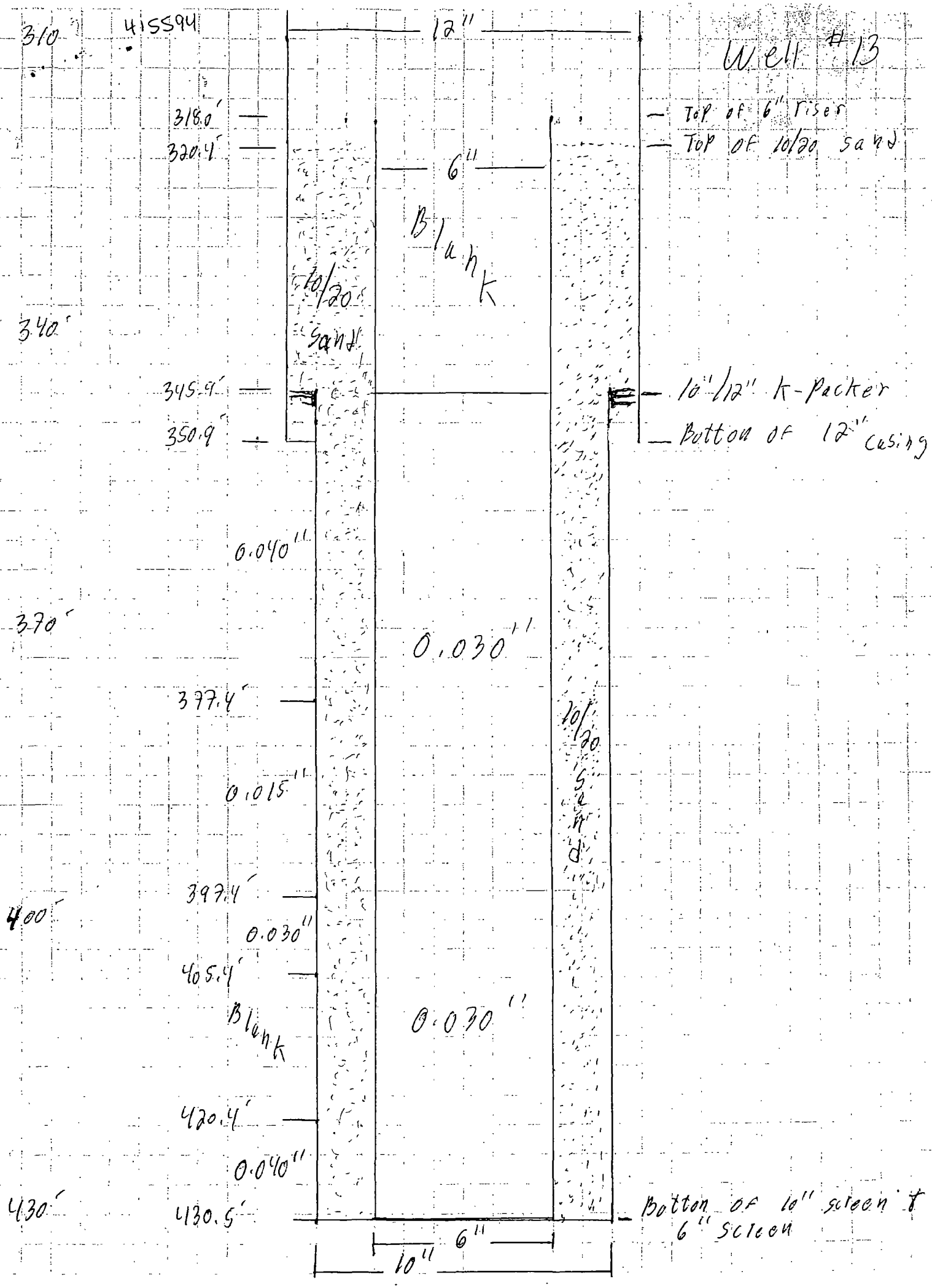
Driller's Signature _____

Ecology is an Equal Opportunity Employer.

ECY 050-1-20 (Rev 3/05)

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.



Surface Water Adjudication

#235 COPY

IN THE SUPERIOR COURT OF THE STATE OF WASHINGTON
IN AND FOR THE COUNTY OF YAKIMA

IN THE MATTER OF THE DETERMINATION OF THE RIGHTS TO THE USE OF THE SURFACE WATERS OF THE YAKIMA RIVER DRAINAGE BASIN, IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 90.03, REVISED CODE OF WASHINGTON,

THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY,

Plaintiff,

v.

JAMES J. ACQUAVELLA, et al.,

Defendants.

No. 77-2-01484-5

STATEMENT OF CLAIM OF
ALL IRRIGATION DISTRICTS AND TOWNS, SUNNYSIDE
(name of defendant)
DIVISION, YAKIMA PROJECT

1. Identification of claimant (including spouse):

a. Name of individual or entity: All irrigation districts and towns, Sunnyside Division, Yakima Project.

b. Mailing address: c/o Sunnyside Valley Irrigation Dist.
P. O. Box 239
Sunnyside, Washington 98944

c. Telephone number: 1-837-6980

2. Nature of right, or use, on which the claim is based:

a. Name of water source(s); if unnamed, so state:

Yakima River & tributaries; Roza Irrigation District (50 cfs)

tributary of Columbia River

b. Legal doctrine(s) on which claim is based (e.g. riparian, appropriative):
Prior appropriation, continued beneficial use, contract, general adjudication, public notice, riparian.

c. If claim is based on a court decree or finding, identify the court, case number, and date:
Claim included in:
KRD, et al., vs. SVID, et al., Civil No. 21, U.S. Federal District Court, Eastern District of Washington.

1752

COPY REC'D & COPY MAP-EXHIBIT F MADE 3-16-82 JMH

d. If claim is based on a certificate or permit issued by the Department of Ecology or predecessor agency, enter the number of the permit or certificate:

Permit No. See Exhibit "A" attached and incorporated herein. Certificate No. _____

e. If claim is based on recording of right with office of the County Auditor, state the county and volume and page number of the filing:

See Exhibit "A" attached and incorporated herein.

f. Other information (other than information as to nature of the right or use requested below):

See Exhibit "A" attached and incorporated herein.

3. a. Date of initiation of right: See Exhibit "A" attached.
month day year

b. Date of commencement of use: See Exhibit "A" attached.
month day year

If right claimed or use has changed since the date of first use, indicate this information under number 7.k., below.

4. a. Date of beginning of construction: See Exhibit "B" attached.
month day year

b. Date of completion of construction: See Exhibit "B" attached.
month day year

If construction was in more than one phase, give this information under question 7.k., below.

5. a. Enter the following information for each ditch existing at the present time:

Name (if any)	Capacity	Dimensions

Exhibit "C" attached and incorporated herein together with other laterals and drains not specifically identified in Exhibit "C".

b. State the interest you have in each ditch listed above.

Operator for benefit of Division landowner-water users.

6. a. Purpose(s) of use: Irrigation, power generation, domestic ~~and stock water.~~

b. If a purpose of use is irrigation, the maximum number of acres irrigated:

103,570

c. If a purpose is irrigation, describe the type and acreage of crops grown.

Miscellaneous annual and perennial irrigated crops 88,859 acres.

d. If a purpose is irrigation, describe the type and characteristics of the soil:

Class I-VI.

e. Maximum quantity of water used: 2,882 cfs. cubic feet per second from 1 January (day/month) to 31 December (day/month) of each year.
Acre-feet used per year: 2,001,659 acre feet

f. Other information relating to purpose and quantity of use:

N/A.

7. a. Legal description of land on which water is being put to beneficial use:

Exhibit "D" attached and incorporated herein.

(continue on separate sheet if necessary)

b. Legal description of land on which water has been put to beneficial use:

Same as 7(a).

(continue on separate sheet if necessary)

c. Legal description of land on which water may be put to beneficial use:

Same as 7(a).

(continue on separate sheet if necessary)

d. Location of point of diversion from the natural source:

NW ¼ SE ¼ Sec. 28, T. 12 N., R. 19 E.W.M. Yakima County;
NE 1/4, Section 32, Township 15 North, Range 19, E.W.M., Yakima County.
Location of point of diversion from ditch, flume, canal, etc.:

____ ¼ ____ ¼ Sec. ____, T. ____ N., R. ____ E.W.M.

e. Interest in land (e.g., owner; contract purchaser, mortgagee, etc.):
None. Claimant is an irrigation district serving landowner-water users within District.

f. If ditch diversion has been replaced by pump, state size and capacity of pump, date installed and location.

Exhibit "E" attached and incorporated herein.

g. State how title to lands described was first acquired from the United States.

Public entry (Homestead), railroad grants.

h. State to whom and when patent was issued for this land.

N/A.

i. State when and how was the first step taken to obtain title from the federal government.

N/A.

j. State whether land is riparian to the water source.

Yes.

k. If type of use, place of use, or quantity of water used has changed since the initial use or if construction of the water system was conducted in more than one phase, describe these changes or phases on a sheet attached to this form.

8. List below, or attach, any other information such as a map which could contribute to defining and establishing this claim.

Exhibit "F" attached and incorporated herein.

VERIFICATION OF DEFENDANT:

STATE OF _____)
) ss.
COUNTY OF _____)

The undersigned, being first duly sworn upon oath, deposes and says:

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent (title, e.g., attorney, agent) of **All Districts and Towns in Sunnyside Division, Yakima Project,** (name of claimant), claimant herein, and he is authorized to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Signature of agent for claimant
c/o Sunnyside Valley Irrigation Dist.
P. O. Box 239
(address)
Sunnyside, Washington 98944
(city) (state) (zip code)

Subscribed and sworn to before me this 24th day of August, 1981.

Notary Public in and for the
State of Washington
residing at Yakima
(city)

CHARLES G. FLOWER
COMMISSION EXPIRES
NOTARY PUBLIC
OF WASHINGTON

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent of
(title, e.g., attorney, agent)
BENTON IRRIGATION DISTRICT, claimant herein, and he is authorized
(name of claimant)
to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Jack Halvorsen
Signature of agent for claimant
c/o Connie Steinmetz
203 Third Avenue
(address)

Benton City, WA 99320
(city) (state) (zip code)

Subscribed and sworn to before me this 24th day of August, 1981.

Charles C. Flowe
Notary Public in and for the
State of Washington
residing at Yakima
(city)

CHARLES C. FLOWE
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES APR. 15, 1984

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent of
(title, e.g., attorney, agent)
GRANDVIEW IRRIGATION DISTRICT, claimant herein, and he is authorized
(name of claimant)
to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

J. C. Mohr
Signature of agent for claimant

Pleasant Avenue
(address)

Grandview, Washington 98930
(city) (state) (zip code)

Subscribed and sworn to before me this 24th day of August, 1981.

Charles C. Flower
Notary Public in and for the
State of Washington
residing at Yakima
(city)

CHARLES C. FLOWER
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
APR. 15, 1984

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent (title, e.g., attorney, agent) of GRANGER IRRIGATION DISTRICT (name of claimant), claimant herein, and he is authorized to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Malcolm W. Neal
Signature of agent for claimant
c/o Mrs. Violet LaPierre, Secretary
Rt. 1, Box 1293
(address)

Granger, Washington 98932
(city) (state) (zip code)

Subscribed and sworn to before me this 24th day of August, 1981.

Charles C. Hawks
Notary Public in and for the
State of Washington
residing at Yakima
(city)

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____ 19___.

_____
Notary Public in and for the
State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent (title, e.g., attorney, agent) of HOME IRRIGATION DISTRICT (name of claimant), claimant herein, and he is authorized to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Violet La Pierre
Signature of agent for claimant

Rt. 1, Box 1293
(address)

Granger, WA 98932
(city) (state) (zip code)

Subscribed and sworn to before me this 27th day of August, 1981.

Earlene Bassett
Notary Public in and for the
State of Washington
residing at Yakima
(city)

EARLENE BASSETT
COMMISSION EXPIRES
NOTARY PUBLIC
JULY 1, 1985
STATE OF WASHINGTON

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

Paul Olsen
Signature of claimant

Subscribed and sworn to before me this 27 day of August, 1981.

Anita M. Vasquez
Notary Public in and for the
State of Washington
residing at Wapato
(city)

ANITA M. VASQUEZ
COMMISSION EXPIRES
NOTARY
PUBLIC
AUG 31 1983
STATE OF WASHINGTON

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent (title, e.g., attorney, agent) of KONEWOCK DITCH CO. (name of claimant), claimant herein, and he is authorized to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Paul Olsen
Signature of agent for claimant

Rt. 1 Box 1357
(address)

Zillah WA 98953
(city) (state) (zip code)

Subscribed and sworn to before me this 27 day of August, 1981.

Anita M. Vasquez
Notary Public in and for the
State of Washington
residing at ~~Yakima~~ Wapato
(city)

ANITA M. VASQUEZ
COMMISSION EXPIRES
NOTARY
PUBLIC
AUG 31 1983
STATE OF WASHINGTON

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent of
(title, e.g., attorney, agent)
OUTLOOK IRRIGATION DISTRICT, claimant herein, and He is authorized
(name of claimant)
to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Roy Cummings
Signature of agent for claimant

Rt. 1, Box 132
(address)

Outlook WA 98938
(city) (state) (zip code)

Subscribed and sworn to before me this 24th day of August, 1981.

Charles C. Flower
Notary Public in and for the
State of Washington
residing at Yakima
(city)

CHARLES C. FLOWER NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES JAN. 15, 1982

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

Donald McDonald
Signature of claimant

Subscribed and sworn to before me this 27 day of August, 1981.

Anita M. Vasquez
Notary Public in and for the State of Washington residing at Wapato (city)

ANITA M. VASQUEZ NOTARY PUBLIC STATE OF WASHINGTON MY COMMISSION EXPIRES JAN. 31, 1982

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent (title, e.g., attorney, agent) of PIETY FLAT DITCH CO. (name of claimant), claimant herein, and he is authorized to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Donald McDonald
Signature of agent for claimant

Rt #2 Box 2200
(address)

Wapato Wa 98951
(city) (state) (zip code)

Subscribed and sworn to before me this 27 day of August, 1981.

Anita M. Vasquez
Notary Public in and for the State of Washington residing at ~~Yakima.~~ Wapato (city)

ANITA M. VASQUEZ NOTARY PUBLIC STATE OF WASHINGTON MY COMMISSION EXPIRES JAN. 31, 1982

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the State of _____ residing at _____ (city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent (title, e.g., attorney, agent) of PROSSER IRRIGATION DISTRICT (name of claimant), claimant herein, and he is authorized to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

William M. Goble
Signature of agent for claimant

P. O. Box 708
(address)

Prosser, WA 99350
(city) (state) (zip code)

Subscribed and sworn to before me this 24th day of August, 1981.

Charles C. Flower
Notary Public in and for the State of Washington residing at Yakima (city)

CHARLES C. FLOWER NOTARY PUBLIC STATE OF WASHINGTON

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent of
(title, e.g., attorney, agent)
SNIPES MOUNTAIN IRRIGATION, claimant herein, and he is authorized
(name of claimant)
to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Laurie Woodworth
Signature of agent for claimant

Rt. 1, Box 157-A
(address)

Outlook, WA 98938
(city) (state) (zip code)

Subscribed and sworn to before me this 24th day of August, 1981.

Charles C. Flower
Notary Public in and for the
State of Washington
residing at Yakima
(city)

CHARLES C. FLOWER NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES APR. 15, 1984

citrem, Bl or Dir.

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____,
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent (title, e.g., attorney, agent) of SUNNYSIDE VALLEY IRRIGATION DISTRICT (name of claimant), claimant herein, and he is authorized to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Douglas Simpson
Signature of agent for claimant
P. O. Box 239
(address)
Sunnyside, WA 98944
(city) (state) (zip code)

Subscribed and sworn to before me this 24th day of Aug, 1981.

Charles C. Flower
Notary Public in and for the
State of Wash,
residing at Yakima
(city)

CHARLES C. FLOWER NOTARY PUBLIC STATE OF WASHINGTON MY COMMISSION EXPIRES JAN. 15 1984

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent (title, e.g., attorney, agent) of ZILLAH IRRIGATION DISTRICT (name of claimant), claimant herein, and he is authorized to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

J. Whitney Hammond
Signature of agent for claimant

P.O. Box 173
(address)

Zillah, Wa 98953
(city) (state) (zip code)

Subscribed and sworn to before me this 27th day of August, 1981.

Nancy Ostby
Notary Public in and for the State of Washington
residing at ~~Yakima~~ Outlook
(city)

NANCY OSTBY
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES 1981

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent (mayor) of
(title, e.g., attorney, agent)
CITY OF GRANDVIEW, claimant herein, and he is authorized
(name of claimant)
to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

x C. L. Stevens
Signature ~~of agent~~ for claimant

207 West Second Street
(address)

Grandview, Wa 98930
(city) (state) (zip code)

Subscribed and sworn to before me this 27th day of August, 1981.

NANCY E. DAVIDSON
NOTARY PUBLIC
COMMISSION EXPIRES APR. 10, 1985
STATE OF WASHINGTON

Nancy E. Davidson
Notary Public in and for the
State of Washington
residing at ~~Yakima~~ Grandview
(city)
Route 3, Box 3508
Commission expires: 4-10-85

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent of
(title, e.g., attorney, agent)
TOWN OF GRANGER, claimant herein, and he is authorized
(name of claimant)
to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Signature of agent for claimant

P.O. Box M
(address)

Granger, Wa 98932
(city) (state) (zip code)

Subscribed and sworn to before me this 27th day of August, 1981.

Earlene Bassett
Notary Public in and for the
State of Washington
residing at Yakima
(city)

EARLENE BASSETT
COMMISSION EXPIRES
NOTARY PUBLIC
JULY 1, 1985
STATE OF WASHINGTON

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____,
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF WASHINGTON)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent of
(title, e.g., attorney, agent)
TOWN OF MABTON, claimant herein, and he is authorized
(name of claimant)
to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

Rudy Sorte
Signature of agent for claimant

PO Box 655
(address)

Mabton, Wash. 98935
(city) (state) (zip code)

Subscribed and sworn to before me this 27th day of August, 1981.

Nancy Osby
Notary Public in and for the
State of Washington,
residing at Yakima Outlook
(city)

NANCY OSBY NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES JULY 25, 1985

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the State of _____, residing at _____ (city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the City ~~agent~~ attorney of
(title, e.g., attorney, agent)
CITY OF PROSSER, claimant herein, and he is authorized
(name of claimant)
to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

[signature]
Signature of agent for claimant
P.O. Box 708
(address)
Prosser Wa 99350
(city) (state) (zip code)

Subscribed and sworn to before me this 27th day of August, 1981.

[signature]
Notary Public in and for the State of Washington residing at ~~Yakima~~ Prosser (city)

STATEMENT OF CLAIM - Page 5

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent of
(title, e.g., attorney, agent)
CITY OF SUNNYSIDE, claimant herein, and he is authorized
(name of claimant)
to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

City of Sunnyside

[signature]
Signature of agent for claimant
Dir. Fin. / Asst City Mgr

CITY OF SUNNYSIDE
(address)
719 E. EDISON AVE.
SUNNYSIDE, WASH. 98944
(city) (state) (zip code)

THE CITY OF SUNNYSIDE SEAL WASHINGTON

Subscribed and sworn to before me this 26th day of August, 1981.

Joan M. Lyons
Notary Public in and for the State of Washington
residing at ~~Yakima~~ Sunnyside
(city)

JOAN M. LYONS NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES JULY 1, 1983

That I am the claimant herein; that I have read the foregoing Statement of Claim and the information contained therein is true and accurate to the best of my knowledge and belief.

_____
Signature of claimant

Subscribed and sworn to before me this ___ day of _____, 19__.

_____
Notary Public in and for the
State of _____
residing at _____
(city)

VERIFICATION OF AUTHORIZED AGENT:

STATE OF Washington)
) ss.
COUNTY OF Yakima)

The undersigned, being first duly sworn upon oath, deposes and says:

That he is the agent of
(title, e.g., attorney, agent)
CITY OF ZILLAH, claimant herein, and he is authorized
(name of claimant)
to make and does make this verification on said claimant's behalf; that he has read the foregoing Statement of Claim, knows the contents thereof and believes the same to be true; and that he is authorized to accept all future service of pleadings and other papers filed in this case.

George Waymire
Signature of agent for claimant

Box
(address)

Zillah Wa. 98953
(city) (state) (zip code)

Subscribed and sworn to before me this 27th day of August, 1981.

Anna L. Lucier
Notary Public in and for the
State of Washington
residing at Yakima
(city)

EXHIBIT "A"

This Exhibit "A" is attached and incorporated in the Sunnyside Division, Yakima Project "Statement of Claim" and more particularly describes the water rights of the Division's landowner-water users.

1880	35 c.f.s. (1200 miners inches, approximate) diverted in Konewock Ditch (now carried in Sunnyside Main Canal).
9/2/1890	2,000 c.f.s. appropriation by Northern Pacific Yakima & Kittitas Irrigation Company signed by W. Granger filed 9/3/1890 Volume A-66, Water Rights. Diversion in Section 35-12-19 (several miles downstream from present dam). (See 3/23/1891 amendment).
12/17/1890	35 c.f.s. agreement by Northern Pacific Yakima and Kittitas Irrigation Company and Konewock Ditch Company filed 12/17/1890, Volume P of Deeds, page 104 to carry 1,200 miners inches in Sunnyside Canal.
3/23/1891	1,000 c.f.s. appropriation by Northern Pacific Yakima and Kittitas Irrigation Company signed by W. Granger. Filed 4/22/91, Volume A-75 Water Rights, amends 9/2/1890 appropriation with diversion by present damsite in Section 28, Township 12N, Range 19E.
3/4/1893	35 c.f.s. deed Konewock Ditch Company to Northern Pacific Yakima and Kittitas Irrigation Company, filed 4/15/1893, Volume Q, Deeds, page 88, for carriage of 1,200 miners inches in Sunnyside Canal (Re: 12/17/1890 agreement). No prior appropriation found.
1/23/06	30 c.f.s. Limiting Agreement, Prosser Falls Land and Power Company, et.al. involves 25 c.f.s. for possible transfer to United States and 5 c.f.s. for town of Prosser; diversion from Yakima River at Prosser.
3/27/06	650 c.f.s. inferred as limit of claim for approval of conditions and authorization by Secretary of Interior on 3/27/06; amount based on August 1905 flow; no actual limiting agreement document, as such; also presumed to include 35 c.f.s. Konewock.
6/23/06	Deed, re: Purchase of Washington Irrigation Company system by United States filed Volume 47, Deeds, page 586 including water rights. Price $250,000.
9/24/10	25 c.f.s. conveyed to United States by Prosser Falls Land and Power Company, et.al., and incorporated lands of Company into Sunnyside Project, including irrigation system.
5/3/11	5 c.f.s. Agreement between United States and Town of Prosser provides for United States to serve corporate limits of Prosser with municipal and irrigation water at rate of 3 ac.ft. (Not clear how United States acquired Prosser Falls Land and Power Company right, retained in 9/24/10 contract. Also note Article 7 of 5/3/11 contract, re: 2½ c.f.s..
2/17/13	1250 c.f.s. appropriation by United States through Secretary of Interior for diversion at Sunnyside Dam, reserving all rights secured under Washington State Act 3/4/05. (Note: This appropriation made subsequent to United States withdrawal of 5/10/05).
5/1/14	26 c.f.s. Piety Flat agreement provides carriage of 25 c.f.s. in Sunnyside Canal; amended to 23 c.f.s. on 10/30/14; Molsee carriage agreement 3/13/15 adds 1 c.f.s., or total of 24, plus canal losses equal 26 c.f.s. at Sunnyside Dam, per Paul Taylor analysis 3/11/31.
11/12/30	1300 c.f.s. State Application No. 3251 for Sunnyside Dam diversion March 1 through October 31. Application cancelled 1/2/52 (Regional Director letter of 12/29/51 agreed to cancellation because water rights "were perfected" prior to Water Code of 1917)

a. All Unappropriated Waters of Yakima River and specified tributaries, including all lakes, ponds and springs in drainage area of Yakima River, withdrawal notice dated May 4, 1905, filed May 10, 1905 with State Commissioner of Public Lands. Purpose: Construction, operation and maintenance of irrigation projects in Kittitas and Yakima Counties (included Benton County). Certificates of Feasibility of the Yakima Reclamation Project, dated April 18, 1906, filed with Public Lands Commissioner on April 20, 1906.

b. All Unappropriated Waters of Yakima River and tributaries not heretofore withdrawn and including certain lakes and streams, withdrawal notice dated April 23, 1906, filed April 25, 1906, with State Commissioner of Public Lands. Purpose: Construction, operation and maintenance of irrigation projects in Kittitas, Yakima, and Benton Counties. Certificate of feasibility dated December 17, 1906, filed with Public Lands Commission on December 19, 1906.

c. Keechelus Reservoir. Application No. 3207 and Permit No. 98 for 152,000 ac.ft. and Application No. 10950 and Permit No. 271 for 5,800 ac.ft.; initial application filed October 16, 1930; Certificate No. 8810 issued July 16, 1963 for 157,800 ac.ft.

d. Kachess Reservoir. Application No. 3208 and Permit No. 99 for 210,000 ac.ft. and Application No. 10949 and Permit No. 270 for 29,000 ac.ft.; initial application filed October 16, 1930; Certificate No. 8811 issued July 16, 1963 for 239,000 ac.ft.

e. Cle Elum Reservoir. Application No. 3210 and Permit No. 97 for 535,000 ac.ft., initial application filed October 16, 1930. Although original Permit No. 97 gives the amount of water to be stored as 535,000 ac.ft., the active capacity is 436,900 ac.ft. (This notation is indicated on Proof of Appropriation, dated December 29, 1951). Certificate No. 8646 issued December 13, 1962, for 437,000 ac.ft.

In addition, Application 10947 was filed December 29, 1951 for 93,000 ac.ft. of sub-storage, but no permit was issued; letter of April 10, 1963 from Murray Walker, State Supervisor of Water Resources states that this application was cancelled.

f. Clear Creek Reservoir. Application No. 3211 and Permit No. 101 for 5,800 ac.ft.; initial application filed October 16, 1930. Certificate No. 4493 issued January 18, 1952 for 5,800 ac.ft.

g. Tieton (Rimrock) Reservoir. Application No. 3212 and Permit No. 102 for 202,500 ac.ft.; initial application filed October 16, 1930. Certificate No. 4494 issued January 18, 1952 for 202,500 ac.ft.

h. Bumping Lake Reservoir. Application No. 3209 and Permit No. 100 for 34,000 ac.ft.; initial application filed October 16, 1930; no certificate issued--see April 10, 1963 letter from Murray Walker, State Supervisor of Water Resources which states that permit No. 100 will eventually be combined with proposed permit under Application 10948 for Bumping Lake Enlargement.

Application No. 10948, filed December 29, 1951 (no permit issued) originally made application for 154,000 ac.ft. in addition to the 34,000 ac.ft. covered in Permit No. 100. The application was amended to 366,000 ac.ft. in lieu of 154,000 per handwritten December 19, 1958 notation on application by G. F. (assumed to be Glenn Fiedler). Notice of this amendment to 366,000 ac.ft. was published in Yakima Herald on January 15, 1959 and in Prosser Record Bulletin on January 22, 1959. NOTE: Total capacity provided by Permit No. 100 (34,000 ac.ft.) and amended Application 10948 (366,000 ac.ft.) equals 400,000 ac.ft., whereas proposed capacity for enlarged Bumping Lake in 1966 report is 458,000 ac.ft.

i. FERC Projects: #3257-000 (Zillah Wasteway)
#4605-000 (Devil's Table)
#4606-000 (Little Rattlesnake)
#5070-000 (Little Naches)

j. DOE Applications:

#S4-27005	
#S4-27433	Devil's Table #1.
#R4-27434	Devil's Table #1.
#S4-27435	Devil's Table #2.
#R4-27436	Devil's Table #2.
#S4-27437	Little Rattlesnake.
#R4-27438	Little Rattlesnake.
Unnumbered	Little Naches (Filed 8/07/81)
Unnumbered	Little Naches (Filed 8/07/81)
Unnumbered	Misc. Reservoirs Dead Storage and carry over. (3/04/77 priority)

k. DOE Registration #65093 (6/04/74) 1316 cfs., 498,570 a/f for irrigation, domestic power from February to and including October.

l. 1/03/45 U.S. - SVID Contract #ILR-1428.
6/25/59 U.S. - Sunnyside Division Districts, Contract #14-06-100-1745.

WATER RIGHT DOCUMENTS

Individual water rights for landowners within the Sunnyside Division were originally secured under several groupings as follows:

a. Government Contract (Circa 1907) between the United States and landowners for supplemental water, in addition to water deed with Washington Irrigation Company.

b. Water Right Application (Circa 1910 - 1915) between the United States and landowner for water supply to newly developed land at rate of $52/acre.

c. Water Deed (prior to 1907) between Washington Irrigation Company providing for 1 c.f.s./160 acres. Filed in County records about 1918.

d. Acceptance of Terms and Conditions of Reclamation Extension Act by landowners. These were recorded.

e. Certificate of Filing Water Right Application entitled landowners to receive water.

f. Final Water Right Certificate (Circa 1934) by United States to landowner indicated paid up right to use of water.

Subsequent water use contracts were made between the United States and the respective districts within the Sunnyside Division.

The water rights on the Sunnyside Division are appurtenant to the lands served, and are not transferable.

SUMMARY OF CONTRACTS & DEEDS

Benton Irrigation District - U.S.	10/06/14	#Ilr-458
	12/28/42	#Ilr-1395
	05/31/45	#Ilr-1395
Grandview Irrigation District - U.S.	08/04/16	#Ilr-160
	02/21/33	#Ilr-160
	01/22/45	#Ilr-160
Granger Irrigation District - U.S.	12/30/22	#Ilr-455
	01/05/45	#Ilr-455
Home Irrigation District - U.S.	11/22/16	Volume 170, Deeds, Pg. 173, records of Yakima County, WA.
	01/11/37	#1779
Outlook Irrigation District - U.S.	11/23/14	#I23r-15
	08/01/16	#I23r-15
	07/01/19	#I23r-15
	12/20/32	#I23r-15
	01/22/45	#Ilr-1430
Prosser Irrigation District - U.S.	11/25/49	#Ilr-457
	11/25/49	#Ilr-1551
Snipes Irrigation District - U.S.	11/16/14	#Ilr-15
	07/11/31	#Ilr-15
Sunnyside Valley Irrigation District - U.S.	03/16/18	#Ilr-459
Washington Irrigation Co. - U.S.	06/23/06	Volume 47, Deeds, Pg. 586, records of Yakima County, WA.
Northern Pacific, Yakima & Kittitas Irrigation Co. - U.S.	03/23/91	Book "A", Water Rights Records, Yakima County, WA.
Konewock-Northern Pacific, Yakima & Kittitas Irrigation Co.	03/04/93	Book "Q", Deeds, Pg. 88, records of Yakima County, WA.
	03/03/45	#Ilr-1428
Zillah Irrigation District - U.S.	09/29/22	#Ilr-464
	06/22/31	#Ilr-464
	01/22/45	#Ilr-464
City of Grandview - U.S.	06/12/12	
	11/27/15	#I23r-137
	02/20/35	#I23r-444
	06/21/38	#I23r-621
City of Prosser - U.S.	04/01/13	#Ilr-452

Konewock Ditch Company		
Konewock Ditch Co. - Yakima Kittitas Irrigation Co.	03/04/93	Book "Q" of Deeds, Pg. 88, Records, Yakima County, WA.
Northern Pacific, Yakima & Kittitas Irrigation Co.-each landowner.	1895	Water Deeds, Records, Benton & Yakima County, WA.
Piety Flat Ditch Company - U.S.	05/01/14	Volume 142, Deeds, Pg. 444, records Yakima County, WA.
	10/30/14	Volume 149, Deeds, Pg. 67, records Yakima County, WA.

EXHIBIT "B"

This Exhibit "B" is attached and incorporated in the Sunnyside Division, Yakima Project "Statement of Claim" and more particularly describes construction of Division irrigation works.

The Sunnyside Canal, an original irrigation development, began with construction in the fall of 1890 by the Northern Pacific and Yakima Irrigation Company, which was later reorganized as the Northern Pacific, Yakima and Kittitas Irrigation Company. (Note: Portions of the old Konewock Ditch, which was built in 1878 - 79 were utilized near head-end of Sunnyside Canal). Financial problems resulted in the Company going into the hands of a receiver, and per deed of June 25, 1900 the Washington Irrigation Company acquired the Sunnyside Canal system from Dalzell Brown under the managership of Walter N. Granger, who had also supervised previous construction work.

The United States Reclamation Service purchased the Sunnyside Canal system from the Washington Irrigation Company under contract dated October 23, 1905 with deed dated June 23, 1906 filed in Yakima County Volume 47 Deeds, page 586. The maximum canal capacity was 650 c.f.s. and the company was serving about 40,000 acres of irrigable land at time of purchase with the main canal constructed to Mile 56. The purchase price of $250,000 included transfer of water rights claimed by the Company, but recognized contracts in force with up to 9,000 acres belonging to the Company having pertinent water rights. The Sunnyside Water Users Association was organized March 10, 1906 and worked diligently to bring in sufficient acreage to proceed with the work. The Reclamation Service took over operation of the Sunnyside Canal system in 1907; the system was operated by the United States until 1945 at which time the common carriage facilities were transferred to a Board of Control (except the Dam and headworks which were transferred on June 26, 1959). The distribution system of Sunnyside Valley Irrigation District was also transferred to the District. The smaller districts continued to be operated by their respective organizations.

1/ The initial construction of the Sunnyside Canal by the Northern Pacific and Yakima Irrigation Company began in the fall of 1890, and by March of 1892, the canal was completed to a point several miles below Zillah, with intake capacity of 650 c.f.s.; to Mile 42 near Sunnyside in 1894; and to Mile 56 in the period 1901 to 1906. In addition, the first nine miles of Snipes Mountain Canal, and the Rocky Ford Canal (at that time beginning at Mile 37 and extending southeasterly about 20 miles to serve land south of Grandview) were also built in 1892 - 93. After the takeover by the Reclamation Service, the present Sunnyside Dam and headworks were constructed in 1906 - 07 with actual construction beginning October 4, 1906; Zillah Wasteway in 1907 - 08; Sulphur Creek Wasteway in 1908 - 10; Mabton Canal 1908 - 09; and the Main Canal extended to Mile 59.3. The Prosser siphon was built in 1910 to serve the area in vicinity of Prosser. Maximum diversion 1906 - 08 was 704 c.f.s.; in July 1906, capacity was estimated as 660 c.f.s. The initial canal enlargement work and construction of 24 concrete drops was performed in 1907 - 1912; further enlargement from Mile 50.5 to 59.3, and the Benton Canal extension work was performed in 1914 - 15. The other smaller districts were constructed in the following periods: Grandview, 1916 - 17; Granger, 1923; Outlook, 1915 - 16; Prosser, 1918 - 19; and Snipes Mountain, 1915. Thus, the Sunnyside Division irrigation system as presently operated, was completed in 1923, with all of the gravity system completed by 1915 (except the Granger Irrigation District).

EXHIBIT "C"

This Exhibit "C" is attached and incorporated in the Sunnyside Division, Yakima Project "Statement of Claim" and more particularly describes the principle existing ditches and laterals as follows:

(1)	Sunnyside Main Canal, 68' x 6.5'	1,316 cfs.
(2)	Ryder Lateral, 10' x 2.6'	50 cfs.
(3)	Snipes Intake, 26' x 6'	210 cfs.
(4)	Rocky Ford Lateral, 15' x 4'	105 cfs.
(5)	Prosser Lateral, 12' x 2'	34 cfs.
(6)	Mabton Lateral, 16' x 4'	135 cfs.
(7)	Benton Canal, 15' x 4'	75 cfs.
(8)	Mathieson Lateral, 12' x 3'	54 cfs.
(9)	Snipes 9 Mile, 17.6' x 4'	123 cfs.
(10)	Snipes 9.06 Mile, 7' x 3.6'	36 cfs.
(11)	Snipes 10.21 Mile, 16' x 4.6'	56 cfs.
(12)	Granger Lateral East, 7' x 2.9'	
(13)	Granger Lateral West, 8" pipe	21 cfs.
(14)	Benton Lateral, 14' x 4'	68 cfs.
(15)	Outlook Lateral East, 9.6' x 2.6'	45 cfs.
(16)	Outlook Lateral West, 5.6' x 2.6'	22 cfs.
(17)	Snipes North Lateral, 8' x 2.6'	
(18)	Snipes South Lateral, 12" pipe	
(19)	Snipes Hillcrest, 10" pipe	31 cfs.
(20)	Grandview Lateral East, 5.6' x 2'	20 cfs.
(21)	Grandview Lateral West, 6' x 2.6'	22 cfs.

Division

EXHIBIT "D"

This Exhibit "D" is attached and incorporated in the "Statement of Claim" answering question number 7.

In Township 9 North, Range 25, E.W.M., Benton County, Washington.

That portion of Section 13 lying South of the Benton Canal; and,

In Township 9 North, Range 26, E.W.M., Benton County, Washington,

That portion of Section 18 lying South of the Benton Canal and North of the Yakima River; That portion of Section 17 lying South of the Benton Canal and North of the Yakima River; That portion of Section 8 lying South of the Benton Canal; That portion of Section 9 lying South of the Benton Canal and North of the Kiona Canal; that portion of the Southwest quarter of Section 4 lying South of the Benton Canal; that portion of Section 3 lying South of the Benton Canal; the portions of Sections 10, 11, 12 and 13 lying North of the Kiona Canal; the portions of Sections 6, 7 and 18 lying West of the Kiona Canal; All of Section 1; that portion of Section 2 lying South of the Benton Canal; and,

In Township 10 North, Range 26, E.W.M., Benton County, Washington.

That portion of the South half of Section 35 lying South of the Benton Canal; that portion of Section 36 lying East of the Benton Canal; That portion of Section 31 lying West of the Kiona Canal; That portion of the Southwest quarter of Section 25 lying South of the Benton Canal.

This Exhibit "D" is attached and incorporated in the "Statement of Claim" answering question number 7.

In Yakima County, Washington, Township 9 North, Range 23, E.W.M., as follows:

That portion of the Southeast 1/4 of the Northeast 1/4 and Northeast 1/4 of the Southeast 1/4 of Section 11, lying East of the Sunnyside Main Canal; that portion of the South 1/2 of the Northwest 1/4 of the Northwest 1/4 of Section 12 lying East of the Sunnyside Main Canal; the South 1/2 of the Northeast 1/4 of the Northwest 1/4 of Section 12; that portion of the Southwest 1/4 of the Northwest 1/4 of Section 12 lying East of the Sunnyside Main Canal; that portion of the Southeast 1/4 of the Northwest 1/4 of Section 12 lying West of open canal; that portion of the Southwest 1/4 of Section 12 lying East of the Sunnyside Main Canal; the Northwest 1/4 of the Southeast 1/4 of Section 12; the Southwest 1/4 of the Southeast 1/4 of Section 12; the Southeast 1/4 of the Southeast 1/4 of the Southeast 1/4 of Section 12; that portion of Section 13 lying East of the Sunnyside Main Canal; that portion of the East 1/2 of Section 14 lying East of the Sunnyside Canal; that portion of Section 24 lying East of the Sunnyside Main Canal.

In Benton County, Washington, Township 9 North, Range 24, E.W.M., as follows:

The Southeast 1/4 of the Southeast 1/4 of the Northwest 1/4 of Section 18; the Northwest 1/4 of the Southwest 1/4 of Section 18; the West 1/2 of the Northeast quarter of the Southwest 1/4 of Section 18; the South 1/2 of the Southwest 1/4 of Section 18; the Southwest 1/4 of the Southeast 1/4 of Section 18; Section 19 except that portion lying West of the Sunnyside Main Canal; the Northeast 1/4 of the Northwest 1/4 of Section 20; the Southwest 1/4 of the Northwest 1/4 of Section 20; the West 1/2 and Southeast 1/4 of the Southeast 1/4 of the Northwest 1/4 of Section 20; the South 1/2 of Section 20; the South 1/2 of the Northwest 1/4 of the Southwest 1/4 of Section 21; the South 1/2 of the Northeast 1/4 of the Southwest 1/4 of Section 21; the Southeast 1/4 of the Northwest 1/4 of the Southeast 1/4 of Section 21; the Northeast 1/4 of the Southeast 1/4 of Section 21; the South 1/2 of the South 1/2 of Section 21; the Southeast 1/4 of the Northwest 1/4 of the Southwest 1/4 of Section 22; the South 1/2 of the Northeast 1/4 of the Southwest 1/4 of Section 22; the Southwest 1/4 of the Northwest 1/4 of the Southeast 1/4 of Section 22; the South 1/2 of the South 1/2 of the Northeast quarter of the Southeast 1/4 of Section 22; the South 1/2 of the South 1/2 of Section 22; the South 1/2 of the Northwest 1/4 of the Southwest 1/4 of Section 23; the South 1/2 of the Northeast 1/4 of the Southwest 1/4 of Section 23; the South 1/2 of the Northwest 1/4 of the Southeast 1/4 of Section 23; the Northeast 1/4 of the Southeast 1/4 of Section 23; the South 1/2 of the South 1/2 of Section 23.

That portion of the North 1/2 of Section 26, lying North of the Sunnyside Main Canal; that portion of the North 1/2 of Section 27, lying North of the Sunnyside Main Canal; that portion of Section 28 lying North of the Sunnyside Main Canal; that portion of Section 29 lying North of the Sunnyside Main Canal; that portion of the North 1/2 of Section 30 lying North of the Sunnyside Main Canal.

Granger

EXHIBIT "D"

This Exhibit "D" is attached and incorporated in the "Statement of Claim" answering question number 7.

In Yakima County, Washington, Township 10 North, Range 21, E.W.M., as follows:

That portion of Section 22 lying South of the Northern Pacific Railroad right-of-way; that portion of Section 23, lying South of the Northern Pacific Railroad right-of-way; that portion of Section 24 lying South of the Northern Pacific Railroad right-of-way; Section 25; that portion of Section 26 lying North of the Yakima River; that portion of Section 27 lying Northeast of the Yakima River.

In Yakima County, Washington, Township 10 North, Range 22, E.W.M., as follows:

That portion of the Southwest 1/4 of Section 19 lying South of the Northern Pacific Railroad right-of-way; that portion of the West 1/2 of Section 29 lying South of the Turner lateral; the Southwest 1/4 of the South-east 1/4 of Section 29; Section 30, except the North-east 1/4 of the Northeast 1/4 of Section 30; that portion of Section 31 lying North of the West Branch Snipes Mountain Canal; that portion of Section 32 lying North of the West Branch Snipes Mountain Canal; Section 33, except the North 1/2 of the North 1/2 of Section 33 and except the South 1/2 of the South 1/2 of Section 33; the Southwest 1/4 of Section 34; the Southwest 1/4 of the Northwest 1/4 of Section 34.

EXHIBIT "D"

This Exhibit "D" is attached and incorporated in the "Statement of Claim" answering question 7.

In Township 12 North, Range 19, E.W.M., Yakima County, Washington.

That portion of the South 1/2 of the Southwest 1/4 of the Southeast 1/4 of Section 27 lying South of the Sunnyside Canal; the North 1/2 of the Northeast 1/4 of Section 34; that portion of the North 1/2 of Section 35 lying South of the Sunnyside Canal and North of the Northern Pacific Railroad tracks; that portion of Southwest 1/4 of Section 35 lying South of Sunnyside Canal and North of the Northern Pacific Railroad Tracks; that portion of the South 1/2 of Section 36 lying South of Sunnyside Canal; and,

In Township 11 North, Range 19, E.W.M., Yakima County, Washington, that portion of the North 1/2 of Section 1 lying North of Highway 12; that portion of the Northeast 1/4 of the Southeast 1/4 of Section 1 lying North of Highway 12; and,

In Township 11 North, Range 20, E.W.M., Yakima County, Washington, That portion of the North 1/2 of Section 6 lying South of the Sunnyside Canal; the North 1/2 of the Southwest 1/4 of Section 6; that portion of Southwest 1/4 of Section 6 lying South of the Sunnyside Canal; That portion of the East 1/2 of Section 7 lying North of the Northern Pacific Railroad tracks; that portion of the Northwest 1/4 of the Northeast 1/4 of the Southeast 1/4 of Section 7 lying South of the Northern Pacific Railroad tracks; that portion of Section 8 lying South of Sunnyside Canal and North of Northern Pacific Railroad tracks; that portion of Section 9 lying South of the Sunnyside Canal; that portion of Section 17 lying North of Highway 12; that portion of the Northeast 1/4 of the Northwest 1/4 of Section 17 lying North of the Northern Pacific Railroad tracks; that portion of Section 16 lying North of Highway 12 and South of the Sunnyside Canal; that portion of Northwest 1/4 of the Southwest 1/4 of Section 15 lying South of Sunnyside Canal; the Southwest 1/4 of the Southwest 1/4 of Section 15; that portion of the Northeast 1/4 of the Northeast 1/4 of Section 21 lying North of Highway 12; that portion of Section 22 lying North of Highway 12 and South of the Sunnyside Canal; that portion of the Southeast 1/4 of the Southwest 1/4 and the Southwest 1/4 of the Southeast 1/4 of Section 22 lying East of county drainage ditch; the North 1/2 of the Northeast 1/4 of Section 27; that portion of the Northeast 1/4 of the Northwest 1/4 of Section 27 lying East of county drain; that portion of Section 26

lying North of the Northern Pacific Railroad tracks; the Southwest 1/4 of the Northwest 1/4 of Section 26; the Southeast 1/4 of the Northwest 1/4 lying South of the Northern Pacific Railroad tracks; the Northeast 1/4 of Southwest 1/4 lying South of the Northern Pacific Railroad tracks; the Northwest 1/4 of the Southeast 1/4 lying South of the Northern Pacific Railroad.

(End of Exhibit " ")

Outlook

EXHIBIT "D"

This Exhibit "D" is attached and incorporated in the "Statement of Claim" answering question number 7.

In Yakima County, Washington, Township 11 North, Range 21, E.W.M., as follows:

The Southeast 1/4 of the Southwest 1/4 of the Southeast 1/4 of Section 36; the Southeast 1/4 of the Southeast 1/4 of Section 36.

In Yakima County, Washington, Township 11 North, Range 22, E.W.M., as follows:

The South 1/2 of the Southwest 1/4 of the Southwest 1/4 of Section 31.

In Yakima County, Washington, Township 10 North, Range 22, E.W.M., as follows:

The Southwest 1/4 of the Southwest 1/4 of the Southwest 1/4 of Section 2; the South 1/2 of the Southeast 1/4 of the Southeast 1/4 of Section 3; the South 1/2 of the Northwest 1/4 of the Southeast 1/4 of Section 3; the Southwest 1/4 of the Southeast 1/4 of Section 3; the Northeast 1/4 of the Southwest 1/4 of Section 3; the Southeast 1/4 of the Southwest 1/4 of Section 3; the Southwest 1/4 of the Northwest 1/4 of the Southwest 1/4 of Section 3; the Southwest 1/4 of the Southwest 1/4 of Section 3; the Southeast 1/4 of Section 4; the Northeast 1/4 of the Southwest 1/4 of Section 4; the Southeast 1/4 of the Southwest 1/4 of Section 4; the Southwest 1/4 of the Southwest 1/4 of Section 4; the Southwest 1/4 of the Northwest 1/4 of the Southwest 1/4 of Section 4; the Southeast 1/4 of the Southeast 1/4 of the Northwest 1/4 of Section 4; the South 1/2 of the South 1/2 of Section 5; the South 1/2 of the Northeast 1/4 of the Southeast 1/4 of Section 5; the South 1/2 of the Northwest 1/4 of the Southeast 1/4 of Section 5; the South 1/2 of the Northeast 1/4 of the Southwest 1/4 of Section 5; the Northwest 1/4 of the Southwest 1/4 of Section 5; the South 1/2 of Section 6; the Southwest 1/4 of the Southeast 1/4 of the Northeast 1/4 of Section 6; the Southwest 1/4 of the Northeast 1/4; the South 1/2 of the Northwest 1/4 of Section 6; the South 1/2 of the Northeast 1/4 of the Northwest 1/4 of Section 6; the Northwest 1/4 of the Northwest 1/4 of Section 6; that portion of the North 1/2 of Section 7 lying North of the North right-of-way boundary of the Sunnyside Main Canal; that portion of Section 8 lying North of the North right-of-way boundary of the Sunnyside Main Canal; that portion of Section 9 lying North of the North right-of-way boundary of the Sunnyside Main Canal; the Southeast 1/4 of the Northwest 1/4 of the Southeast 1/4 of Section 9; the East 1/2 of the Southwest 1/4 of the Southeast 1/4 of Section 9; the West 1/2 of the Southeast 1/4 of the Southeast 1/4 of Section 9; Section 10; the South 1/2 of Section 11; the South 1/2 of the North 1/2 of Section 11; the South 1/2 and Northwest 1/4 of the Northwest 1/4 of the Northwest 1/4 of Section 11; the South 1/2 and the South 1/2 of the North 1/2 of the Northeast 1/4 of the Northwest 1/4 of Section 11; the South 1/2 and the South 1/2 of the North 1/2 of the Northwest 1/4 of the Northeast 1/4 of Section 11; the South 1/2 of the Northeast quarter of the Northeast 1/4 of Section 11; the South 1/2 of the Northwest 1/4 of the Northwest 1/4 of Section 12; the West 1/2 of the Northeast 1/4 of the Northwest 1/4 and the West 1/2 of the East 1/2 of the Northeast 1/4 of the Northwest 1/4 of Section 12; the Southwest 1/4 of the Northwest 1/4 of Section 12; the Southeast 1/4 of the Northwest 1/4 of Section 12, except the Northeast

Outlook - 2

1/4 of the Southeast 1/4 of the Northwest 1/4 of Section 12; the Southeast 1/4 of the Southwest 1/4 of the Northeast 1/4 of Section 12; the Northwest 1/4 of the Southeast 1/4 of Section 12, except the Northeast 1/4 of the Northwest 1/4 of the Southeast 1/4 of Section 12; the South 1/2 of the Northeast 1/4 of the Southeast 1/4 of Section 12; the South 1/2 of the Southeast 1/4 of Section 12; the Southwest 1/4 of Section 12; that portion of Section 13 lying North of the North right-of-way boundary of the Sunnyside Main Canal; the North 1/2 of the Northeast 1/4 of the Southeast 1/4 of Section 13; the Northwest 1/4 of the Northwest 1/4 of the Southwest 1/4 of Section 13; the West 1/2 of the Southwest 1/4 of the Northwest 1/4 of Section 13; that portion of Section 14 lying North of the North right-of-way boundary of the Sunnyside Main Canal; the South 1/2 and the East 1/2 of the Southeast 1/4 of the Northeast 1/4 of Section 14; the East 1/2 of the Northeast 1/4 of the Southeast 1/4 of Section 14; the Northwest 1/4 of the Northeast 1/4 of Section 15; the Northeast 1/4 of the Northwest 1/4 of Section 15; the North 1/2 of the Northwest 1/4 of the Northwest 1/4 of Section 15; the North 1/2 of the Southeast 1/4 of the Northwest 1/4 of Section 15; the Northeast 1/4 of the Southwest 1/4 of the Northeast 1/4 of Section 15.

In Yakima County, Washington, Township 10 North, Range 23, E.W.M., as follows:

The South 1/2 of the Northwest 1/4 of the Northwest 1/4 of Section 7; the South 1/2 of the Northwest 1/4 of Section 7; that portion of the East 1/2 of Section 18 lying North of the North right-of-way boundary of the Sunnyside Main Canal.

EXHIBIT "D"

This Exhibit "D" is attached to and incorporated in the "Statement of Claim" and answers question 7.

In Township 12 North, Range 19, E.W.M., Yakima County, Washington:

The Northeast and Southwest 1/4 of the Southwest 1/4 of Section 35; the Northwest, Southwest and Southeast 1/4 of the Southeast 1/4 of Section 35; That portion of the Southwest 1/4 of the Southwest 1/4 of Section 36 lying West of Highway 12; and,

In Township 11 North, Range 19, E.W.M., Yakima County, Washington:

The North 1/2 of the Northwest 1/4 of the Northeast 1/4 of Section 2; the Northeast and Southeast 1/4 of the Northeast 1/4 of Section 2; that portion of Section 1 lying South of Highway 12 except the Southwest and Southeast 1/4 of Southwest 1/4 of Section 1 and the Southwest 1/4 of the Southeast 1/4 of Section 1; that portion of the Northeast 1/4 of the Northeast 1/4 of Section 12 lying North of the Yakima River; and,

In Township 11 North, Range 20, E.W.M., Yakima County, Washington, the South 1/2 of the Southwest 1/4 of Section 6; that portion of the Northwest 1/4 of Section 7 lying North of the Yakima River.

Prosser

EXHIBIT "D"

This Exhibit "D" is attached and incorporated in the "Statement of Claim" answering question number 7.

In Benton County, Washington, Township 9 North, Range 24, E.W.M., as follows:

The Southeast 1/4 of the Southeast 1/4 of Section 13; that portion of Section 23 lying North of the Grandview East High Lateral and South of the Prosser East lateral; the South 1/2 of the Southeast 1/4 of the Northwest 1/4 of Section 23; the Northwest 1/4 of the Southwest 1/4 of Section 23 lying North of the Grandview East High lateral; Section 24, except that portion lying North of the Prosser East lateral and except that portion lying Southeast of the Sunnyside Main Canal; that portion of Section 25, lying North and West of the Sunnyside Main Canal.

In Benton County, Washington, Township 9 North, Range 25, E.W.M., As follows:

That portion of the West 1/2 of the Southwest 1/4 of Section 14 lying South of the Spring Creek East lateral; that portion of the South 1/2 of Section 15 lying South of the Spring Creek East lateral; the Northeast 1/4 of the Southwest 1/4 of Section 15; that portion of the South 1/2 of Section 16 lying South of the Spring Creek East lateral; the Southeast 1/4 of Section 17; the South 1/2 of the Northwest 1/4 of the Southwest 1/4 of Section 17; the South 1/2 of the Northwest 1/4 of the Southwest 1/4 of Section 17; the South 1/2 of the Southwest 1/4 of Section 17; that portion of the South 1/2 of the South 1/2 of Section 18, lying South of the Prosser East lateral; that portion of Section 19 lying North of the Sunnyside Main Canal; that portion of Section 20 lying North and West of the Sunnyside Main Canal and that portion of Section 20 lying North of the Benton lateral; that portion of the North 1/2 of Section 21 lying North of the Benton lateral; that portion of the North 1/2 of the North 1/2 of Section 22 lying North of the Benton lateral.

Snipes Mtn.

EXHIBIT "D"

This Exhibit "D" is attached and incorporated in the "Statement of Claim" answering question number 7.

In Yakima County, Washington, Township 10 North, Range 22, E.W.M., as follows:

That portion of Section 25 lying West of the Snipes Mountain Canal; that portion of Section 26 lying South of the Snipes Mountain Canal; that portion of Section 27 lying South of the Snipes Mountain Canal; that portion of Section 28 lying South of the Snipes Mountain Canal; and that portion of Section 28 lying South of the Turner lateral; that portion of the East 1/2 of Section 29 lying South of the Turner lateral except the Southwest 1/4 of the Southeast 1/4 of Section 29; the Northeast 1/4 of the Northeast 1/4 of the Northeast 1/4 of Section 32; the Northeast 1/4 of Section 33; the North 1/2 of the North 1/2 of Section 33; that portion of the South 1/2 of the South 1/2 of Section 33 lying north of the West Branch Snipes Mountain Canal; Section 34, except that portion lying East of the West Branch Snipes Mountain Canal and except the Southwest 1/4 of the Northwest 1/4 and except the Southwest 1/4; that portion of Section 35 lying Northwest of the Snipes Mountain Canal and that portion of Section 35 lying West of the Snipes Mountain Canal.

In Yakima County, Washington, Township 9 North, Range 22, E.W.M., as follows:

The North 1/2 of the North 1/2 of Section 3; the North 1/2 of the Northeast 1/4 of the Northeast 1/4 of Section 4.

EXHIBIT "D"

This Exhibit "D" is attached and incorporated in the "Statement of Claim" answering question number 7.

In Yakima County, Washington, Township 12 North, Range 19, E.W.M., as follows:

That portion of the South 1/2 of Section 27, lying East of the Yakima River; that portion of the Southeast 1/4 of Section 28, lying East of the Yakima River; that portion of the North 1/2 and Southeast 1/4 of Section 34, lying East of the Yakima River; that portion of the Northwest 1/4 and South 1/2 of Section 35, lying East of the Yakima River; that portion of Section 36, lying South of the Sunnyside Main Canal.

In Yakima County, Washington, Township 11 North, Range 19, E.W.M., as follows:

That portion of Section 1, lying east of the Yakima River; that portion of the North 1/2 and Southeast 1/4 of Section 2 lying East of the Yakima River; that portion of the Northeast 1/4 of Section 12, lying East of the Yakima River.

In Yakima County, Washington, Township 11 North, Range 20 East, as follows:

The Southwest 1/4 of Section 5; Section 6; that portion of Section 7 lying East of the Yakima River; Section 8; the Southeast 1/4 of Section 9; the South 1/2 of Section 14; the Northwest 1/4 and South 1/2 of Section 15; Section 16; that portion of Section 17, lying East of the Yakima River; that portion of Section 21 lying East of the Yakima River; Sections 22, 23, 24 and 25; that portion of Section 26, lying East of the Yakima River; that portion of Section 27 lying East of the Yakima River; that portion of the North 1/2 of Section 28, lying East of the Yakima River; that portion of the North 1/2 of Section 35 lying East of the Yakima River; that portion of the North 1/2 and Southeast 1/4 of Section 36 lying East of the Yakima River.

In Yakima County, Washington, Township 11 North, Range 21, E.W.M., as follows:

The East 1/2 of Section 19; the South 1/2 of Section 29; Section 30; that portion of Section 31, lying East of the Yakima River; Sections 32 and 33.

In Yakima County, Washington, Township 10 North, Range 21, E.W.M., as follows:

That portion of Section 1, lying South of the Sunnyside Main Canal; Sections 2, 3 and 4; that portion of Section 5 lying East of the Yakima River; that portion of Section 6 lying East of the Yakima River; that portion of Section 8 lying East of the Yakima River; Sections 9, 10, 11, 12, 13, 14, 15 and 16; that portion of Section 17 lying East of

the Yakima River; that portion of Section 21, lying East of the Yakima River; that portion of Section 22, lying North of the North right-of-way of the Northern Pacific Railroad; that portion of Section 23 lying North of the North right-of-way of the Northern Pacific Railroad; that portion of Section 24, lying North of the North right-of-way of the Northern Pacific Railroad; that portion of Section 36, lying East of the Yakima River and South of the West Branch Snipes Mountain Canal.

In Yakima County, Washington, Township 10 North, Range 22, E.W.M., as follows:

That portion of Section 7 lying South of the Sunnyside Main Canal; that portion of Section 8 lying South of the Sunnyside Main Canal; that portion of Section 9 lying South of the Sunnyside Main Canal; that portion of Section 10 lying South of the Sunnyside Main Canal; that portion of Section 13 lying South of the Sunnyside Main Canal; that portion of Section 14 lying South of the Sunnyside Main Canal; that portion of Section 15 lying South of the Sunnyside Main Canal; Sections 16, 17 and 18; Section 19, except that portion lying South of the South right-of-way of the Northern Pacific Railroad; Sections 20, 21, 22, 23 and 24; Section 25, except that portion lying West of the Snipes Mountain Canal; That portion of Section 26 lying North of the Snipes Mountain Canal; that portion of Section 27 lying North of the Snipes Mountain Canal; that portion of Section 28 lying North of the Snipes Mountain Canal; and that portion of Section 28 lying North of the Turner lateral; that portion of Section 29 lying North of the Turner lateral; the Northeast 1/4 of Section 30; that portion of Section 31 lying South of the West Branch Snipes Mountain Canal; that portion of Section 32 lying South of the West Branch Snipes Mountain Canal; that portion of Section 33 lying South of the West Branch Snipes Mountain Canal; that portion of Section 34 lying East of the Snipes Mountain Canal; that portion of Section 35 lying East of the Snipes Mountain Canal; Section 36.

In Yakima County, Washington, Township 10 North, Range 23, E.W.M., as follows:

The South 1/2 of Section 17; the South 1/2 and the South 1/2 of the North 1/2 of Section 18; Sections 19, 20 and 21; the West 1/2 of Section 27; Sections 28, 29, 30, 31, 32, and 33; the West 1/2 and Southeast 1/4 of Section 34.

In Yakima County, Washington, Township 9 North, Range 22, E.W.M., as follows:

Sections 1 and 2; that portion of Section 3 lying South of the West Branch Snipes Mountain Canal, Section 4; that portion of Section 5 lying East of the Yakima River; that portion of Section 8 lying East of the Yakima River; Sections 9, 10, 11, 12, 13, 14, 15 and 16; that portion of Section 17 lying East of the Yakima River; that portion of

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Section 20 lying East of the Yakima River; that portion of Section 21 lying North of the Yakima River; Sections 22, 23, 24, 25 and 26; that portion of Section 27 lying North of the Yakima River; that portion of Section 28 lying North of the Yakima River; Sections 35 and 36.

In Yakima County, Washington, Township 9 North, Range 23, E.W.M., as follows:

Sections 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11; that portion of Section 12 lying East of the Sunnyside Main Canal; that portion of Section 13 lying East of the Sunnyside Main Canal; Sections 14, 15, 16, 17, 18, 19, 20, 21, 22 and 23; that portion of Section 24 lying East of the Sunnyside Main Canal; Sections 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 and 36.

In Benton County, Washington, Township 9 North, Range 24, E.W.M., as follows:

That portion of Section 24 lying South of the Sunnyside Main Canal; that portion of Section 25 lying South of the Sunnyside Main Canal; that portion of Section 26 lying South of the Sunnyside Main Canal; that portion of Section 27 lying South of the Sunnyside Main Canal; that portion of Section 28 lying South of the Sunnyside Main Canal; that portion of Section 29 lying South of the Sunnyside Main Canal; that portion of Section 30 lying South of the Sunnyside Main Canal; Sections 31, 32, 33, 34, 35 and 36.

In Benton County, Washington, Township 9 North, Range 25, E.W.M., as follows:

The South 1/2 of Section 14; that portion of Section 19 lying South of the Sunnyside Main Canal; that portion of Section 20 lying South of the Sunnyside Main Canal; and the Benton lateral; that portion of Section 21 lying South of the Benton lateral; that portion of Section 22 lying South of the Benton lateral; that portion of Section 23 lying North of the Yakima River; that portion of Section 27 lying North of the Yakima River; Sections 28, 29, 30, 31 and 32; that portion of Section 33 lying North of the Yakima River.

In Yakima County, Washington, Township 8 North, Range 22, E.W.M., as follows:

Sections 1 and 2; that portion of Section 12 lying East of the Mabton Canal.

In Yakima County, Washington, Township 8 North, Range 23, E.W.M., as follows:

Sections 1, 2, 3, 4, 5 and 6; that portion of Section 7 lying East of the Mabton Canal; that portion of Section 8 lying East of the Mabton Canal; that portion of Section 9 lying East of the Mabton Canal; Sections 10, 11 and 12; the North 1/2 of Section 13; the Northeast 1/4 of Section 14.

In Benton County, Washington, Township 8 North, Range 24, E.W.M., as follows:

Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10; the North 3/4 of Section 11; the Northeast 1/4 of Section 12; the North 1/2 of Section 16; the North 1/2 of Section 17; the North 1/2 of Section 18.

In Benton County, Washington, Township 8 North, Range 25, E.W.M., as follows:

The Northeast 1/4 of Section 5; Section 6, except the Southeast 1/4.

TOGETHER WITH the real estate in Yakima and Benton Counties, Washington, more particularly described in the "Statements of Claim" filed herein by Cities of Grandview, Sunnyside, Zillah, Prosser and Prosser Falls, Mabton, and Granger.

SVIY.

Zillah

EXHIBIT "D"

This Exhibit "D" is attached and incorporated in the "Statement of Claim" and answers question number 7.

In Section 25, Township 11 North, Range 20 E.W.M., Yakima County, Washington, a portion of the Southwest quarter of the Southwest quarter and a portion of the Southeast quarter of the Southwest quarter; and,

In Section 36, Township 11 North, Range 20, E.W.M., Yakima County, Washington, portions of the Northwest quarter of the Northwest quarter, the Northeast quarter of the Northwest quarter, the Northwest quarter of the Northeast quarter, the Northeast quarter of the Northeast quarter, the Southwest quarter of the Northeast quarter and the Southeast quarter of the Northeast quarter.

EXHIBIT "E"

This Exhibit "E" is attached and incorporated in the Sunnyside Division, Yakima Project "Statement of Claim" and more particularly describes the major pumps utilized by Districts in the Division.

Sunnyside Division. The five pumping plants on the Sunnyside Division that utilize direct-connected pump systems for all or part of their irrigation water requirements serve Outlook, Snipes Mountain, Grandview, and Prosser Irrigation Districts--the latter being served by Prosser and Spring Creek Plants. Irrigation water supply for all these pump districts is contained in Warren Act contracts between the respective districts and the United States. None of the contracts states a fixed quantity of water available for power for pumping, but each basic contract includes a statement to the effect that power water is not a surplus power water privilege, but shall be available for beneficial reuse for irrigation of lands in the Yakima Project, and that it is appurtenant to the land irrigated thereby.

e. Outlook Pump Plant. This plant was constructed by Bureau of Reclamation and first utilized in 1916; it is operated by the Outlook Irrigation District, Sunnyside Division, and receives its water supply from Sunnyside Main Canal Mile 30.2. The location is in Section 8, Township 10N, Range 22E, W.M., about 4 miles northwest of Sunnyside. The direct-connected pump system consists of two units with ratings of 240 hp and 560 hp, respectively. Power head is 45 feet; pump lift 107 feet, discharging about 48 c.f.s. maximum; with a ratio of approximately 4:1 of power to pumped water; the power water requirement is about 200 c.f.s. In 1969, an auxiliary 250 hp vertical shaft turbine type electric pump unit was installed at Sunnyside Canal crossing connecting into main pump discharge line with a rated capacity of 15 c.f.s. at 120 feet TDH.

Water Right claims for power for pumping are included in irrigation diversion rights for Sunnyside Canal at headworks. Tailwater from Outlook Pump Plant is reused for irrigation in Snipes Mountain Lateral, which in turn, also serves the hydro pump units for Snipes Mountain Irrigation District.

f. Snipes Mountain Pump Plant. This plant was constructed by Bureau of Reclamation, and first utilized in 1915; it is operated by the Snipes Mountain Irrigation District, Sunnyside Division, and receives its water supply from Snipes Mountain Gravity Lateral, which begins at tailrace of Outlook Pump Plant as described above. The plant is located on the east section line of Section 8, Township 9N, Range 22E, W.M. about 2 miles southwest of Sunnyside. The original installation consisted of two direct-connected hydraulic units operating under a 64-foot power head and 190 foot pump head, with individual characteristics of:

a. 10.7 c.f.s. two stage pump discharge with 65 c.f.s. power water, and

b. 4.2 c.f.s. single stage pump discharge with 25 c.f.s. power water. Subsequently, the smaller pump was abandoned, and a third unit similar to "a." above was installed, with present total pump capacity of about 22 c.f.s., for entire plant.

A small direct connected unit, Hillcrest Plant, is also operated out of Snipes Mountain Lateral, in SW¼SW¼ of Section 25, Township 10N, Range 22E, W.M. Pump capacity is only about 1 c.f.s.; this system was originally powered by "Harrison Hill Ram", and is interconnected with lateral system of the main Snipes Mountain Pump distribution system.

Water rights for power for pumping are included in diversion rights for Sunnyside Canal at headworks. Tailwater from the Snipes plant is utilized for irrigating lands in the Sunnyside Valley Irrigation District.

g. Grandview Pump Plant. This plant was constructed by the Bureau of Reclamation with first water delivered in 1917, and is operated by the Grandview Irrigation District, Sunnyside Division, receiving its water supply from Sunnyside Main Canal at Mile 50.35. The location is in SW¼SE¼ of Section 30, Township 9N, Range 24E, W.M. two miles southeast of Grandview. The plant presently consists of one four-stage direct-connected hydro unit (16 c.f.s.) and two electric driven pumps of 150 hp (13 c.f.s.) and 75 hp (6 c.f.s.) capacity, respectively. Power head is 21 feet; pump lift is 78 feet. Total output is about 35 c.f.s. with an additional 5 c.f.s. pumped into the lateral system from a drain. The original installation received its electric power supply from the Rocky Ford Powerplant, constructed as part of the Grandview system to supply 187 kw of power to the Grandview Plant via a 3-mile transmission line. The Rocky Ford plant was abandoned in 1953, and electrical energy is now supplied from commercial sources.

Water right claims for power for pumping are included in irrigation diversion rights for Sunnyside Canal at headworks. Tailwater from the Grandview plant is utilized for irrigation of lands in the Sunnyside Valley Irrigation District in the vicinity of Mabton, south of the Yakima River, served by Mabton feeder canal.

h. Prosser Pump Plant. This is the upstream of two hydroplants serving the Prosser Irrigation District, Sunnyside Division, receiving its water supply from Sunnyside Canal at Mile 55.05. The plant was constructed by Bureau of Reclamation with first water delivered in 1919, and is operated by Prosser Irrigation District. The location is in SE¼NE¼ of Section 26, Township 9N, Range 24E, W.M.two miles north of Prosser. The plant was rehabilitated in 1964, and now consists of a higher speed pump (in service in 1965) driven by original hydroturbine of 174 hp; utilizing 45 c.f.s. maximum of power water, power head 52 feet; pump lift 106 feet, discharging about 13 c.f.s.

Water right claims for power for pumping are included in irrigation diversion rights for Sunnyside Canal at headworks. Tailwater from the Prosser plant is utilized for irrigation of lands south of Yakima River in the vicinity of Prosser, as part of Sunnyside Valley Irrigation District.

i. Spring Creek Plant. This is the lower, or downstream, of the two hydroplants serving the Prosser Irrigation District, Sunnyside Division, receiving its water supply from Sunnyside Canal at Mile 59.32. The plant was constructed by the Bureau of Reclamation, with first water delivered in 1919, and is operated by the Prosser Irrigation District. The location is in SW¼NE¼ of Section 20, Township 9N, Range 25E, W.M., four miles northeast of Prosser. The plant was rehabilitated in 1963, and now consists of a higher speed pump (in service in 1964) driven by original hydro turbine of 174 hp; utilizing 25 c.f.s. maximum of power water; power head 77 feet; pump lift 95 feet discharging about 13 c.f.s.

Water rights claims for power for pumping are included in irrigation diversion rights for Sunnyside Canal at headworks. Tailwater from the Spring Creek Plant is utilized for irrigation of adjacent lands within the Sunnyside Valley Irrigation District.

j. Marsh, Drain Pump. Located in the NE 1/4 of the NE 1/4 of Section 21, Township 9 N, Range 24 E.W.M., Benton County, Washington, this 10 cfs pump operated by Prosser Irrigation District with permit from United States acquired 12/03/57 was placed in service on 4/01/58 to irrigate in excess of 600 acres of diversified crops from 1 April to 20 October (3,600 acre feet per year).

Ex E, p2

k. Section 13 Drain. This pump located in a drainage near the NW corner of the SE 1/4 of the SE 1/4 of the SE 1/4 of Section 13, Township 9 North, Range 24 E.W.M., has been operated since 4/01/66 by Prosser Irrigation District based on a 2/09/66 permit from the United States to irrigate in excess of 300 acres of diversified crops with 5 cfs. of water from 1 April to 20 October each year using approximately 1,800 acre feet per year. A 30 horsepower centrifigal, 800 gpm and a 25 horsepower turbine, 1,400 gpm pump are utilized at this location.

1. Additional Grandview Pumps:

One (1) 30 horsepower pump located in the Northeast 1/4, Northeast 1/4, Section 13, Township 9 North, Range 23, E.W.M., Yakima County, Washington, pumping approximately 120 gallons per minute during the irrigation season for approximately 3,000 acres which was installed in April, 1950.

One (1) 15 horsepower pump located in the Southwest 1/4, Northwest 1/4, Section 20, Township 9 North, Range 24, E.W.M., Benton County, Washington, pumping approximately 60 gallons per minute during the irrigation season for approximately 3,000 acres which was installed in March, 1971.

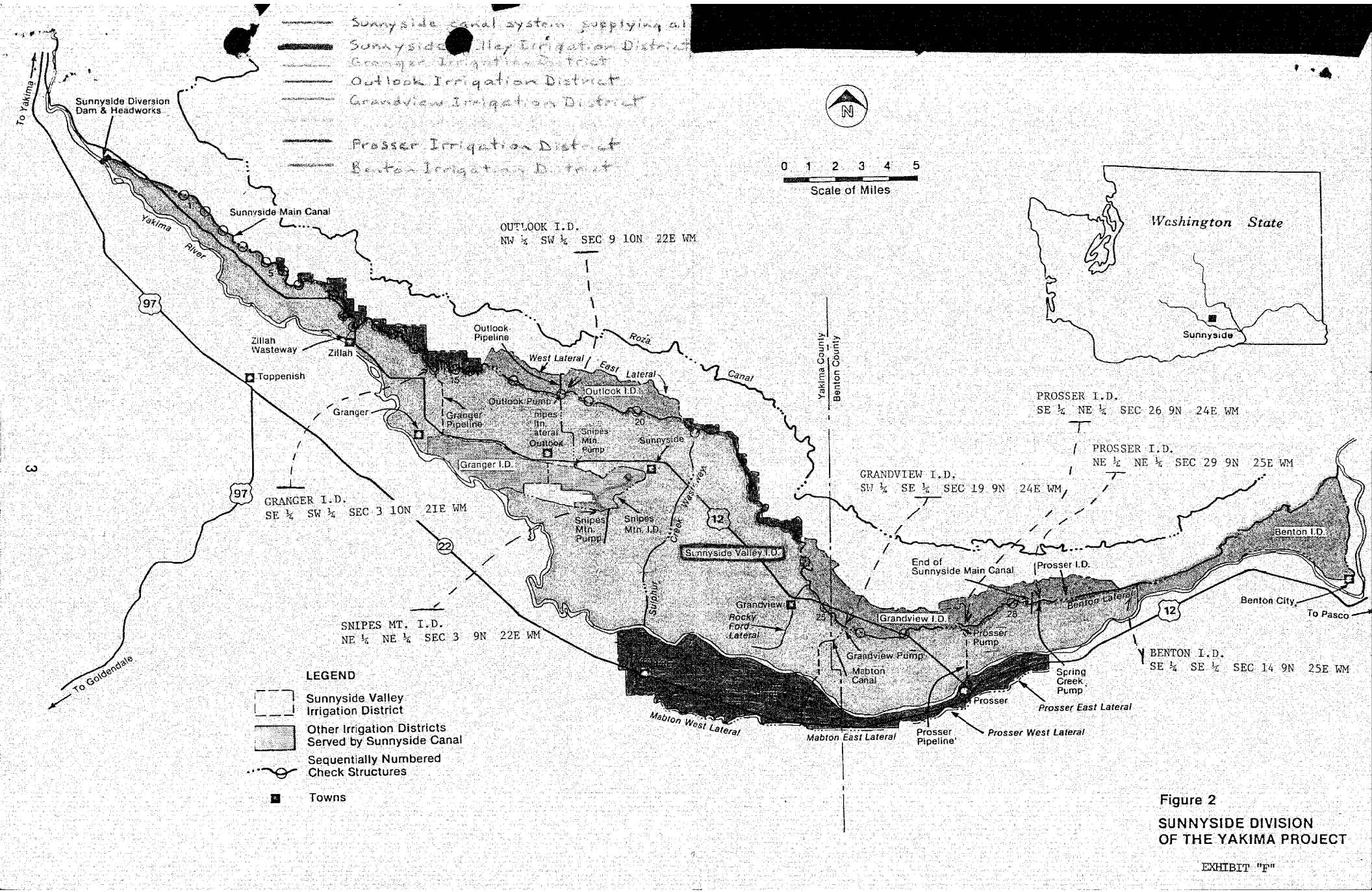


Figure 2

SUNNYSIDE DIVISION OF THE YAKIMA PROJECT

EXHIBIT "F"

Appendix 4 Water Use Efficiency Program

A. Water Use Efficiency Program
B. 2016 Annual Performance Report
C. 2017 Public Forum Notice
D. Water Use Efficiency Handout

City of Sunnyside
Water Use Efficiency (WUE) Program
January 1, 2014 – December 31, 2020

Goal:

The City has proposed a goal to reduce single-family and multi-family residential connections by 25 gallons per day per connection by December 31, 2020. The following measure will be carried out by the City to achieve this goal.

Measures:

1. The City will start an outreach program to local public schools. City representatives will deliver interactive presentations to elementary school students, distribute age- appropriate educational material and engage students in fun activities that encourage water conservation. The City will present to a yet to be determined grade at every public elementary school annually starting in 2014, thereby ensuring that public school students know and understand the importance of conserving water. The City hopes that by engaging the children in fun educational activities, the presentation have both an immediate and long-term impact on their water-use practices.

2. The City will include a brochure addressing consumer leak detection with water bills once a year starting in 2015. The purpose of the brochure is to increase awareness of at-home leak detection and to educate water customers by providing leak-detection techniques as well as some solutions and resources for fixing leaks. People often underestimate the amount of water wasted by a leak and delay in fixing small leaks. The City hopes that the annual mailing will encourage water customers to take the time to survey their home for leaks at least once a year.

3. Starting in 2016, the City will set up a booth at a local public school's annual Career Day and hand out appropriate literature on conservation. City representatives will also answer questions and give away vouchers for free conservational items. Water customers will be able to redeem the vouchers at the Public Works office during normal office hours after the event. By setting up a booth at Career Day, the City can connect with youth who are exploring career options and may have an interest in the water quality industry. Reinforcing the idea of water conservation with these youth and their families is an effective way to promote the City's WUE program.

4. The City will run two articles per year on water conservation information and tips in the local newspapers starting in 2017. The spring article will focus on outdoor conservation tips and the fall article on indoor conservation. The City feels that by providing water customers with season-appropriate water conservation tips, they will be more likely to use them and change their water usage habits.

5. There are certain homes that use City water but do not receive individual-use water bills, such as apartments and retirement homes. The City will provide these residents with all of the conservation material to be included in the water bills, including conservation tips and leak detection brochures. It is important that all residential water consumers receive this conservation information, regardless of whether they pay the City for their water usage. These consumers may have less financial incentive to conserve water, so it is especially important to remind them of the environmental impact of their consumption. The Water Use Efficiency program is incomplete without including these types of multi-family residences.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

Date Submitted: 6/8/2016

Water Use Efficiency
Annual Performance Report - 2015

WS Name: SUNNYSIDE, CITY OF Water System ID# : 85400 WS County: YAKIMA

Report submitted by: *Kirk Weets*

Meter Installation Information:

Estimate the percentage of metered connections: *100%*

If not fully metered - Current status of meter installation:

Production, Authorized Consumption, and Distribution System Leakage Information:

12-Month WUE Reporting Period: *01/01/2015* To *12/31/2015*

Incomplete or missing data for the year? *No*

If yes, explain:

Distribution System Leakage Summary:

Total Water Produced and Purchased (TP) – Annual Volume	*1,020,873,000* gallons
Authorized Consumption (AC) – Annual Volume	*1,005,157,164* gallons
Distribution System Leakage – Annual Volume TP – AC	*15,715,836* gallons
Distribution System Leakage – Percent DSL = [(TP – AC) / TP] x 100	*1.5 %*
3-year annual average	*2.3 %*

Goal-Setting Information:

Date of Most Recent Public Forum: *11/06/2013* Has goal been changed since last performance report? *No*

Note: Customer goal must be re-established every 6 years through a public process

WUE Goals:

Customer Goal (Demand Side):

The City has proposed a goal to reduce single-family and multi-family residential connections by 25 gallons per day per connection by December 31, 2020.

Describe Progress in Reaching Goals:

Customer (Demand Side) Goal Progress:

We have three Measures this year, 1. outreach program with the local school students and educate on water conservation. 2. customer will receive a awareness brochure. 3. City will setup a booth at the high school and hand out literature on conservation and give vouchers for free conservational items.

Additional Information Regarding Supply and Demand Side WUE Efforts

Include any other information that describes how you and your customers use water efficiently:

Do not mail, fax, or email this report to DOH

City of SUNNYSIDE WASHINGTON

Water Use Efficiency (WUE) Program

PUBLIC FORUM NOTICE

- **Purpose:** To educate the public on Sunnyside's Water Use Efficiency program, discuss the goals and measures the City has set to meet the state's requirements, and to give water customers a chance to provide input.

- **Date:** **Thursday October 26, 2017**

- **Time:** **5:00 PM**

- **Location:** **Sunnyside Water Department**
  409 E Lincoln Ave
  Sunnyside, WA 98944

Contact: Backflow Management Inc. (BMI)
800-619-7689
bmi@bmibackflow.com
www.bmi-backflow.com

If you would like to receive a copy of the City's proposed goals and measures, contact BMI.

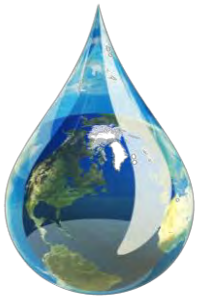
For additional information:
Please visit the Washington State Department of Health website for more information on the *Water Use Efficiency Rule* at http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/WaterSystemDesignandPlanning/WaterUseEfficiency.

Washington State Department of Health

City of SUNNYSIDE WASHINGTON

Water Use Efficiency Program

Public Forum • October 26, 2017



The City of Sunnyside has updated its Water Use Efficiency (WUE) Program plan as required by the Washington Administrative Code (WAC) 246-29-810. The updated plan has been formed under the processes defined by the WAC and is now ready for a public meeting and council approval.

The Water Use Efficiency Rule

The WUE rule was written into the WAC in 2007 in an effort to compensate for the increasing demand on the State's water resources. The WUE Rule requires public water systems to develop a Water Use Efficiency Program that addresses saving water within the City-owned distribution system (the supply side) and reducing authorized water consumption (the demand side). The City put together a program consisting of a supply side goal and a demand side goal, as well as several cost-effective measures the City carried out in order to reach each goal. After the City has presented the WUE program to the public, the City Council must approve the goals and measures.

The City of Sunnyside is required to send annual summaries and progress reports on the WUE Program to the Washington State Department of Health (DOH). The DOH is the state agency responsible for enforcing the WUE rule.

Our Goal

The City has proposed a goal to reduce single-family and multi-family residential and commercial/industrial connections by 25 gallons per day per connection by December 31, 2022 as measured by annual average demand for each classification. The following measures will be carried out by the City to achieve this goal.

Proposed Conservation Measures

1) The City will continue an outreach program to local public schools. City representatives will deliver interactive presentations to elementary school students, distribute age-appropriate educational material and engage students in fun activities that encourage water conservation. The City will target third grade classrooms at every public elementary school annually, thereby ensuring that public school students know and

understand the importance of conserving water. The City hopes that by engaging the children in fun educational activities, the presentations will have both an immediate and long-term impact on their water-use practices. The posters and materials will also be posted in City Hall and other City owned public facilities.

2) The City will include a brochure addressing consumer leak detection with water bills at least once a year, and include WUE information in the annual Consumer Confidence Report. The purpose of the brochure is to increase awareness of at-home leak detection and to educate water customers by providing leak-detection techniques as well as some solutions and resources for fixing leaks. People often underestimate the amount of water wasted by a leak and delay in fixing small leaks. The City hopes that the annual mailing will encourage water customers to take the time to survey their home for leaks at least once a year.

3) Starting in the 2017-18 school year, the City will work with the Sunnyside School District to create an annual flyer which will be included in the weekly take-home packets of (at a minimum) first and second grade students. The flyers will provide water efficiency and conservation hints for around the home.

4) The City will continue to run two articles per year on water conservation information and tips in the local newspapers, starting in 2018. The spring article will focus on outdoor conservation tips and the fall article on indoor conservation. The City feels that by providing water customers with season-appropriate water conservation tips, they will be more likely to use them and change their water usage habits.

5) There are certain dwelling units that use City water but do not receive individual-use water bills, such as apartments and retirement homes. By working with building owners and managers, the City will provide these residents with all of the conservation material to be included in the water bills, including conservation tips and leak detection brochures. These materials will also be available at City Hall.

6) The City will initiate a commercial/industrial education program by providing these customers with information and checklists to help them reduce water consumption; including suggesting a water audit, and possible reduction in sewer fees with decreased flows.

Thank you for your support!

For additional information on our Water Use Efficiency Program, please visit the Washington Department of Health website at http://www.doh.wa.gov/ehp/dw/Programs/wue.htm.

Appendix 5 Water Rights

S. F. No. 7362—6-45—1M. 9327.

CERTIFICATE RECORD NO. 1 PAGE NO. 33-D UNDER DECLARATION OF CLAIM NO. 56

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 the rules and regulations of the State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY *That* CITY OF SUNNYSIDE

of Sunnyside, Washington *has filed*

in the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 56

to withdraw ground waters of the State from a Pump Well,

located within Lot 14, Block 41 of City of Sunnyside, Washington

for the purpose of Municipal supply and commercial use

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 *of Ground Water Certificates at page* 33-D*; the right approved has a priority of* the year 1909*; the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed* 420 *gallons per minute;* 347 *acre-feet per year; and is appurtenant to the following described lands or place of use:*

City of Sunnyside, 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 Hydraulics affixed this 12th *day of* March, *19*46

RODNEY RYKER
State Supervisor of Hydraulics.

Chas. J. Dirkhart

Declaration of Claim No. 56

CERTIFICATE OF GROUND WATER RIGHT

Recorded in the office of State Supervisor of Hydraulics, Olympia, Washington, in Book No. 1 *of Ground Water Right Certificates, on page* 33-D *on the* 12th *day of* March, *1946*

STATE OF WASHINGTON,
County of Yakima } *ss.*

I certify that the within was received and duly recorded by me in Volume ..... *of Book of Water Right Certificates, page* ..... *on the* ..... *day of* ....., *19* .....

.....

STATE PRINTING PLANT, OLYMPIA, WASHINGTON

S. F. No. 7362—6-45—1M. 9327.

CERTIFICATE RECORD NO. 1 PAGE NO. 34-D UNDER DECLARATION OF CLAIM NO. 57

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 the rules and regulations of the State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY *That* CITY OF SUNNYSIDE

of Sunnyside, Washington *has filed*

in the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 57

to withdraw ground waters of the State from a Pump Well,

located within Lot 14, Block 41 of City of Sunnyside, Washington

for the purpose of Municipal supply, commercial and manufacturing use

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 *of Ground Water Certificates at page* 34-D*; the right approved has a priority of* September 1929*; the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed* 230 *gallons per minute;* 62 *acre-feet per year; and is appurtenant to the following described lands or place of use:*

City of Sunnyside, 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 Hydraulics affixed this 12th *day of* March, *19* 46

RODNEY KYKER
State Supervisor of Hydraulics.

By: CHAS. H. BARTHOLET Deputy

Declaration of Claim No. 57

CERTIFICATE OF GROUND WATER RIGHT

Recorded in the office of State Supervisor of Hydraulics, Olympia, Washington, in Book No. 1 *of Ground Water Right Certificates, on page* 34-D *on the* 12th *day of* March, *19* 46.

STATE OF WASHINGTON,
County of Yakima } *ss.*

I certify that the within was received and duly recorded by me in Volume ..... *of Book of Water Right Certificates, page* ..... *on the* ..... *day of* ....., *19* .....

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STATE PRINTING PLANT, OLYMPIA, WASHINGTON

S. F. No. 7362—6-45—1M. 9327.

CERTIFICATE RECORD NO. 1 PAGE NO. 35-D UNDER DECLARATION OF CLAIM NO. 58

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 the rules and regulations of the State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY *That* CITY OF SUNNYSIDE

of Sunnyside, Washington *has filed*

in the office of the State Supervisor of Hydraulics of Washington Declaration of Claim No. 58

to withdraw ground waters of the State from a Pump Well,

located within Lot 8, Block 1 of Tuell & Irving Subdivision, City of Sunnyside, Washington,

for the purpose of Municipal supply and commercial use

The right to the use of said ground waters has been sustained and approved by the Supervisor of Hydraulics in accordance with Chapter 263, Laws of Washington for 1945, and is hereby entered of record in Volume 1 *of Ground Water Certificates at page* 35-D*; the right approved has a priority of* June 1942*; the amount of water which the Declarant is entitled to withdraw for the aforesaid purpose is limited to the amount actually beneficially used and shall not exceed* 420 *gallons per minute;* 347 *acre-feet per year; and is appurtenant to the following described lands or place of use:*

City of Sunnyside, 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 Hydraulics affixed this 12th *day of* March, *19* 46

RODNEY RYKER
State Supervisor of Hydraulics.

By: Chas. J. Bartholet
CHAS. J. BARTHOLET, Deputy

Declaration of Claim No. 58

CERTIFICATE OF GROUND WATER RIGHT

Recorded in the office of State Supervisor of Hydraulics, Olympia, Washington, in Book No. 1 *of Ground Water Right Certificates, on page* 35-D *on the* 12th *day of* March, *19*46

STATE OF WASHINGTON,
County of Yakima } *ss.*

I certify that the within was received and duly recorded by me in Volume ..... *of Book of Water Right Certificates, page* ..... *on the* ..... *day of* ....., *19* .....

.....

STATE PRINTING PLANT, OLYMPIA, WASHINGTON

S. F. No. 7361—6-45—5C. 9326.

CERTIFICATE RECORD NO. 1 PAGE NO. 49-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 the rules and regulations of the State Supervisor of Hydraulics thereunder.

THIS IS TO CERTIFY *That* CITY OF SUNNYSIDE *of* Sunnyside, Washington, *has made proof to the satisfaction of the State Supervisor of Hydraulics of Washington, of a right to the use of the ground waters of a* Well *located within* Lot 11, Block 1 of Tuel & Irvings Subdivision, City of Sunnyside *for the purpose of* Municipal supply, industrial and manufacturing use *under Ground Water Permit No.* 50 *issued by the State Supervisor of Hydraulics, 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 Hydraulics of Washington and entered of record in Volume* 1 *at page* 49-A *; that the quantity of ground water to which such right is entitled and 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; 1000 acre-feet per year; That the right hereby confirmed dates from December 12, 1945 ~~*for irrigation of* xxxxxxxxxxxxxxxx *acres.*~~

A description of the lands under such right to which the ground water hereby confirmed is appurtenant, and the place where such water is put to beneficial use, is as follows:

City of Sunnyside, 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 Hydraulics affixed this 13th *day of* June, *1947*

RODNEY RYKER
State Supervisor of Hydraulics.

By Chas. J. Bartholet

CHAS. J. BARTHOLET, Deputy

Ground Water Permit No. 50

CERTIFICATE OF GROUND WATER RIGHT

Recorded in the office of the State Supervisor of Hydraulics, Olympia, Washington,

in Book No. 1 *of Ground Water*

Right Certificates, on page 49-A*, on the*

13th *day of* June*, 194*7

STATE OF WASHINGTON,
County of Yakima } *ss.*

I certify that the within was received and duly recorded by me in Volume.....
of Book of Water Right Certificates, at

page....., *on the*.....*day of*

....., *19*.....

.....

STATE PRINTING PLANT, OLYMPIA, WASHINGTON

7049

S. F. No. 7361—3-53—3M. 34100.

CERTIFICATE RECORD NO. 6 PAGE NO. 2553-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 SUNNYSIDE, WASHINGTON

~~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 *located within* SW¼SW¼NW¼, sec. 25, T.10 N., R.22 E.W.M.

for the purpose of municipal supply *under and subject to provisions contained in Ground Water Permit No.* 3099 *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* 6 *at page* 2553-A*; that the right hereby confirmed dates from* July 10, 1953*; 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* 1500 gallons per minute; 720 acre-feet per year for municipal supply. / ~~for irrigation of xxxxxxxxxxxxxxxxxx acres~~

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 Sunnyside, 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 7th *day of* May, *1956.*

M G Walker

State Supervisor of Water Resources.

ENGINEERING DATA
O.K. RHR

2553

Ground Water Permit No......

CERTIFICATE OF GROUND WATER RIGHT

Recorded in the office of the State Supervisor of Water Resources, Olympia, Washington, in Book No. ..... *of Ground Water Right Certificates, on page* ....., *on the* ..... *day of* ....., *195*.....

STATE OF WASHINGTON,
County of ..... } *ss.*

I certify that the within was received and duly recorded by me in Volume ..... *of Book of Water Right Certificates, at page* ....., *on the* ..... *day of* ....., *19*.....

.....

STATE PRINTING PLANT OLYMPIA, WASHINGTON

S. F. No. 7341—5-60—3M. 62306.

CERTIFICATE RECORD NO. 30 PAGE NO. 4795-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 SUNNYSIDE

of Sunnyside, 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. 6)

located within NW¼SW¼

Sec. 30, *Twp.* 10 *N., R.* 23 E. *W. M.,*

for the purpose of Municipal supply

under and subject to provisions contained in Ground Water Permit No. 6173 *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* 10 *at page* 4795-A; *that the right hereby confirmed dates from* September 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* 1,570 gallons per minute; 1,600 acre-feet per year for Municipal supply.

Special provisions required by the Supervisor of Water Resources: Rights established under this certificate shall be fully supplemental to those water rights previously established for Wells 1 through 5, inclusive.

A description of the lands to which such ground water right is appurtenant:

City of Sunnyside, 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 8th *day of* May, 1964.

M G Walker

State Supervisor of Water Resources.

[illegible] DATA

OK

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
June 28, 1973	G3-21329	G3-21329P	G3-21329C

NAME
CITY OF SUNNYSIDE

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
719 Edison Avenue	Sunnyside	Washington	98944

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
	950	1500

QUANTITY, TYPE OF USE, PERIOD OF USE
950 gallons per minute; 1500 acre feet per year continuously for municipal supply.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL
400 feet East and 645 feet North from the West quarter corner of Section 36.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
SW¼NW¼	36	10	22 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

City of Sunnyside, Washington.

PROVISIONS

Certificate holder shall maintain an access port as described in Ground Water Bulletin No. 1.

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90.03.380, 90.03.390, and 90.44.020.

This certificate of water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90.14.180.

Given under my hand and the seal of this office at Yakima, *Washington, this* 5th *day of* September, *19* 70

Department of Ecology

Russell K. Taylor

by Russell K. Taylor, Regional Manager

ENGINEERING DATA

OK

1e

FOR COUNTY USE ONLY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

WASHINGTON STATE DEPARTMENT OF ECOLOGY

SUPERSEDING PERMIT

TO APPROPRIATE PUBLIC WATERS OF THE STATE OF WASHINGTON
Supersedes Permit ISSUED June 20, 1995

☐ 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, 1992	G4-31581	G4-31581P	

NAME
City of Sunnyside

ADDRESS (STREET)	(CITY)	(STATE)	(ZIP CODE)
818 E. Edison	Sunnyside	Washington	98944-2206

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 herein.

PUBLIC WATERS TO BE APPROPRIATED

SOURCE
Six (6) wells

TRIBUTARY OF (IF SURFACE WATERS)

MAXIMUM CUBIC FEET PER SECOND	MAXIMUM GALLONS PER MINUTE	MAXIMUM ACRE -FEET PER YEAR
	2000	3230

QUANTITY, TYPE OF USE, PERIOD OF USE
For continuous municipal supply, 2,906 acre-feet per year (primary) additive and 324 acre-feet per year (supplemental) non-additve.

LOCATION OF DIVERSION/WITHDRAWAL

APPROXIMATE LOCATION OF DIVERSION—WITHDRAWAL

1. Existing Well No. 3 or Proposed Well: Within SE¼NW¼ of Section 25, T. 10 N., R., 22 E.W.M., approximately 1150 feet north and 350 feet west of the center of Section 25.
2. Existing Well No. 6: Within NW¼SW¼ of Section 30, T. 10 N., R. 23 E.W.M., approximately 920 feet south and 20 feet east of the west quarter corner or Section 30.
3. Existing Well No. 7: Within SW¼NW¼ of Section 36, T. 10 N., R. 22 E.W.M., approximately 650 feet north and 450 feet east of the west quarter corner of Section 36.
4. Proposed Well: Within SW¼NE¼ of Section 29, T. 10 N., R. 23 E.W.M., approximately 450 feet north and 120 feet east of the center of Section 29.
5. Proposed Well: Within NE¼SW¼ of Section 32, T. 10 N., R. 23 E.W.M., approximately 900 feet south and 1400 feet east of the west quarter corner of Section 32.
6. Proposed Well: Within N½NE¼ of Section 31, T. 10 N., R. 23 E.W.M., approximately 1100 feet south and 900 feet east of the north quarter corner of Section 31; OR AN ALTERNATIVE SITE LOCATED approximately 1100 feet south and 1900 feet east of the north quarter corner of Section 31.

LOCATED WITHIN (SMALLEST LEGAL SUBDIVISION)	SECTION	TOWNSHIP N.	RANGE, (E. OR W.) W.M.	W.R.I.A.	COUNTY
		10	22 E & 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

Within the service area of the City of Sunnyside, Washington, municipal water supply system.

FILE COPY

DESCRIPTION OF PROPOSED WORKS

Three existing wells (City Wells Nos. 3, 6, and 7) and three proposed wells to supply the city distribution system.

DEVELOPMENT SCHEDULE

BEGIN PROJECT BY THIS DATE:	COMPLETE PROJECT BY THIS DATE:	WATER PUT TO FULL USE BY THIS DATE:
Begun	February 1, 2017	February 1, 2017

PROVISIONS

Completion of Construction and Proof of Appropriation (full use) of the recommended Permit are due February 1, 2017 unless further extended for good cause and with reasonable diligence being shown. Progress report describing system improvements and water usage under this authorization are required at six year intervals to coincide with the Comprehensive Water System Plan updates, with the first report due by February 1, 2002.

Volume of up to a total of 3230 acre-feet per year is dependent on actual (perfected) use, and the determined quantity of existing ground water rights as follows: 2,138 acre-feet per year is additive (primary) and 324 acre-feet per year is non-additive (supplement) to currently existing ground water rights so that all primary (additive) water rights do not exceed 5044 acre-feet per year. [Currently existing ground water rights are those rights existing under the City's Certificate Nos. 33-D, 34-D, 35-D, 49-A, 2553-A, 4795-A and G3-21323C.]

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.

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 modifications 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.

Water use data 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: owner, contact name if different, mailing address, daytime phone number, WRIA, Permit/Certificate/Claim No., source name, annual quantity used including units of measurement, maximum rate of diversion including units of measurement, Department of Health WFI water system number and source number(s), purpose of use, and period of use. In the future, Ecology may require additional parameters to be reported or more frequent reporting. Ecology prefers web based data entry, but does accept hard copies. Ecology will provide forms and electronic data entry information.

All water wells constructed within the state shall meet the minimum standards for construction and maintenance as provided under Chapter 18.104 RCW (Washington Water Well Construction Act of 1971) and Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Water Wells).

For new well construction, the casing shall be set or placed (not driven) at least 20 feet in to the first solid, unfractured, nonporous, nonvesicular basalt flow of the Pomona Member of the Saddle Mountains Basalt Formation. The well annulus shall be pressure grouted using cement grout as a sealing agent from the bottom of the casing to land surface and the annulus shall be at least four inches greater in diameter than the permanent casing. The well shall be restricted to a depth corresponding to the top of the Priest Rapids Member of the Wanapum Basalt Formation.

After completion of construction and clarification of the water by pumping or other means, the well shall be video scanned providing a clear, continuous image from the top of the well to the bottom. The video scan shall be provided to and reviewed by the Central Regional Office Water Resources Program of the Department of Ecology before the production pump is installed.

For the purpose of making water level measurements, installation and maintenance of an access port as described in Ground Water Bulletin No. 1 is required for each well. An air line and gage are also required for each well. The air line shall be constructed of ¼ inch minimum diameter galvanized steel pipe, or comparable material if pre-approved by the department. The air line shall be equipped with a standard tire valve. Distance from land surface to the bottom end of the air line shall be clearly posted at the well site, accurate to 0.5 feet or less. The air line, access port, and all well equipment shall be installed and maintained to provide access for measurement of water levels. For existing wells, installation of air lines may be delayed until such time as the pump is removed for maintenance or other reason.

A proof inspection will be conducted prior to final certificate issuance. The certificate will reflect the extent of the project perfected within the limitations of the permit. Aspects will include as appropriate the source(s), system instantaneous capacity, beneficial use(s), annual quantity, acreage, home services designed, place of use, and satisfaction of provisions.

The City shall implement an approved water conservation plan(s) as described in "Conservation Planning Requirements" [Ecology Publication No. 94-24, Health PUB 331-008, dated January 2005.

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 30th day of September 2005.

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

Department of Ecology

DATA REVIEW

OK cem

by [signature]

Robert F. Barwin, Section Manager

Appendix 6 Well head Protection

Report Prepared for

City of Sunnyside

Wellhead Protection Plan

January 2005

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Section 1
Introduction

1.1 Purpose of Plan

All Group A Public Water Systems with ground water production sources are required to develop and implement a Wellhead Protection Program (WHPP) in accordance with Washington Administrative Code (WAC) 246-290-135(3). The purpose of a Wellhead Protection Plan (Plan) is to document and summarize the WHPP and to create a Plan for appropriate improvements to wellhead protection. Each Group A public water system must submit a complete and appropriate Plan to the Washington Department of Health (DOH) as a required component of a Water System Plan (WSP) or Small Water System Management Program. This plan was prepared to meet the requirements set forth in the DOH Wellhead Protection Program Guidance Document (1995).

The goal of a WHPP is to maintain existing source water quality by protecting existing ground water supplies from potential sources of contamination. This Plan aims to document and summarize how the City of Sunnyside's (City) WHPP is achieving these goals and objectives, and recommends management projects to improve wellhead protection. The City of Sunnyside is located approximately 30 miles southeast of the City of Yakima and lies between the Rattlesnake Hills and Horse Heaven Hills in Yakima County (refer to Exhibit 1-1).

The state requires, as a minimum, the following elements with an approved WHPP:

- A completed susceptibility assessment
- A delineated wellhead protection area
- An inventory of potential contamination threats
- Distribution of findings to required entities
- Appropriate spill/incident response measures
- Contingency plans for alternative sources of drinking water

Within wellhead protection areas, potential contaminant sources are to be identified and managed to eliminate or reduce their risk of contaminating public water supplies. Washington's Wellhead Protection Program advocates a progressive management concept, wherein pollution prevention is the preferred approach to ground water protection. Moreover, education and use of Best Management Practices (BMPs) are important measures, which may reduce or eliminate the need for restrictive regulatory protection plans.

In some settings, the adoption of zoning ordinances or codes, which limit activities around the water supply may be desirable. Moreover, the controlling entity may elect to set design and/or operational standards for facilities located within the wellhead protection area, as needed. Local public water systems have the primary responsibility for developing and implementing local wellhead protection programs. Local departments of community development or similar local planning agencies have a key role in assuring that wellhead protection programs are integrated into the overall community planning. Due to the limited jurisdictional and regulatory authority

afforded most purveyors, it is essential that they work with other local, state, and federal agencies to ensure the successful implementation and enforcement of the wellhead protection plan.

1.2 Scope of Plan

The planning area for this effort includes the entire municipal boundary, as well as the estimated areas thought to contribute to the City of Sunnyside's present ground water supply. This Plan was prepared through the review and synthesis of available source water protection data, including data and information from City and government agency files, previous planning efforts, and published scientific studies, as appropriate. No additional field data was collected in conjunction with this Plan. This Plan focuses on water quality issues that potentially threaten the City's wells. Local and regional ground water quality issues with no relation to the City's wells (e.g., salt water intrusion) are not explored.

The City has not previously submitted a wellhead protection plan to DOH. However, the City submitted Susceptibility Assessment Survey Forms to DOH for Wells No. 4A, 5, 6, 7, 8, and 9. All of these wells with the exception of Well No. 4A are being used by the City A copy of the susceptibility assessment survey forms are included in Appendix A.

1.3 Plan Preparation

This Plan has been prepared in accordance with an agreement between the City and Economic and Engineering Services, Inc. (EES). The Plan was developed solely by EES with information, input, and review from the City.

1.4 Coordination with Other Plans

There are several other Federal, State and local programs that complement the City's wellhead protection planning effort. A partial list of those programs include:

- State Environmental Policy Act
- Growth Management Act
- Water System Coordination Act
- Special Protection Areas
- Comprehensive Water System Planning

Brief descriptions for each program are outlined below:

1.4.1 State Environmental Policy Act

Environmentally Sensitive Areas (ESAs) can be designated by a local government under authorities provided by the State Environmental Policy Act (SEPA, Chapter 197-11 WAC and related local authorities). This designation can provide additional protection to specific areas such as vulnerable wellhead protection areas than would be accomplished under standard SEPA guidelines. This additional protection occurs because categorical exemptions can be modified.

The ESA designation can impact underground storage tanks, facilities affecting stormwater, and other potential sources of ground water contamination.

1.4.2 Growth Management Act

Local jurisdictions planning under the Growth Management Act (GMA) are required to identify Critical Aquifer Recharge Areas (CARAs). The GMA requires all counties/cities to classify, designate, and regulate to protect "areas with a critical recharging effect on aquifers used for potable waters." The areas delineated under the wellhead protection plan are often used to define the limits of the CARAs.

1.4.3 Water System Coordination Act

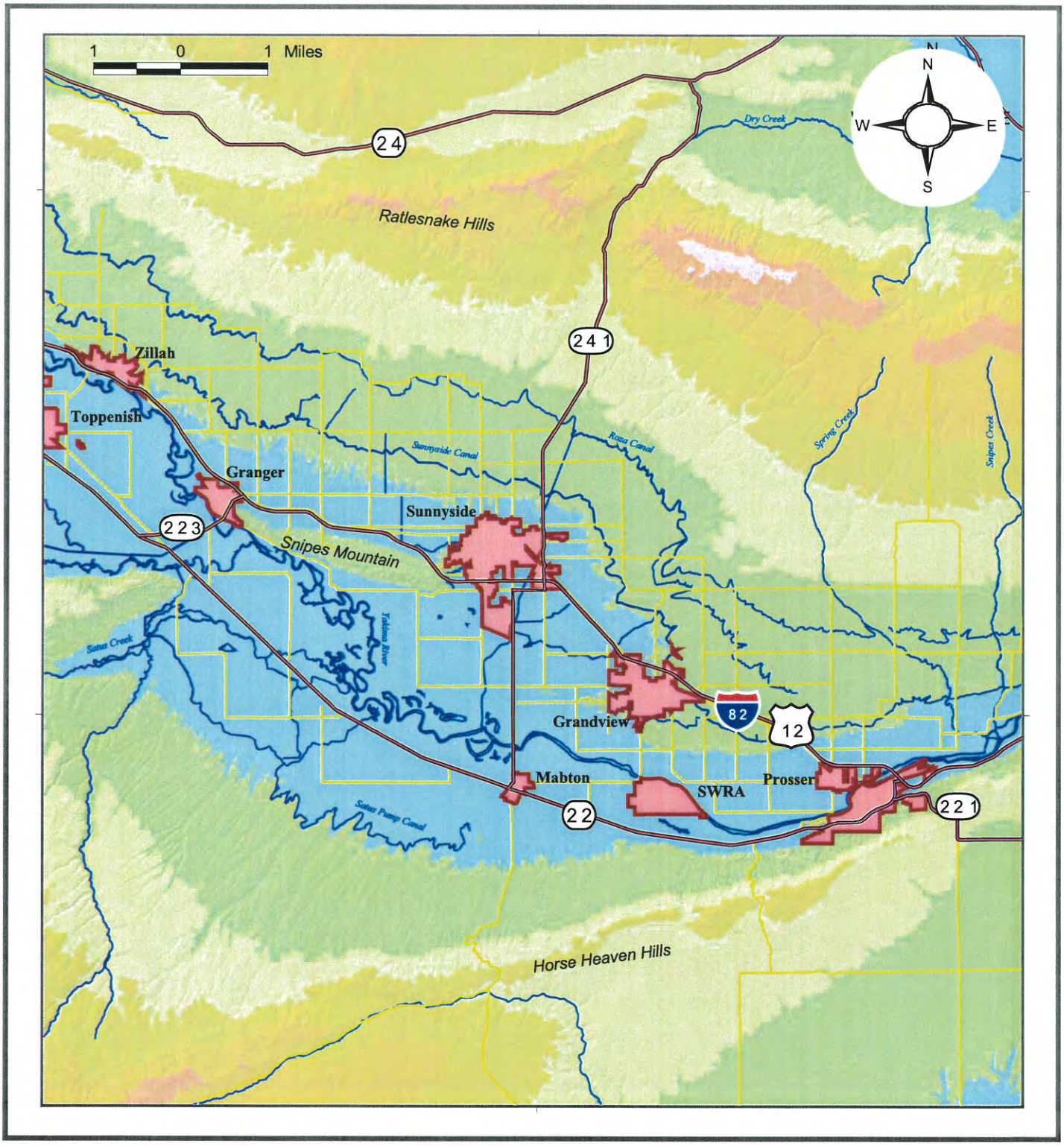
The Water System Coordination Act (Chapter 246-293 WAC) provides a process to assure coordinated regional planning for public water systems within defined Critical Water Supply Service Areas. A primary objective of the law is to integrate water system development with land use planning in a given area so as to minimize conflicts between land use and water system plans. An early activity in this regional planning process is establishment of a Water Utility Coordinating Committee. The committee's purpose is to organize a local partnership between county legislative authority, county planning agency, county health agency, water purveyors, and DOH to develop and implement workable solutions to water system problems. Other interested agencies, organizations or individuals may also participate in the Committee.

1.4.4 Special Protection Areas

Chapter 173-20 WAC, Water Quality Standards for Ground Waters, provides for the designation of Special Protection Areas that require special consideration or protection due to unique or vulnerable characteristics. These characteristics include critical recharge areas and wellhead protection areas. Designation of a vulnerable wellhead protection area as a Special Protection Area may result in stricter discharge limits placed on state waste discharge permits, and/or increased outreach, regulatory inspections and enforcement actions.

1.4.5 Comprehensive Water System Planning

This plan is prepared in accordance with guidelines established under WAC 246-290-100 regarding Water System Plans and is an integral part of the City's current Comprehensive Water System Plan (WSP).



LEGEND

- City Limits
- State Roads
- Local Roads
- Rivers, Streams, Canals

Elevation

- 260 - 800 ft
- 800 - 1300 ft
- 1300 - 1800 ft
- 1800 - 2300 ft
- 2300 - 2800 ft
- 2800 - 3300 ft
- 3300 - 3800 ft
- 3800 - 4300 ft
- No Data

EXHIBIT 1-1
City of Sunnyside Regional Map

October 2003

Economic and Engineering Services, Inc.

Bellevue Mount Vernon Olympia Portland Tri-Cities

M:\ArcView\Sunnyside_WHPP\Project

10/3/2003 2 5 PM

Section 2
System Background Information

2.1 Municipal System Overview

The City of Sunnyside (City) produces its entire potable water supply from ground water aquifers beneath the City. The City currently has six municipal wells in operation (Wells No. 4A, 5, 6, 7, 8, and 9), all located within the city limits. The locations of the six sources are displayed in Exhibit 4-1. Well completion information for each source is presented in Table 2-1 for the wells still in operation. Associated well logs and well completion reports are included in Appendix B.

Historically, the City's Wells No. 1 and No. 2 were officially abandoned and closed in 1995. Their use was discontinued due to VOC (volatile organic compounds) detections and determination of poor water quality and aquifer contamination. Wells No. 3 and 4 were abandoned in 1998. The well casings in these wells were found to be leaking, resulting in "cross-contamination" between the alluvial and basalt aquifers. The City chose to abandon these wells rather than put in new casing. The water rights for each of these wells were transferred to Wells No 8, 9, and 4A. To replace these wells, the City drilled Well No. 8 in 1994, and Well No. 9 and No. 4A in 1998. Well No. 9 is located at the City's airport and Well No. 4A is located approximately 100 feet from Well No. 4. However, hydrogen sulfide ("rotten egg" smell) was detected in Well 4A shortly after it was put on-line. This poses no health problems, but causes taste and odor problems, and as a result the City does not currently use Well No. 4A.

As noted in Table 2-2, the municipal water wells (No. 4A – 9) at present have a combined instantaneous pumping capacity of 6,100 gpm. However, wells No. 6 and No. 7 influence each other and both cannot be run together for extended periods. Prior to 1995, Wells No. 5, No. 6, and No. 7 historically supplied over 95 percent of the total production. Table 2-2 also summarizes the historical production of the wells from 1997 to 2002. Currently, Well No. 4A and 5 are considered emergency wells. Pumping records since 1997 show that use of Wells No. 5 and No. 6 have steadily decreased and are currently used for emergency and peak use purposes only. Well No. 7 is currently used as the main supplement for meeting higher demands during the irrigation periods. Wells No. 8 and 9 are currently used as the primary water supply for the City. Exhibit 2-1 shows the annual production of Wells No. 4A through No. 9 since 1997.

Table 2-1
Well Construction Details

Well Number	Location	Date Constructed	Surface Elevation	Total Depth	Seal Interval	Seal Material	Perforated Intervals	Uncased Intervals	Total Uncased and Perforated Length Total	Geologic Material of Productive Zones Geologic	Aquifer Name	Borehole Diameter in Productive Zones Borehole
4A	SE 1/4, NW 1/4, Sec. 25, T10N, R22E	12/23/1998	745	1,700	*0-1,202*	Cement	1283-1325 1359-1402 1423-1435 1435-1448 1490-1541 1552-1615 *1655-1676*	N/A	245	Basalt Basalt Basalt Basalt Basalt Basalt Basalt	Wanapum Wanapum Wanapum Wanapum Wanapum Wanapum Wanapum	
5	SW 1/4, NW 1/4, Sec. 25, T10N, R22E	12/12/1953	740	453	Unknown	Concrete	388-450	N/A	62	Sand, Gravel	Alluvium	16
6	NW 1/4, SW 1/4, Sec. 30, T10N, R22E	6/??/1963	742	769	*217-269*	*Cement*	*N/A*	*N/A*	*260*	*Basalt*	Saddle Mountains	*8*
7	SW 1/4, NW 1/4, Sec. 36, T10N, R22E	3/18/1974	727	1,057	0-541	Cement	887-927 986-1026	N/A	80	Basalt Basalt	Saddle Mountains	4
8	NE 1/4, NE 1/4, Sec. 26, T10N, R22E	6/9/1994	749	440	0-325	Cement	305-308 325-375	N/A	*53*	Sand, Gravel Sand, Gravel	Alluvium Alluvium	10 10
9	SW 1/4, NE 1/4, Sec. 29, T10N, R23E	11/21/1997	756	1000	0-471	Cement	465-535 535-613 613-904	N/A	439	Basalt Basalt Basalt	Saddle Mountains Saddle Mountains Saddle Mountains	3 3 12

Table 2-2
Summary of Pumping Capacity and Historical Production

Well No.	Aquifer Unit	Instantaneous Water Right	Pumping Capacity	Historical Production Rates (1997-2002) (gpm)		
				Max. Week	Max. Week in 2002	Annual Average in 2002
4a	Wanapum Basalt	1,000	950	N/A	N/A	N/A
5	Alluvium Overburden	1,500	850	906	14	0.27
6	Saddle Mountain Basalt	1,570	850	810	523	36.2
7	Saddle Mountain Basalt	950	1,150	2,535	1,181	646
8	Alluvium Overburden	800	800	1,141	717	614
9	Saddle Mountain Basalt	2,000*	1,500	1,512	1,161	645

**2,000 gpm is based on permit G4-31581P for developing Wells No. 9, 10, and 11.*

2.2 Water Rights

The City's existing ground water rights are documented by seven certificates of ground water rights and one permit. Department of Ecology and the City differ in their legal interpretation of the annual quantities of water rights certified for Wells No. 5, 6 and 7. The City's position is that the total annual quantity total 5,576 afy for all existing water rights, while Ecology's position is that the annual quantity limit is 1,756 afy for all water rights. This issue is based on the wording in the Report of Examination and subsequent Ground Water Permit No. G4-31581P. The wording in this Report and Permit is the latest written documentation by the Department of Ecology (Ecology) related to the City's water rights. The issue is whether or not the annual quantity (QA) in afy, that is shown on the ground water rights that have been issued for Well Nos. 5, 6, and 7, is primary or supplemental. The wording in the Report of Examination and subsequent Permit No. G4-31581P does not resolve this conflict in interpretation, but instead shows both interpretations, and leaves the decision to be made at a later date, prior to issuance of the certificate.

2.3 Source Water Quality

The City of Sunnyside collects water quality samples on a regular basis to satisfy EPA and DOH requirements. The source of supply wells must be tested for both inorganic and volatile organic compounds (VOC) on an ongoing basis. Ground water wells must be sampled once every three years for inorganic chemicals. Table 2-3 summarizes the water quality data collected between 1998 and 2002 for the wells that are currently in operation by the City. Table 2-3 lists those constituents that had at least one detection during that sampling period. Constituents that had a

detection above EPA's maximum contaminant level (MCL) are indicated in Table 2-3. Note that hundreds of other compounds were tested but were not detected. Giardia, cryptosporidum, E. coli, and coliform were not present or detected in any of the samples from any of the wells during this period. Additional water quality monitoring information for the wells are included in Appendix C.

Historically, the City's wells have generally had good quality water. The exceptions were Wells No. 1 and 2, which were abandoned due to VOC detections and determination of poor water quality and aquifer contamination. The 1995 Water System Plan included a review of water quality test results on the City's well waters. Data since the 1960's revealed good results for Wells No. 3, 4, 5, 6, and 7. However as mentioned earlier, Wells No. 3 and 4 were abandoned. Both had high iron and turbidity and also had leaks in their casing.

As indicated in the monitoring results in Table 2-3, Wells No. 5, 6 and 7 have had historical concentrations of iron and manganese above drinking water standards. Well No. 9 has also had some historical exceedances for manganese and sodium. The concentrations of the constituents are typical of concentrations in ground water resulting from the natural geology in the area. Elevated levels of iron and manganese are often found in ground waters in Eastern Washington. The presence of iron and manganese in water supplies is objectionable because they cause discoloration of water and can stain plumbing fixtures ad laundry. They are also associated with the accumulations of microbial growth which can result in taste and odor complaints. Sunnyside has experienced water discoloration and has to frequently flush many of its pipelines to minimize the problems.

Other water quality issues are related with Wells No. 4A and 5. As noted above, Well No. 4A has not been used regularly since its construction because hydrogen sulfide was detected. Although it poses no health risk, it may cause taste and odor discomfort for customers, and is the reason why the City does not currently use the well on a regular basis. Finally, recent testing for arsenic in well waters indicates that arsenic levels in Well No. 5 exceeded the EPA MCL in 2002. Well No. 5 is currently used as a back-up supply and is seldom in service. The average after blending with other waters from source wells is well under the MCL. Arsenic is also found naturally in the geology of the region. The City is conducting on-going testing and will examine treatment needs for arsenic.

Table 2-3
Water Quality Analysis Results for 1998-2002

Compounds	Year	Well No. 5	Well No. 6	Well No. 7	Well No. 8	Well No. 9
Iron	1998	ND	0.23	0.14	ND	ND
	1999	ND	0.16	0.14	ND	ND
(MCL = 0.3 mg/L)	2000	**1.35**	0.16	ND	ND	ND
	2001	**2.7**	0.16	ND	ND	ND
	2002	ND	0.16	ND	ND	ND
Manganese	1998	ND	**0.056**	0.042	ND	0.049
	1999	ND	**0.06**	0.045	ND	0.048
(MCL = 0.05 mg/L)	2000	0.045	**0.064**	0.045	ND	0.044
	2001	**0.091**	**0.06**	**0.054**	ND	0.044
	2002	0.016	**0.06**	**0.054**	ND	**0.053**
Sodium	1998	**20**	14	**22**	17	**25**
	1999	**20**	14	**21**	17	**20**
(MCL = 20 mg/L)	2000	19	14	ND	17	18.5
	2001	19	14	ND	17	17
	2002	18	14	ND	17	15
Fluoride	1998	0.5	ND	0.5	0.5	0.4
	1999	0.4	0.03	0.3	0.4	0.03
(MCL = 2 mg/L)	2000	0.4	0.3	0.3	0.4	0.33
	2001	ND	0.3	0.3	0.4	0.35
	2002	0.5	0.3	0.3	0.4	0.4
Nitrate	1998	1.3	ND	ND	1.5	ND
	1999	3.9	1.2	1.3	3.3	1.3
(MCL = 10 mg/L)	2000	2.7	0.6	1.3	3.3	0.65
	2001	1.4	ND	ND	3.3	ND
	2002	2	ND	ND	1.8	ND
Sulfate	1998	33	35	ND	31	19
	1999	30	32	ND	31	23
(MCL = 250 mg/L)	2000	34	32	ND	31	24
	2001	38	32	ND	31	25
	2002	36	32	ND	31	27
Turbidity	1998	0.5	0.3	0.3	0.2	0.35
	1999	0.14	0.51	0.18	0.16	0.21
(MCL = 1.0 NTU)	2000	0.14	0.51	0.18	0.16	0.21
	2001	14	0.51	0.18	0.16	ND
	2002	1.7	0.51	0.18	0.16	ND
Hardness	1998	160	130	99	140	91
	1999	160	140	110	150	110
(Not regulated)	2000	160	140	110	150	96
	2001	160	140	110	150	82
	2002	160	140	110	150	120
Magnesium	1998	NA	NA	NA	NA	10
	1999	15	15	10	13	12
(Not regulated)	2000	15	15	10	13	10.8
	2001	15	15	10	13	10.85
	2002	15	15	10	13	13
Calcium	1998	NA	NA	NA	NA	20
	1999	40	33	27	38	23
(Not regulated)	2000	40	33	27	38	20
	2001	41	33	27	38	20
	2002	41	33	27	38	26
Arsenic	2002	**0.011**	**0.01**	ND	0.003	0.0063
(MCL = 0.010 ug/L)						

Notes:
Data taken from City of Sunnyside Annual Water Quality Report from 1998 to 2002
Units are the same as that listed for the compounds' MCL
MCL - maximum contaminant level
ND - Not detected

2.4 Susceptibility Assessment

The susceptibility assessment is required of all Group A water systems having a ground water source, as part of the Wellhead Protection Program. The method provides an assessment of the source water's physical susceptibility to contamination in the absence of direct measurements of contaminant use and exposure. The method relies on surrogate indicators such as the physical setting of the source and surrounding land use. Susceptibility is estimated by evaluating the conditions that affect the movement of contaminants from the land surface to a water supply. These conditions include:

- Well depth and construction
- Well pumping rate
- Depth to water
- Local hydrogeology
- Sources of groundwater recharge, including groundwater-surface water interaction

The general procedure used for evaluating well susceptibility involves a qualitative evaluation of these factors. DOH has listed "source susceptibility assessment criteria" as described in the Source Water Assessment Program (DOH 1995). In general, a well's susceptibility increases when it is poorly constructed (e.g., improperly sealed or cased) or when it is located in a hydrogeologic setting where no confining layer or layer of low permeability (aquitard) exists between the aquifer and the ground surface. Wells that allow for interconnection of shallow and deep aquifers are also considered to be more susceptible to contamination. Interconnection of aquifers will allow mixing of groundwater from different aquifer zones. This will occur in: (1) a well constructed using an uncased borehole or perforated intervals in the well casing in multiple aquifers, and/or (2) a well constructed with no seal, which allows vertical percolation along the outside of unsealed casing.

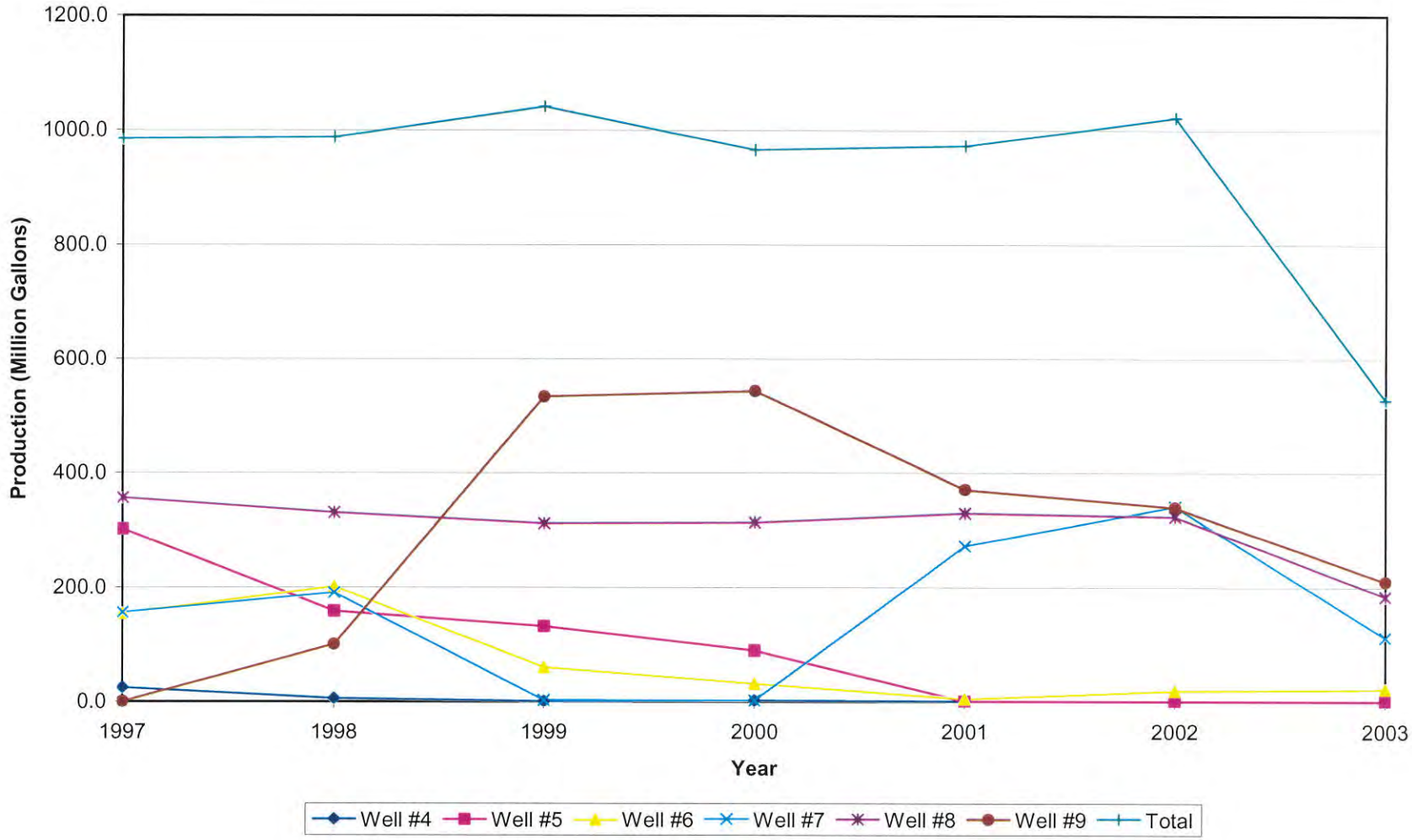
Susceptibility assessment survey forms have been submitted to DOH for all of the City's wells. Table 2-4 presents the current susceptibility rating for each of the sources based on current records at DOH. The survey forms are included in Appendix A with the ratings shown in Table 2-4. These ratings focus on well construction and the local water quality and hydrogeologic character of the aquifer and do not consider degradation of groundwater quality on a regional scale. Regional groundwater quality degradation (e.g., the increase of nitrate concentrations potentially related to widespread agricultural practices) is beyond the local control of wellhead protection planning. This evaluation is conducted at this stage of the Plan to assess the most appropriate type of wellhead protection area delineation method to use (refer to Section 4).

The susceptibility ratings for Wells No. 5, 8, and 9 are low primarily because of the depths of the wells and the thickness of the surface seals associated with the well construction. Wells No. 6 and 7 were given susceptibility ratings of "high" because of the historical VOC detections in the wells. The high rating affects the level of monitoring required of the City and any potential waivers for monitoring that may be granted. At this time, Wells No. 6 and 7 have not had VOC detections since 1998. Well No. 4A does not have a susceptibility rating from DOH because it is considered inactive.

Table 2-4
Summary of Susceptibility Ratings

Well Number	Current DOH Susceptibility Rating	Comments
4A	N/A	Not approved
5	Low	Draws water from alluvium; moderately significant surface seal
6	High	Historical VOC detect; draws water from deep aquifer zone with a confining layer; moderately significant surface seal
7	High	Historical VOC detect; draws water from deep aquifer zone with a confining layer; significant surface seal
8	Low	Draws water from alluvium; significant surface seal
9	Low	Draws water from deep aquifer zone with a confining layer; significant surface seal

Exhibit 2-1
Total Annual Production by Well (1997 - 2002)



Section 3
Hydrogeologic Characterization

The City of Sunnyside is in the Lower Yakima River Valley directly east of the confluence of Status Creek and the Yakima River. The City is located in the Columbia Plateau region between the major geologic features known as the Rattlesnake Mountains to the north and Horse Heaven Hills to the south. Land surface elevations range from 720 feet near the center of the City to 1020 feet on the heights located on the west side of town. The climate is arid to semi-arid. The average annual precipitation for Sunnyside is 6 to 7 inches, with approximately 40 percent of the rainfall occurring in the winter months. Over the past 50 years, the majority of the area surrounding the City has been converted from rangeland and dryland farming to irrigated agriculture. A minority of the study area is subjected to dryland farming and industrial, residential, and commercial uses. Land use within the City is discussed in Section 5.

3.1 Regional Hydrogeologic Framework

Descriptions of basalt formation elevations and thicknesses provided in this section are based primarily on research performed by Drost and Whiteman (1986) and Drost et al. (1990). The Columbia Plateau is underlain by a series of basalt flows and sedimentary interbeds commonly referred to as the Columbia River Basalt Group. These Miocene-age flows erupted between about 17 and 6 million years ago (Whiteman et al. 1994). The flows have formed a generally horizontal, layered sequence, which has an estimated maximum thickness of 14,000 feet at the plateau's low point near Pasco, Washington. In order of decreasing age, the upper three major formations of the Columbia River Basalt Group, which are of relevance to this study, include the Grande Ronde, Wanapum, and Saddle Mountains Basalts (Exhibits 3-1 and 3-2). These three formations form the Yakima Basalt Subgroup. The Vantage sedimentary interbed is typically found between the Wanapum and the Grande Ronde Basalts, and the Mabton sedimentary interbed generally separates the Saddle Mountains and the Wanapum Basalts. Additional sedimentary interbeds are common within each of the three basalt units. Holocene- to Miocene-age sedimentary overburden overlies the Yakima Subgroup over much of the study area, particularly in lowlands of the Columbia Plateau.

The overburden of the Columbia Plateau includes consolidated to unconsolidated deposits of fluvial, lacustrine, and volcanic origin, for the purposes of this report the overburden will be referred to as alluvium. These sediments and sedimentary rocks are lithologically diverse, ranging from clay to gravel and shale to conglomerate. The alluvium overburden transmits water readily in many of these areas and constitutes a water table aquifer where it is saturated. Estimates of lateral hydraulic conductivities of the alluvium overburden aquifer range from 0.02 to 150,000 feet/day, with a median value of about 240 feet/day (Whiteman et al. 1994).

The movement of groundwater through the basalt flows is governed by numerous factors dependent upon the nature of individual flows. Flow characteristics are influenced by the topography over which the basalts flowed; the erosional processes that occurred before, during,

and after extrusion; the deposition of sedimentary interbeds; tectonic activity; and diagenetic processes. A basalt flow typically forms a highly heterogeneous aquifer unit that transmits water most readily through the broken vesicular and scoriaceous flow tops (interflow zones) that commonly constitute 5 to 10 percent of the thickness of an intact individual flow. The interflow zones are separated by the less transmissive and more massive entablature and colonnade. The colonnade generally makes up the bottom 20 to 25 percent of the flow unit. It has the lowest hydraulic conductivity of the three portions of a flow and is typically made up of 3- to 8-sided columns bounded by cooling joints. The colonnade fractures are more or less vertical, so hydraulic conductivity is greatest in this direction, which allows for some movement of water between interflow zones. The entablature, which generally makes up 70 percent of a flow thickness, is composed of smaller columns arranged in fan-shaped patterns, which arise from flow of the basalt. Jagged joints are common, and the upper portion of the entablature is often vesicular. Lateral water movement in the entablature and colonnade is probably negligible in comparison to the volume of water that moves laterally through the interflow zones. This is because the movement of water in the entablature and colonnade is controlled by cooling fractures and joint systems, whereas movement of water in the interflow zones is controlled by primary features such as flow breccia, clinkers, and vesicles. Where there are no intervening sediments, the interflow zone consists of both the flow top and the vesicular lower portion of the succeeding flow unit (Whiteman et al. 1994). Exhibit 3-1 shows the generalized stratigraphy described above.

The majority of groundwater flow in the basalt units is derived from interflow zones. Estimates of lateral hydraulic conductivities for the Saddle Mountains, Wanapum, and Grande Ronde Basalts range from 0.005 to 6,100 feet/day and have a median of about 5 feet/day. Median lateral hydraulic conductivity values for these basalts are estimated to be 2.4, 5.2, and 4.9 feet/day, respectively, with the lower value for the Saddle Mountains being attributed to the presence of thicker and more numerous sedimentary interbeds in this unit (Whiteman et al. 1994).

The groundwater surface in the Saddle Mountains Basalt appears to roughly parallel the land surface where there is little or no alluvium overburden. The lateral groundwater flow in this unit is generally toward major surface-drainage features, but there are numerous local variations where smaller streams abstract base flow from the basalt. Groundwater flow in the Wanapum and Grande Ronde Basalts is predominantly controlled by major rivers, streams, and coulees. The dominant pattern of groundwater movement is downward from the anticlinal axes toward the streams and rivers lying within the intervening synclines (Bauer et al. 1985; Lane and Whiteman 1989). Exhibit 3-2 shows the general ground water flow patterns in the basalt formations. In the case of flows in the Sunnyside region, the Yakima River is the primary drainage feature and the direction toward which ground water generally flows. This is discussed further in Section 3.3.

Vertical water movement occurring in the central and lower portions of a basalt flow unit is generally slow because of the low hydraulic conductivity of the entablature and colonnade zones. Additionally, some of the sedimentary interbeds, which vary in lithology from shale and clay to sand and gravel, are of low transmissivity, further impeding the vertical movement of water. In general, the interbeds act as semiconfining to locally confining layers that transmit small

amounts of water laterally. Large (more than 100 feet in some areas) head differences between aquifers in the Columbia Plateau reflect the large head losses that result from downward flow of water through thick zones of low hydraulic conductivity. Net flow is downward over most of the Columbia Plateau and upward in the vicinity of topographic lows, such as major river valleys. In most areas, water table conditions exist in the uppermost basalt flows, while the deeper aquifers are generally confined. Where a confined aquifer exists, the static (non-pumping) groundwater level (piezometric surface) can be many feet above the aquifer.

The alluvium overburden in the study area is generally in direct hydraulic connection with the immediately underlying basalts. Where overburden materials are thick enough, a water table aquifer may be present, commonly providing sufficient groundwater for domestic and stock use, and in some places, for irrigation.

3.2 Local Hydrogeologic Framework

Exhibit 3-3 shows the surficial geology and major surface features in the vicinity of Sunnyside. Using the City's well logs for its water supply wells and additional regional wells gathered from the Department of Ecology's database, a geologic cross-section was developed along the transect shown in Exhibit 3-3. A north-south transect was selected because the direction of regional ground water flow in the Sunnyside area is in a southerly direction toward the Yakima River. The geologic cross-section is depicted in as shown in Exhibits 3-4a and 3-4b at different scales.

As Exhibit 3-4 shows, the City of Sunnyside lies upon alluvium, which is underlain by flows of the Saddle Mountains Basalt. The alluvium in the Yakima River valley varies from occasionally cemented sand, gravel, and boulders in the upper deposits to clay. The thickness of these unconsolidated deposits at the city wells is on the order of 400 feet beneath most of the City. Based on Well No. 4A log, the Saddle Mountain Basalt layer is also on the order of 400 feet thick. The Wanapum Basalt starts at depths of approximately 1,000 feet below ground surface. Based on well logs further north and south of the City's wells, the thicknesses of the alluvium and basalt layers are generally uniform in the immediate vicinity of the City. The regional geology, however, indicates that the alluvium thins much further north where the Saddle Mountain Basalt eventually rises to the ground surface along much of the Rattlesnake Hills. The thickness and depth of the Wanapum and Grand Ronde basalt immediately below the City are not known based on the depths of wells in the area.

The aquifers supplying the shallower city wells (No. 5 and 8) consist of coarse-grained zones in the alluvium and fractured, porous zones within the Saddle Mountain Basalts. The deeper wells (No. 6, 7, and 8) yield water from the Saddle Mountain Basalts. Well No. 4A is the only well to tap the Wanapum Basalt. None of the wells are in the Grande Ronde Basalt.

3.3 Ground Water Flow

Natural recharge to the local ground water system occurs in the Rattlesnake Hills to the north, and to some extent in the Snipes Mountain to the west. Precipitation, although sparse, infiltrates and travels downgradient into the Sunnyside area. Recharge to the local ground water system may also be occurring from the deeper basaltic aquifers. Furthermore, artificially induced

infiltration from irrigation canals and laterals is also a possible source of local ground water system recharge. For example, the Roza and Sunnyside canals are located to the north toward the Rattlesnake Hills, while the Snipes Mountain lateral flows through the southwest corner of town and is within a quarter-mile of town. The Yakima River is the primary discharge area for the ground water flow system.

Groundwater level data at the City's wells are not available because the wells operate regularly. Therefore, groundwater elevations in the vicinity of the City are based on information presented by Lane and Whiteman (1989), Whiteman et al. (1994), and from a regional ground water study by Vaccaro (1999). Groundwater level data was also taken from data collected as part of the Yakima River basin groundwater study being conducted by USGS (http://wa.water.usgs.gov/yakimagw/Data.html). Data from obtained from the USGS hydrogeologic study in the Yakima Valley does confirm that lateral flow appears to be in a north-to-south general direction from the Rattlesnake Hills toward the Yakima River. Based on regional flow patterns and water levels during installation of the City's wells, there appears to be an upward vertical gradient in the basalt units. The flow directions are shown in Exhibits 3-5a and 3-5b for different depth intervals. The two depth intervals represent flow direction in the alluvium overburden (less than 400 feet below ground surface) and generally in the basalt aquifer (greater than 400 feet below ground surface). The water level data shown in Exhibit 3-5 was based on the USGS study for the Yakima Valley.

GEOLOGIC FRAMEWORK										
BASALT STATIGRAPHY										SEDIMENT STATIGRAPHY
										Sediments of Miocene through Holocene age (glaciofluvial, fluvial, lacustrine, eolian, and ash fall materials). Locally includes sediments of the Palouse, Latah, Ringold, and Ellensburg Formations, and the Dalles Group (Farooqui and others, 1981).
MIOCENE	Upper Miocene	COLUMBIA RIVER BASALT GROUP	YAKIMA BASALT SUBGROUP	Saddle Mountains Basalt	Lower Monumental Member Ice Harbor Member Buford Member Elephant Mountain Member Pomona Member Esquatzel Member Weissenfels Ridge Member Asotin Member Wilbur Creek Member Umatilla Member					
										Saddle Mountains-Wanapum Interbed
	Middle Miocene			Wanapum Basalt	Preist Rapids Member Roza Member Frenchman Springs Member Eckler Mountain Member					
										Wanapum-Grande Ronde Interbed
				Grand Ronde Basalt		Magnetostratigraphic Units	N_2 R_2 N_1 R_1 T N_0 R_0			
	Lower Miocene		Picture Gorge Basalt							
			Imnaha Basalt							
Lower Tertiary to Precambrian		Basement rocks (pre-Columbia River Basalt Group)								

NOTE

Figure taken from "The Hydrogeologic Framework and Geochemistry of the Columbia Plateau Aquifer System," by K.J. Whiteman et al., 1994.

EXHIBIT 3-1

City of Sunnyside

Wellhead Protection Plan

General Stratigraphy

October 2003

Economic and Engineering Services, Inc.

Bellevue Mount Vernon Olympia Portland Tri-Cities

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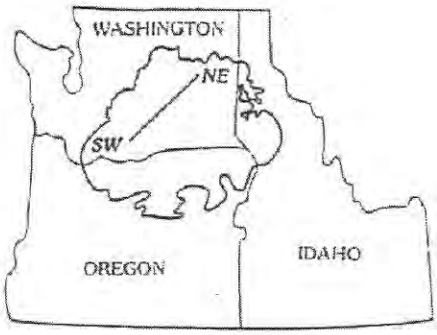

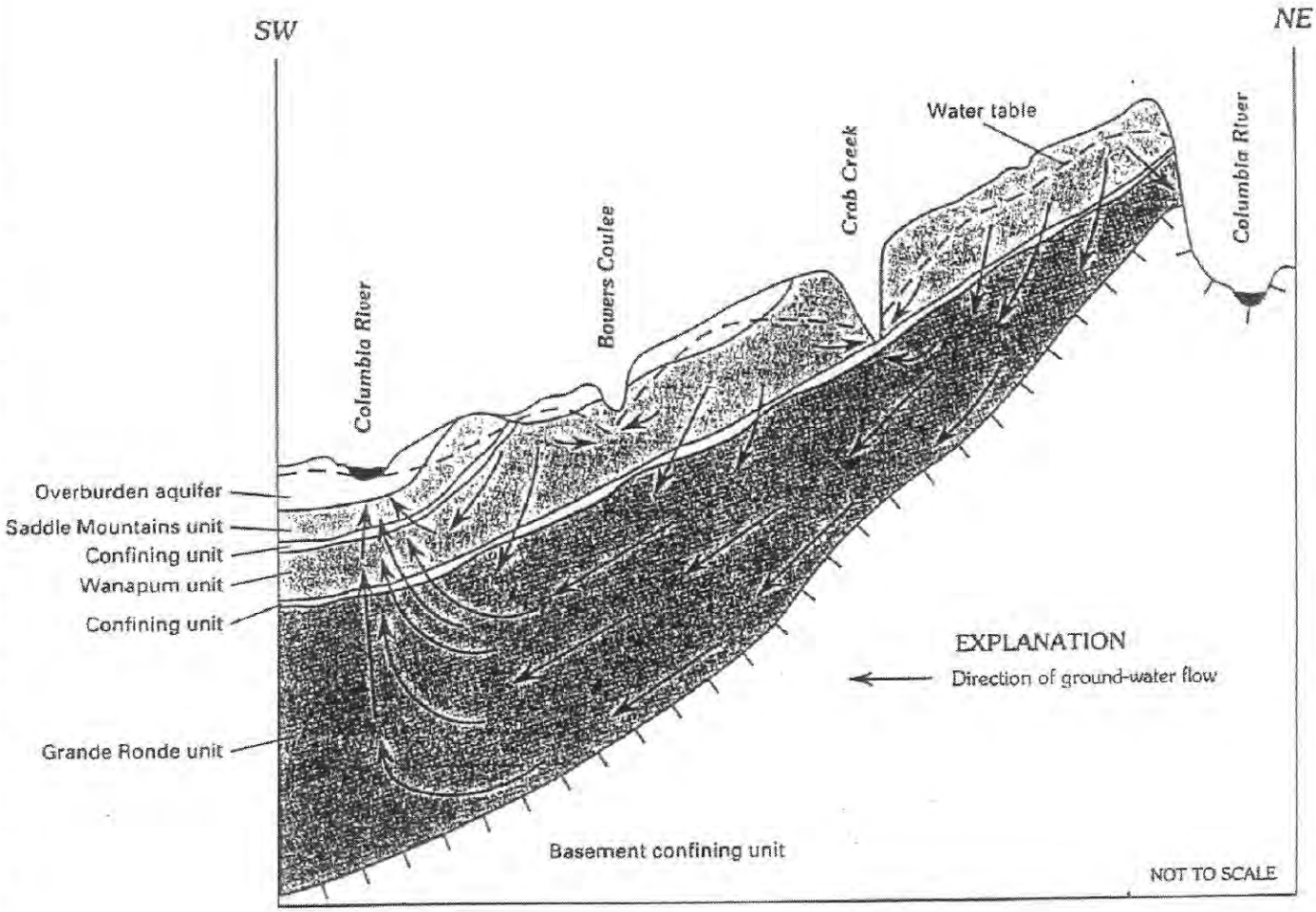

EXHIBIT 3-2

City of Sunnyside

Wellhead Protection Plan

General Ground Water Flow Patterns

NOTE

Figure taken from "The Hydrogeologic Framework and Geochemistry of the Columbia Plateau Aquifer System," by K.J. Whiteman et al., 1994.

October 2003

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Bellevue Mount Vernon Olympia Portland Tri-Cities

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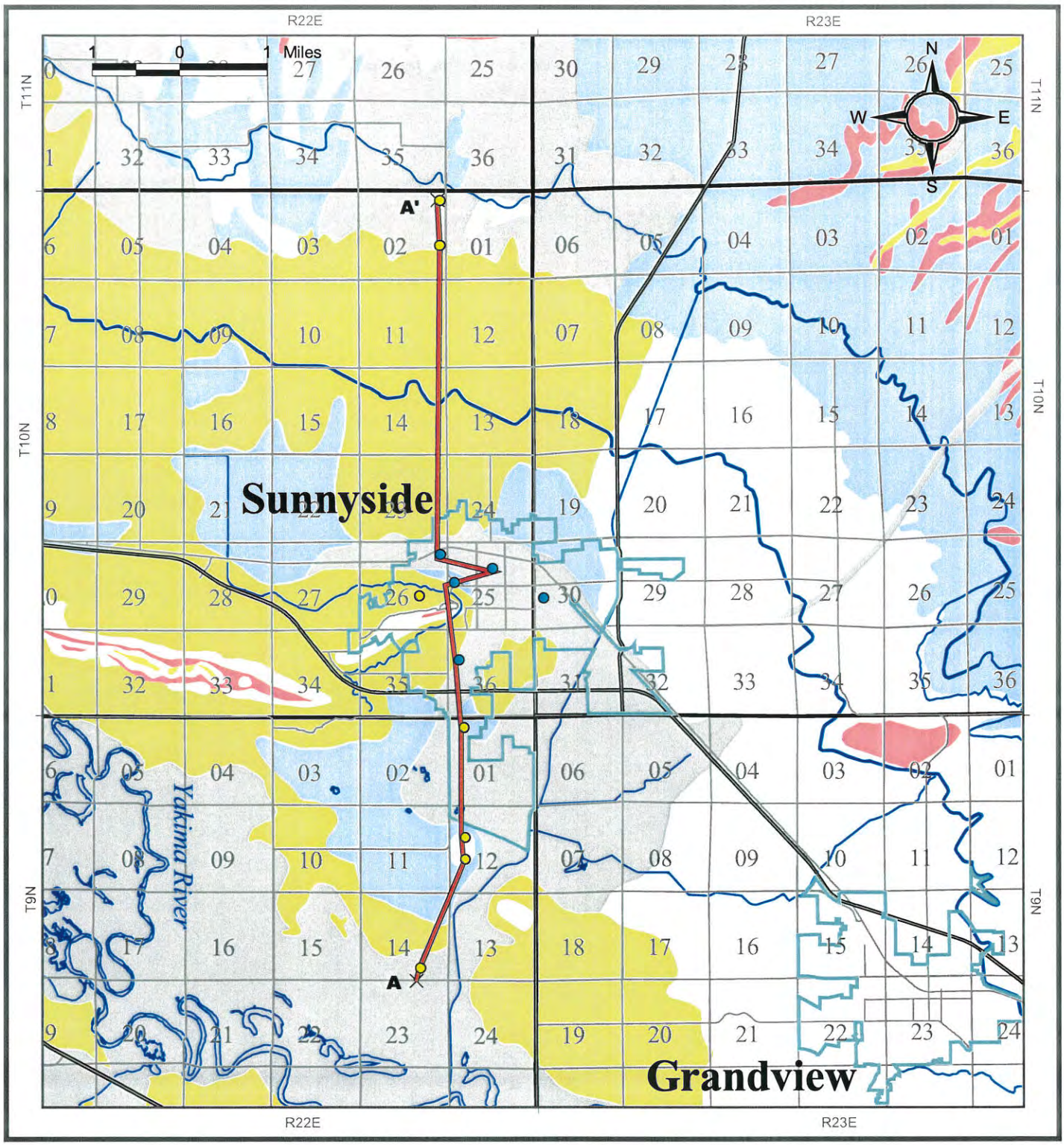

LEGEND

- Cross Section Wells
- City of Sunnyside Wells
- N-S Transect
- N-S Transect Line
- Township and Range
- Section Boundaries
- State Roads
- Local Roads
- Rivers, Streams, Canals
- City Limits

Surficial Geology

- Unnamed Unit (Overburden)
- Elephant Mountain Member, Saddle Mountains Basalt
- Ellensburg Formation
- Grande Ronde Basalt, N2 (CRB)
- Missoula, glacial Lake, deposits of
- Palouse Formation
- Pomona Member, Saddle Mountains Basalt
- Saddle Mountains Basalt, Columbia River Basalt Group
- Touchet Beds, glacial Lake Missoula

EXHIBIT 3-3
City of Sunnyside
Surficial Geology

October 2003

Economic and Engineering Services, Inc.
Bellevue Mount Vernon Olympia Portland Tri-Cities

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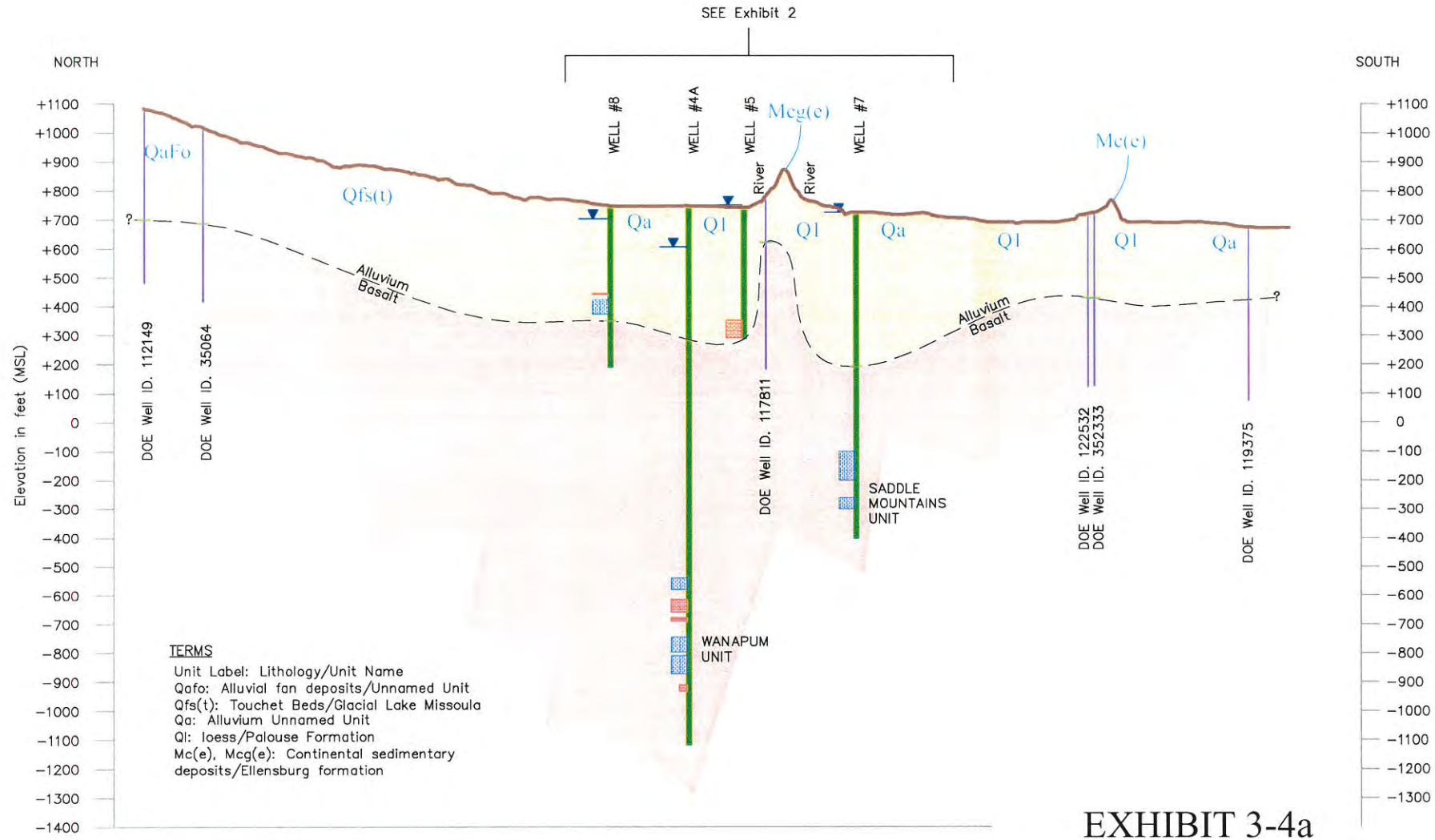


DEPTH OF BASALT
(depth approximation)
WELL WATER LEVEL
PERFORATED CASING
WELL SCREEN

Horiz. Scale in feet
0 2000 4000
0 500 1000
Vert. Scale in feet

EXHIBIT 3-4a

CITY OF SUNNYSIDE

WELL LOG

OCTOBER 2003

Economic and Engineering Services, Inc.
Bellevue Mount Vernon Olympia Portland Tri-Cities

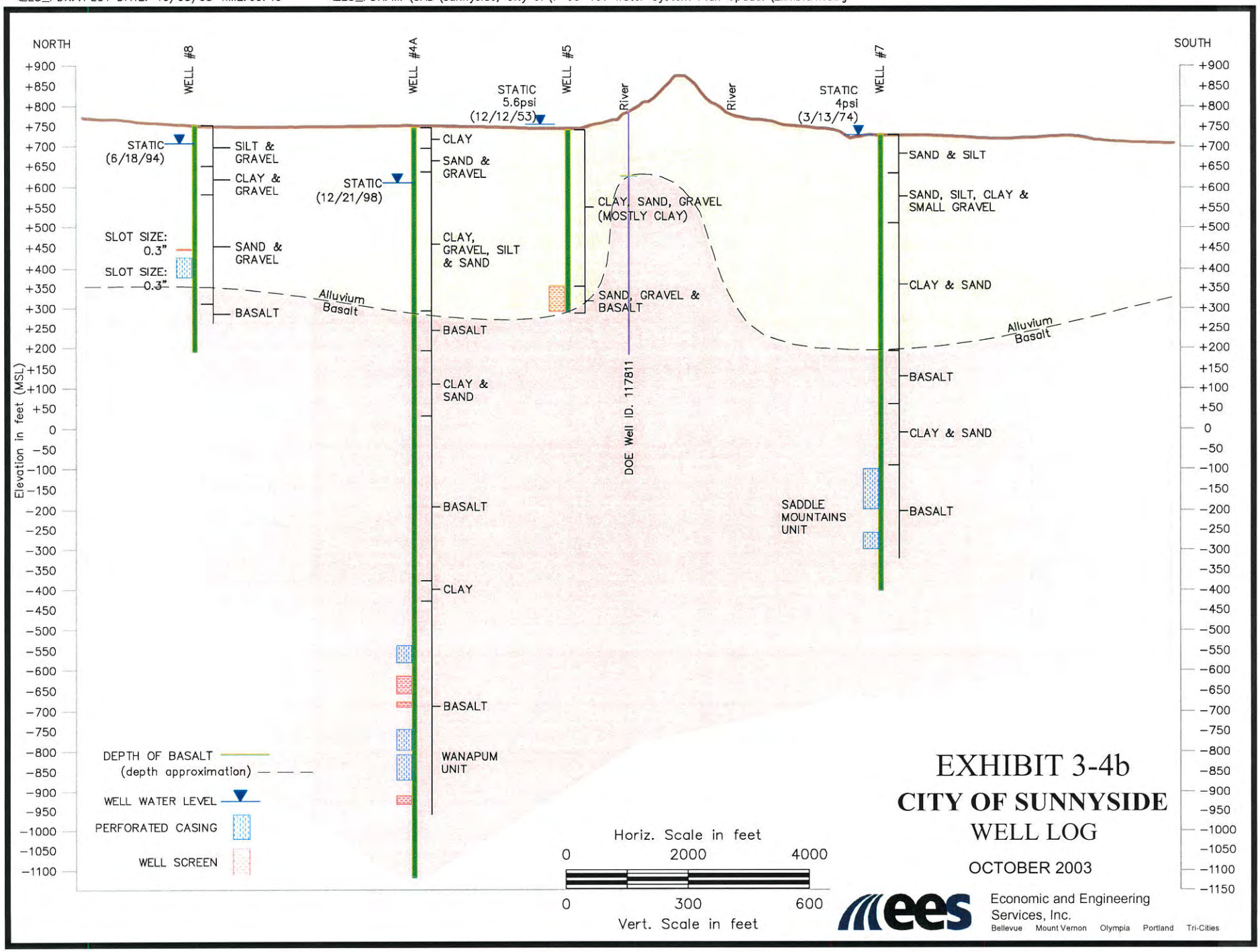


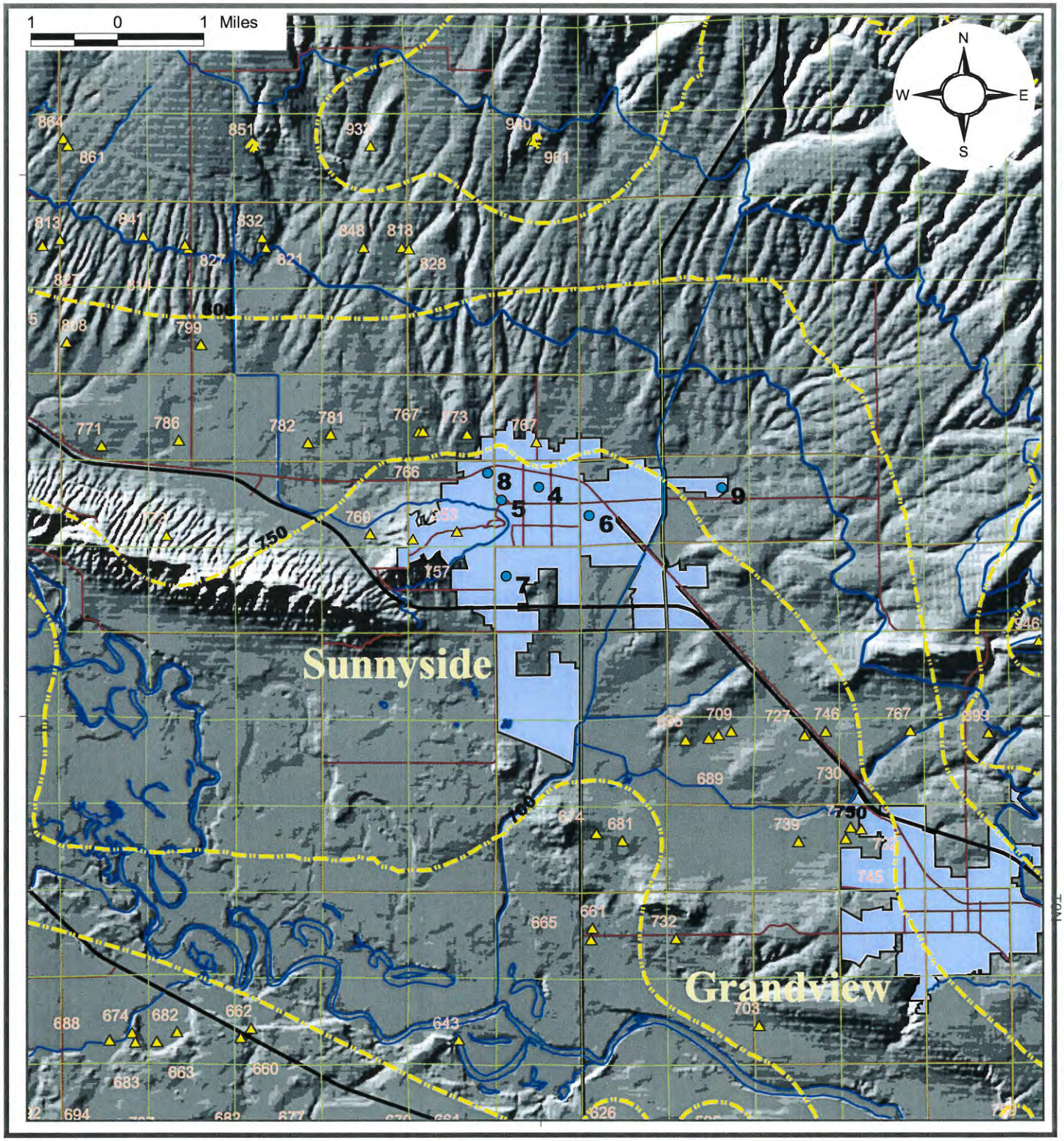
EXHIBIT 3-4b

CITY OF SUNNYSIDE

WELL LOG

OCTOBER 2003

ees Economic and Engineering Services, Inc.
Bellevue Mount Vernon Olympia Portland Tri-Cities



Note: Water levels are shown in feet.

Overburdon - Hydraulic Gradient

- Water Level Contour (MSL)
- Yakima Study Wells Depth < 400ft
- Rivers
- City Wells
- Sections
- Major Roads
- Local Roads
- City Boundary

EXHIBIT 3-5a
City of Sunnyside
Overburden

October 2003

Economic and Engineering Services, Inc.
Bellevue Mount Vernon Olympia Portland Tri-Cities

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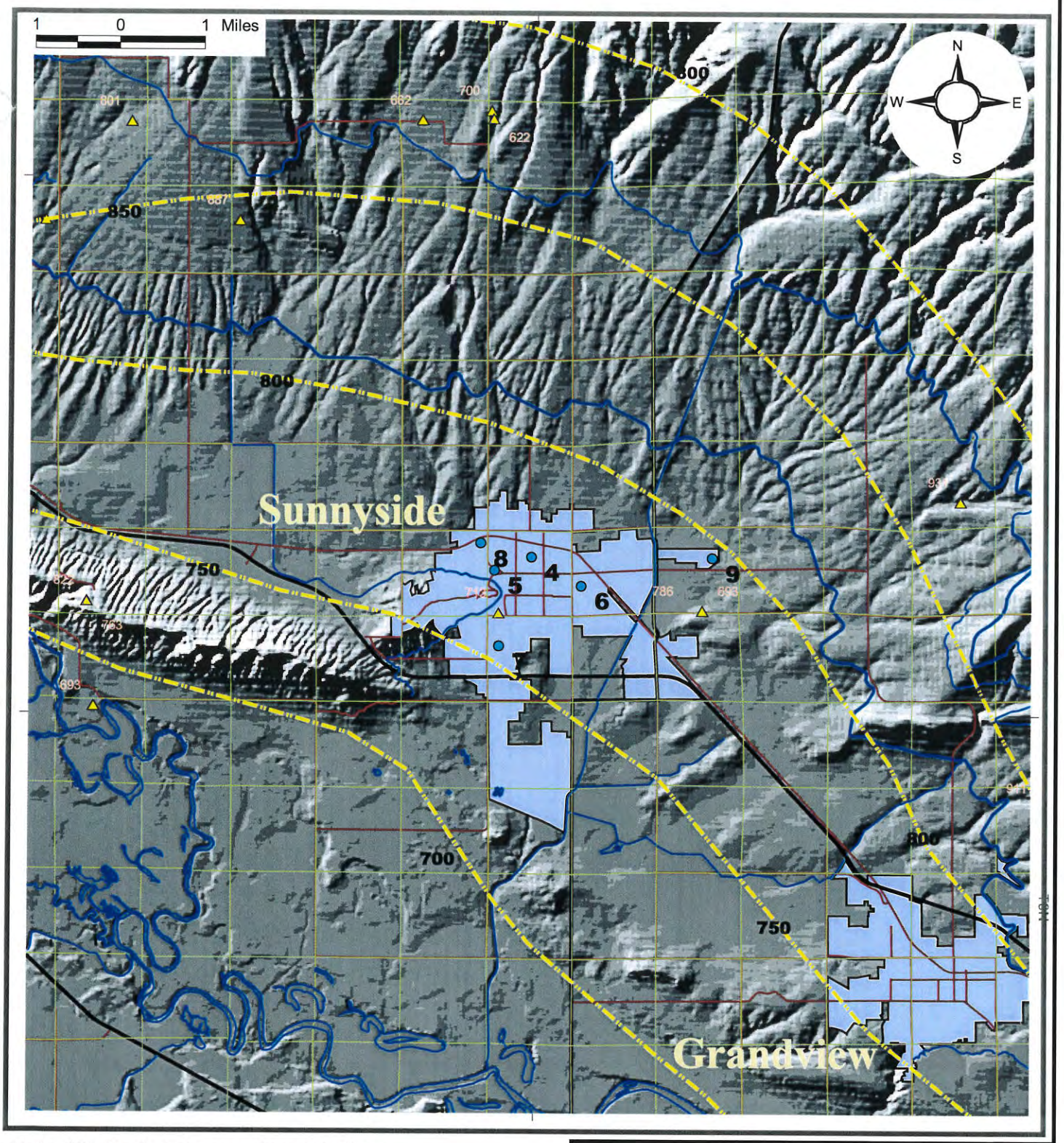

Note: Water levels are shown in feet.

Basalt Units - Hydraulic Gradient

- Water Level Contour (MSL)
- Yakima Study Wells Depth < 400ft
- Rivers
- City Wells
- Sections
- Major Roads
- Local Roads
- City Boundary

EXHIBIT 3-5b
Groundwater - Hydraulic Gradient

October 2003

Economic and Engineering Services, Inc.

Bellevue Mount Vernon Olympia Portland Tri-Cities

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Section 4
Delineation of Wellhead Protection Areas

4.1 Introduction

A key element of the wellhead protection program is the definition (or delineation) of the area requiring management. A wellhead protection area (WHPA) is defined as the surface and subsurface area surrounding a well, wellfield or spring through which contaminants are likely to pass and eventually be drawn into the supply system. As a well is pumped, water is being captured from the surrounding aquifer(s) in all directions. If contamination occurs within the "zone of contribution" or "capture zone" for a well, it is then only a matter of time before the water being delivered to that well also becomes contaminated.

In establishing wellhead protection area boundaries, criteria must be selected before delineation can occur. In Washington, wellhead protection areas are defined by ground water time of travel (TOT). For example, a boundary defined by the one-year TOT establishes the theoretical area from which a well could draw water within one year. The size and shape of the resulting capture zones are a function of the physical properties of the aquifer, the rate of pumping withdrawal, and the rate of water (e.g. recharge) entering the system.

It should be noted that these aquifer travel time zones do not consider vertical movement of a water particle or contaminant from the land surface down to the aquifer. The rate of vertical movement or infiltration rate for an aquifer can be highly variable. Within any given aquifer setting, the infiltration rate will depend on topography, soils, geology, and the nature of land surface activities (relative percent impervious surfaces vs. open space). It may vary significantly over a region and even within an individual wellhead protection zone. Because it may be difficult to estimate and predict infiltration rates for all settings the wellhead protection area delineation methods recommended for the State program do not include vertical movement as a part of the base models. This creates a conservative (protective) estimate of travel time. Where infiltration characteristics are known, wellhead protection area zone management plans can and should consider the implication of vertical movement to the aquifer.

A typical wellhead protection area in Washington will consist of five zones:

- The sanitary control area;
- Three primary zones based on the 1-, 5-, and 10-year TOT; and
- A buffer zone as required - buffer zones were not included in the delineation for the City of Sunnyside wells, because there are no major contaminant sources of concern upgradient of the City

Brief descriptions for each zone are outlined below. In reviewing these descriptions, it is important to note that there is a level of relative risk connoted for each zone. In simple terms,

the closer you are to a well the greater potential threat for contamination. This fact is owed to the lower travel time and, hence, the increased likelihood that any contaminant released into the supplying aquifer system would in fact reach the well in a relatively shorter period of time.

4.1.1 Sanitary Control Area

This first component of a WHPA as defined by WAC 246-290-135, is the immediate protective area surrounding a wellhead under established tight control for the prevention of any direct well contamination. As part of its 2006 Comprehensive Plan, the City of Sunnyside has adopted a 100 feet radius sanitary control area around each well. Sufficient management is established to reduce the possibility of surface flows from entering the well and traveling down the casing. A well house and fence is required to be in place around the wellhead to prevent any direct introduction of contaminants.

4.1.2 Zone 1: One-year Time-of-Travel

Zone 1 is established to prevent viral, microbial, and direct chemical contamination. The zone is based on a one-year time of horizontal travel and includes the surface area above the aquifer contributing to the well within that time period.

Biological contaminants (e.g. septic fields) should be strictly managed within this zone. A one-year time period is considered necessary to allow for the expiration of microbial and viral contaminants. Existing research indicates that less than the one ear travel time may not provide adequate protection.

The one-year time of travel also provides a boundary for strict management of potential contaminant sources. Chemicals with the potential for contamination should not be stored or used within this zone, or at least have sufficient precautions to protect the groundwater. A spill within the boundary would not allow much time for a community and purveyors to respond. An aggressive response, including contaminant identification and implementation of remedial actions will take six months. The typical response time is more on the order of one to two years. The short response time requires thorough contaminant inventory and risk management planning within the zone boundary.

4.1.3 Zone 2: Five-year Time-of-Travel

Zone 2 includes the area between the one-year and five-year time of horizontal travel. It should be actively managed to control potential contaminant sources. As with Zone 1, all potential contaminants should be identified. Management should focus on risk reduction and pollution prevention. The five-year TOT boundary of Zone 2 allows for more response time than is allotted in Zone 1. Yet, a contamination event could create a serious problem with both current and future water uses. Any microbial contamination between the Zone 1 and Zone 2 boundaries should not pose a threat to the drinking water.

4.1.4 Zone 3: Ten-year Time-of-Travel

Zone 3 consists of the area between the five-year and ten-year TOT boundary and corresponds to the outer edge of the WHPA. Within this zone, an inventory of potential contaminants should be maintained. Operations and facilities considered posing a high risk to the underlying aquifers should instigate steps toward reduction of that risk and potential contaminant loading.

The establishment of Zone 3 is useful as an educational and awareness tool for the community. It encourages decision-makers and planners to consider long-term activity effects on a public water supply source. Location and planning of high and medium-risk potential contaminant sources can be limited to outside of the WHPA. It also serves to educate industry and the general public about the potential long-term effects of activities upgradient of a well or wellfield.

4.2 Delineation Methodology

Groundwater contribution areas representing 1-year, 5-year, and 10-year groundwater TOT were calculated for each well using methods specified in the DOH guidance. The calculated fixed radius (CFR) approach described in the Washington State Wellhead Protection Program document (DOH, 1995) was used to estimate the wellhead protection areas for the susceptibility assessment survey forms for DOH. This method is considered adequate for wells rated as low susceptibility to contamination. However, for wells rated moderate or high susceptibility to contamination, DOH requires a more refined method to delineate the wellhead protection areas. The City has decided to conduct the semi-analytical model on all the wells. As a result, the U.S. Environmental Protection Agency's WHPA Delineation Code (Blandford and Huyakorn, 1992) is used in this Plan to delineate the wellhead protection areas for the City wells. The WHPA method is described below. The parameters input to the WHPA model and capture zone output are presented in Appendix E.

4.2.1 Semi-Analytical WHPA Delineation Code

Semi-analytical solutions based on fundamental groundwater flow equations are considered to provide more accurate delineations of the area of groundwater contribution to a well than does the CFR method (used in the susceptibility surveys – refer to Appendix A). Other, more accurate methods can also be performed, provided appropriate hydrogeologic information is available. Semi-analytical solutions are preferred over CFR solutions because they incorporate the ambient groundwater gradient, influences from nearby wells, and the effects of hydrogeologic boundaries. A semi-analytical approach to delineation of a WHPA is typically selected when a well appears to be of relatively moderate to high susceptibility to contamination and when the zone of groundwater contribution appears to be influenced by hydrogeologic boundaries. Information required for a semi-analytical solution includes well construction details; aquifer lithology, saturated thickness, porosity, and hydraulic conductivity; average pumping volumes; locations of hydrogeologic boundaries and nearby high-capacity wells; and groundwater gradient. This information was obtained from well logs, records of annual pumping volumes,

geologic and topographic maps, hydrogeologic studies, logs of nearby wells, and the results of pumping tests conducted at wells in the vicinity.

The WHPA model has two primary modeling components: (1) MWCAP and (2) GPTRAC. The MWCAP module (Multiple Well Capture Zone Module) allows for consideration of no more than one boundary. Capture zones for multiple wells may be delineated, but each well is assumed to operate independently, and the effects of well interference (increased drawdown due to overlapping cones of depression) are neglected. The GPTRAC Module (General Particle Tracking Module) allows a stream or barrier boundary to be specified along any edge of the study area, and two parallel boundaries may be simulated. GPTRAC also accounts for the effects of well interference through superposition of solutions derived for individual wells.

Each of the wells were run through MWCAP as part of a general sensitivity analysis to test the modeling parameters selected for each well. A range of values for each of the major input parameters were run in MWCAP to evaluate the impacts of each parameter on the overall "shape" and "extent" the capture zones. GPTRAC was then used to conduct a sensitivity analysis of the effects of boundary conditions and interference of multiple wells on the time-of-travel capture zones. Both models make the following assumptions: (1) multiple wells may be considered, and each well penetrates the aquifer fully; (2) aquifers are essentially homogeneous, with steady state, horizontal flow conditions; and (3) any positive or negative boundaries present are linear and fully penetrating. A listing of the different modeling runs is included in Appendix D.

The runs used to delineate the final capture zones are as follows:

- Based on proximity of the wells and the hydrogeologic unit in which the wells are screened, it was determined that Well Nos. 5 and 8 should be modeled together (simultaneously)
- Wells No. 6, 7, and is modeled together because each draws water from the same units.
- Well No. 4A was modeled separately because its screened interval is in a different aquifer unit and at significantly different depth intervals.

Potential hydrogeologic boundaries that may affect ground water flow and the capture zones of each municipal well were assessed based on information obtained from well logs, geologic studies, and topographic maps as presented in Section 3. Generally speaking, the City of Sunnyside lies above alluvium, which is in turn underlain by the basalt formations. Each of the aquifer units of concern is generally horizontal in nature within the zone of influence of the City's production wells. Therefore, no significant geologic boundaries exist that affect the capture zones of the wells, and it was assumed that the aquifers of concern have "infinite" areal extent. The sensitivity analysis conducted using the conservatively high discharge rates from the wells supports this assumption in that the extent of the capture zone did not extend into the Rattlesnake Hills. In this area the basalt formation comes up to ground surface and can act as geologic barriers that affect flow patterns. Furthermore, based on the distance of the wells and their production capacities, the Yakima River was not shown to impact the capture zones. Other potential boundaries include the numerous canals surrounding the City. These canals are considered too shallow to directly affect flow in the wells that are several hundred feet deep.

4.2.2 Input Requirements for WHPA Delineations

The following discussions provide background on the input used for the model. A summary of the data parameters used for the model are summarized in Table 4-1.

Porosity

Relatively little information is available concerning the porosity of interflow zones within the Columbia River basalts. For the purposes of this study, the porosity of productive zones penetrated by wells within basalt flows was estimated to be 10 percent. This estimate is based on the value estimated for fractured basalt used for a conceptual model of the Columbia River basalts (Rockwell International 1979). Todd (1980) presents a representative porosity value of 17 percent for basalt. The Department of Energy has used porosity values ranging between 0.1 and 20 percent in numerical modeling for calculating travel times (U.S. Nuclear Regulatory Commission 1983). Rock mechanics data for the Columbia River Basalt Group within a small area of the Hanford Nuclear Reservation indicated that a representative flow-top and vesicular zone effective porosity was 14.5 percent, while a representative entablature and colonnade effective porosity was 1.8 percent (Sublette 1986). Freeze & Cherry (1979) report porosity values of 0.1 to 1 percent for dense basalt, 5 percent for vesicular basalt, 10 percent for fractured, weathered, or brecciated basalt, and 20 percent for river-deposited interbeds. Analysis of the well logs indicated that the majority of groundwater flow in the basalts is derived from interflow zones. A porosity of 10 percent was selected as being representative of the porosity of the interflow zones.

Aquifer Transmissivity

Where possible, it is preferred to use aquifer transmissivities calculated by others from the results of pumping tests as input to a semi-analytical model. However, this information was typically unavailable, so estimates of aquifer transmissivity for the Sunnyside area was based on data used in other wellhead protection plans in the area including those for Cities of West Richland and Richland (EES 2002; 2001). The transmissivity values were also based on values documented in a report by Vacarro (1999) for alluvium/overburden and the different basalt layers in the region. Finally, transmissivity estimates were compared to an empirical equation presented by Driscoll (1986).

Aquifer Thickness

An estimate was made of the combined thickness of the productive aquifer zones for each well exposed to casing perforations or an uncased borehole. Productive basalt zones were typically identified from the logs, where possible, as being zones noted to be water bearing and/or fractured (probable interflow zones). When granular sedimentary interbeds (typically a few feet thick) within productive basalt zones were included in the aquifer thickness estimate, they were considered to have a similar porosity to the surrounding basalt. A few well logs provided no

indication as to which zones were productive. In these cases, the lengths of the saturated perforated intervals and saturated open hole intervals were summed to provide an estimate of the combined length of the contributing zones for the well. If a well was found to be cased over its entire length, having no exposed aquifer zones except at the open bottom of the casing, the productive zone was estimated to be 10 feet in accordance with DOH guidance.

Ground Water Hydraulic Gradient

The magnitudes of the hydraulic gradient of groundwater within the shallow, unconsolidated aquifer materials were estimated from water levels recorded in wells in the region. This information was taken from data collected as part of the Yakima River basin groundwater study being conducted by USGS (http://wa.water.usgs.gov/yakimagw/Data.html). As to be expected in basalt formations, the water levels had some local variability. Therefore, professional judgment, along with information from the regional ground water study (Vaccaro 1999), were used to estimate the regional potentiometric contours and hydraulic gradients. .

Well Discharge Rates

The semi-analytical solutions for wellhead protection zones assumed that the discharge rates were equal to the pumping capacity of the wells (Table 4-1). With uncertainties associated with the other modeling parameters, use of conservative values for the discharge rates produces conservative capture zones. This provides an "upper-bound" estimate of the discharge rates from the wells over the long-term use of the wells. The discharge rates used in the model (pumping capacities of the wells) were compared with historic production from each of the operational wells. Well No. 4a has an installed capacity of 950 gpm, however, the well experiences limited use due to issues with hydrogen sulfide. Historically the well has not been used by the City for water supply since its construction. However, for the purposes of defining a protection zone for the well, it was included in this study. Well No. 5 has an installed capacity of 850 gpm and since 1997 the average discharge from this well has decreased from 575 gpm to very limited use in 2002. Well No. 6 has an installed capacity of 850 gpm. The City has limited discharge rates from this well from a rate of 380 gpm in 1998 to an average withdrawal of 40 gpm in 2002. Well No. 7 has historically provided approximately 20% to 30% of system demands at an average withdrawal rate of 400 gpm. Well No. 8 has historically provided 30% to 35% of system demands at an average withdrawal rate of 580 gpm. Well No. 9, the City's largest capacity well, has historically provided close to 40% of system demands at an average rate of 670 gpm. Table 4-2 provides a summary of average discharge rates from each well from 1997 to 2002.

Table 4-1
Wellhead Protection Data Used for WHPA Model

Well Number	Aquifer Unit	Well Pumping Capacity(1) (gpm)	Average 2002 Discharge Rate (gpm)	Percent of 2002 Demand (%)	Porosity (unitless)	Transmissivity (ft2/sec)	Approximated Aquifer Thickness (feet)	Estimated Gradient in Main Aquifer (foot/foot)
4a	Wanapum	950	0	0%	0.10	1,838	400	0.0035 to SW
5	Alluvium/ Overburden	850	0.28	0%	0.22	13,125	150	0.003 to SW
6	Saddle Mountain	850	36	2%	0.10	3,053	120	0.0035 to SW
7	Saddle Mountain	1,150	647	33%	0.10	3,053	120	0.0035 to SW
8	Alluvium/ Overburden	800	614	32%	0.22	6,557	150	0.003 to SW
9	Saddle Mountain	1,500	645	33%	0.10	3,053	400	0.0035 to SW

(1) The well pumping capacities based on the values submitted to DOH in the susceptibility assessment forms were used as the discharge rate for the purposes of the WHPA model. Note, this is a conservative estimates based on historical use of the wells.

Table 4-2
Well Pump Capacities and Historical Well Discharge Rates

	Well #4	Well #5	Well #6	Well #7	Well #8	Well #9
Well Capacity (gpm)	950	850	850	1,150	800	1,500
Year						
1997	N/A	575	295	296	678	-
1998	N/A	302	384	362	629	191
1999	N/A	252	115	4	592	1,015
2000	N/A	170	61	2	595	1,034
2001	N/A	-	9	515	625	706
2002	N/A	-	36	647	614	645

4.2.4 Limitations of Time of Travel Delineation Methodologies

It should be noted that the time of travel boundaries do not estimate the migration distance or travel time for *contaminants* released by a given source; rather they are reflective of the water movement alone. This concept is important in that most common contaminants generally travel at speeds less than the groundwater. This fact is owed to a process known as "sorption" where there is a tendency for the contamination to adhere more readily to the solid matrix that forms the aquifer (i.e. soil or rocks) rather than remain dissolved within the ground water itself. This process tends to slow the contaminant migration down as it interacts between the water and solid surfaces within the aquifer. Thus, the time measure represented by a given time of travel zone is generally thought to be conservative with respect to the actual time it may take any given contaminant to be captured and discharged by a well (or spring). There are a few important exceptions, including that of nitrate. Nitrate is a common ground water contaminant found in the presence of agricultural land use or septic systems. Nitrate is readily dissolved by the ground water and travels at a speed generally equal to the movement of the water.

Moreover, there are a number of limitations that exist with regards to the model used to delineate the time of travel zones. The WHPA model is subject to a number of basic assumptions that may lead to inaccuracies in reflecting true field conditions. Some of the more important limitations include: 1) the underlying assumptions of the WHPA Model (including isotropic and homogeneous aquifer of uniform saturated thickness, two-dimensional aquifer of infinite extent, fully penetrating pumping wells, fully penetrating boundaries) have not been satisfied; 2) the aquifer input data used for the semi-analytical model may deviate from actual aquifer parameters. For instance, aquifer transmissivity values typically range over several orders of magnitude, which can introduce uncertainty in the predicted time of travel zones. Moreover, the WHPA Model does not factor in the time associated with vertical migration of contaminants.

Despite the limitations of either approach, the important element in delineating capture zones is to match the complexity and uncertainty of field conditions with potential risks to the aquifer. Hence, more sophisticated modeling may be prudent as the complexity and risk rise. In any case, the accuracy of the derived results is not necessarily a function of the modeling tool used

rather the degree to which relevant site-specific parameters are known. The tradeoff in the level of modeling sophistication used comes in the number of site-specific parameters required. A more sophisticated model generally requires a great many more parameters. In turn, those parameters are generally not very well known. Thus, the level of modeling sophistication used must balance the complexity of field conditions and the degree to which site-specific parameters are known. Moreover, it is not necessary to simulate hydrogeologic conditions with absolute certainty in order to satisfy the WHPP delineation objective. Rather the time of travel zones are intended to be planning tools for delineating areas in which to develop ground water protection strategies.

4.3 Delineation Results

The results of the model are definitions of the time-of-travel boundaries for the 1-year, 5-year, and 10-year. Exhibit 4-1 illustrates the combined (or superimposed) travel time boundaries for the wells modeled. The overall combined captures zones were derived from the model runs described in Section 4.2. As discussed in Section 4.2, wells screened in the same aquifer unit were modeled together. Therefore, Well Nos. 5 and 8 were modeled together in the overburden unit, Well Nos. 6, 7, and 9 were modeled together in the Saddle Mountains Unit, and Well No. 4A was modeled in the Wanapum. Exhibit E-1 shows the capture zones for the individual wells. Note that the capture zones for Well Nos. 5 and 8 do intersect each other within the overburden unit. The capture zones for Well Nos. 6 and 7, although both within the Saddle Mountain unit, do not intersect. This is not to say that the zone of influence of the wells does not intersect. However, within the travel times considered, the capture zones do not intersect. Well No. 9 is located far enough to the east that the capture zones do not affect the other wells near the center of the City. The capture zones for Well No. 4A are smaller than the other wells primarily because the transmissivity is assumed to be smaller in the Wanapum unit. Laterally, the capture zones for Well No. 4A intersect each of the wells within the City; however, in a vertical sense the capture zones are much deeper.

Overall, the capture zones extend northward from the wellheads, illustrating that the source of most of the water is to the north. This is expected since the regional ground water flow direction is from north to south toward the Yakima River. The model results indicate the existence of two capture areas. The first capture area is associated with Wells 4a, 5, 6, 7, and 8. For these wells, the 10-year capture area covers a majority of the City with approximately 2,255 acres. The 5-year capture area covers a total area of 1,605 acres. The 1-year capture area is divided into three separate areas. The first 1-year capture area is associated with wells 4, 5, and 8 and covers an area from 8th Street and S.R. 12 extending past where S.R. 12 crosses Drain Ditch #3. The total area of this capture zone measures approximately 250 acres. A second 1-year capture area is associated with well 5 and measures approximately 110 acres. The Sunnyside High School and Middle School make up the majority of this area. The area extends from the school out to S.R. 12 and the intersection of S. 16th Street and Federal Way. A third area is associated with well 7 and covers a total area of 142 acres. The area covers the City's wastewater treatment plant and extends past S.4th Street and Midvale Road nearing the exit/entrance ramp to Interstate 82.

The second major capture area is associated with Well 9 located near the Sunnyside Municipal Airport. This area is generally outside the major commercial and residential centers of the City.

The 10-year capture area extends around the entire airport area and covers a total of 624 acres. The 5-year capture area also extends around the airport and covers a total of 320 acres. The 1-year capture area covers 62 acres.

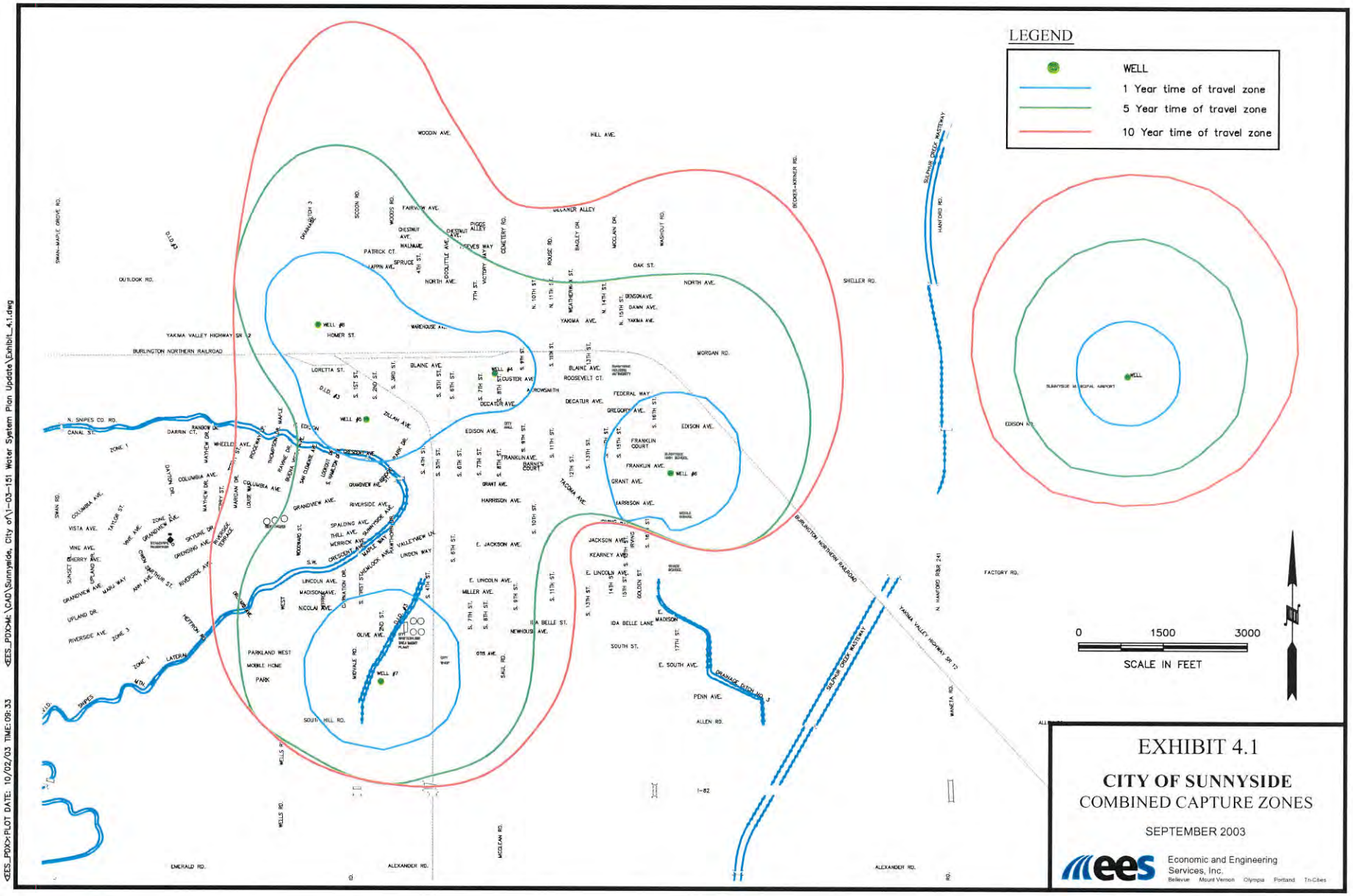


EXHIBIT 4.1

CITY OF SUNNYSIDE
COMBINED CAPTURE ZONES

SEPTEMBER 2003

ees Economic and Engineering Services, Inc.
Bellevue Mount Vernon Olympia Portland Tri-Cities

<EES_PDX>PLOT DATE: 10/02/03 TIME:09:33 <EES_PDX>M:\CAD\Sunnyside, City of\1-03-151 Water System Plan Update\Exhibit_4.1.dwg

Section 5
Contaminant Inventory

5.1 Introduction

The purpose of this contaminant inventory is to identify past, present and proposed activities that may present a risk of future contamination of the City of Sunnyside drinking water supply. The quantification of that risk starts with a thorough inventory of all potential contaminant sources and is followed up by a ranking of the relative threat posed by each source. The ranking of risk is a function of the type, location, and volume of potentially hazardous material being handled or stored within (or adjacent to) the area identified as serving the City's drinking water supply. These potential contaminant sources are addressed as part of the wellhead management strategies that minimize the risk of source water contamination.

The initial inventory includes all known potential sources of contamination within the City, and ranks each on their relative potential to contaminate the City's water supply. In addition, potential sources of contamination from land use practices within and beyond the City boundaries are also discussed. The contaminant inventory documented in this section is a snapshot in time and does not represent a "final" inventory. Known and potential sources of contamination change over time. As a result, DOH requires contaminant inventories to be updated every two years. More frequent review may be required in areas of the City experiencing significant growth or rapid land use changes.

5.2 Inventory Methodology

The inventory of potential contaminant sources was conducted according to the December 1993 Washington Department of Health (DOH) guidance document entitled, "Inventory of Potential Contaminant Sources within Washington's Wellhead Protection Areas." A summary of the types of potential contaminant sources presented in the above DOH document is provided in Table 5-1. These source types were considered when performing the contaminant inventory for the City of Sunnyside. The contaminant inventory was completed for area within the City limits and those areas beyond the City limits that are in the proximity of the wellhead protection area delineated in Section 4.

Table 5-1
Potential Contaminant Sources Listed by Type

Category I - Sources Designed to Discharge Substances
Subsurface percolation (e.g., septic tanks and cesspools)
Injection Wells
- Hazardous waste
- Non-hazardous waste (e.g., brine disposal and drainage)
- Non-waste (e.g., enhance recovery, artificial recharge solution mining, and in-site mining

Land application
- Waste water (e.g., spray irrigation)
- Wastewater byproducts (e.g., sludge)
- Hazardous waste
- Non-hazardous waste

Category II - Sources designed to store, treat, and/or dispose of substances; discharge through unplanned release
- Landfills
- Industrial hazardous waste
- Industrial non-hazardous waste
- Municipal sanitary

Open dumps, including illegal dumping (waste)
Residential (or local) disposal (waste)
Surface impoundments
- Hazardous waste
- Non-hazardous waste

Waste tailings
Waste piles
- Hazardous waste
- Non hazardous waste

Materials stockpiles (non-waste)
Graveyards
Animal burial
Above ground storage tanks
- Hazardous waste
- Non hazardous waste
- Non-waste

Underground storage tanks
- Hazardous waste
- Non hazardous waste
- Non-waste

Containers
- Hazardous waste
- Non hazardous waste

Detonation sites
Radioactive disposal sites
- Non-waste

Open burning sites

Category III - Sources designed to retain substances during transport or transmission
Pipeline
- Hazardous waste
- Non hazardous waste
- Non-waste

Materials transport and transfer operations
- Hazardous waste
- Non hazardous waste
- Non-waste

Category IV - Sources discharging substances as a consequence of other planned activities
Irrigation practices (e.g., return flow)
Pesticide applications
Fertilizer applications
Animal feeding operations
De-icing salts applications
Urban run-off
Percolation of atmospheric pollutants
Mining and mine drainage
- Surface mine-related
- Underground mine - related

Category V - Sources providing conduit or inducing
Production wells
- Oil (and gas) wells
- Geothermal and heat recovery wells
- Water supply wells

Other wells (non-waste)
- Monitoring wells
- Exploration wells

Construction excavation
Improperly abandoned wells

Category VI - Naturally occurring sources whose discharge is created and/or exacerbated by human activity
Ground water-surface water interactions
Natural leaching
Saltwater intrusion/brackish water
- Upconing (or intrusion of other poor-quality natural water)

5.2.1 Known and Potential Contaminant Source Listings

To identify sites of known soil and ground water contamination, the following databases from the U.S. Environmental Protection Agency and the Washington State Department of Ecology were reviewed:

- Accidental Release Information Program (ARIP) report
- Comprehensive Environmental Response Compensation & Liability Act list (CERCLA)
- Confirmed & Suspected Contaminated Sites (CSCS) list
- Facility Index System (FINDS) report
- Hazardous Sites List (HSL)
- Leaking Underground Storage Tanks (LUST) list
- Resource Conservation and Recovery Information System (RCRIS) report and Washington Active Handlers List
- Solid Waste Facility Database (SWFD)
- Toxics Release Inventory System list (TRIS)
- Underground Storage Tanks (UST) report
- National Pollutant Discharge Elimination System (NPDES) Dairy Operations
- Licensed and Certified Feedlots List (LCFL)

The sites and facilities identified in these databases were cross-checked with the results of a windshield survey conducted by City staff in 2003. This survey included identification of known potential contaminant sources (e.g gas stations, dry cleaners, etc.) within the City limits. It should be noted that a facility may be listed in more than one of these databases.

5.2.2 Zoning and Land Use

The majority of industrial land use is located in the southern and eastern edges of the City and in a smaller area between Warehouse and Blaine Avenues (see Exhibit 5-1). These areas include a combination of heavy and light industrial activities. A large portion of the City's industrial activity is geared toward food processing and support of the agricultural industry. Commercial land use activities are concentrated along the Highway 12 corridor, with smaller parcels of commercially-zoned land interspersed throughout the City (e.g. near W. Edison and Zillah Avenues, near S. 16th and Lincoln Avenues, etc.). A related land use is the Sunnyside Municipal Airport, approximately 2 miles east of the City. The most frequent concern associated with industrial and commercial land uses is contamination with petroleum hydrocarbons. These potential contaminants are typically due to the historic or current presence of heating oil and fuel storage tanks, both above and underground. Locations of known or suspected contamination are discussed in Section 5.3.

Agricultural land use can have a significant impact upon groundwater quality. Agricultural land use represents a significant proportion of the land use within those portions of the WHPA that are beyond the City limits. In addition, several dairy and feedlot operations exist within the City. The primary causes of agriculture-related groundwater contamination are runoff from feedlots, pastures, and barnyards, elevated nitrate levels due to excessive fertilization or inadequate management of animal wastes, and the presence of pesticide and herbicide break-down products.

Residential land use in the City of Sunnyside is primarily of medium to low density. The relative risk of groundwater contamination from residential areas depends significantly upon whether the area is served by city sewer or private septic systems. Potential contaminant sources related to residential land use include nitrate loading from septic systems, fertilizer applications and leaking sewer mains, disposal of chemicals through septic systems, small livestock operations and pesticide applications. Areas of unsewered residential land use exist throughout the City. The primary water quality concern from unsewered residential areas is nitrate loading in the aquifer. However, bacterial contamination from improperly functioning systems and improper disposal of household chemicals are also risks associated with septic systems. For individual homeowners, routine system maintenance and proper disposal of household chemicals can significantly limit these risks. For the City, conversion of residences on septic systems to City sewer service is the most effective method of limiting aquifer contamination risk associated with unsewered residential land use.

5.3 Known and Suspected Contaminant Sources

To identify potential or confirmed sources of groundwater contamination in the WHPA, information from various environmental databases was obtained and mapped. The full list of potential and confirmed sources of groundwater contamination can be found in Table 5-2. The results of the contaminant inventory revealed a variety of potential contaminant sources located at 69 different locations in and around Sunnyside. The highlights of the inventory list include:

- 64 - Underground Storage Tanks (USTs)
- 20 – Reported Leaking Underground Storage Tanks (LUSTs)
- 16 - Confirmed and Suspected Contaminated Sites (CSCSs)
- 18 – Hazardous Waste Generators (Ecology Active Hazardous Waste Handlers List & EPA Resource Conservation and Recovery Information System)

Three additional sites were added from a field survey conducted by City staff (see Section 5.4.1). A map of sources ranked by contamination risk is provided in Exhibit 5-2. The following databases were reviewed and are discussed in order of descending importance relative to potential risk to the WHPA. Appendix E contains detailed information for sites found in each database.

Washington State Department of Ecology (Ecology) Confirmed and Suspected Contaminated Sites (CSCS) List: Upon discovery of a potential contamination issue, sites undergo a Site Hazard Assessment (SHA) and are ranked according to the potential severity of the hazard using the Washington Ranking Method (WARM). The WARM rankings range from 1 (greatest risk to human health and the environment) to 5 (least risk). These sites are then listed on the Ecology Hazardous Sites List. If Ecology determines that the site warrants further investigation or cleanup under the Toxics Cleanup Program, the site is added to Ecology's CSCS list.

There are 16 sites on the CSCS list within Sunnyside that have suspected or confirmed contamination of groundwater, drinking water, or soil . Of these, 12 have petroleum hydrocarbon contamination in soil or groundwater on-site. Records of contaminated air or surface water are

not included, as their risk to groundwater quality is limited. The status of each site (ranking, remedial action, monitoring, clean-up activities, etc.) is also provided in Appendix E.

Ecology Hazardous Sites List (HSL): Sites are placed on this list as a precursor to determining whether they should be added to the Ecology Confirmed and Suspected Contaminated Sites List. Sites listed here have undergone a Site Hazard Assessment (SHA) and given a priority ranking using the WARM. If further investigation is warranted, the site is listed on the CSCS. All sites in Sunnyside on the HSL are also on the CSCS. As such, these sites are not summarized separately.

Ecology Underground Storage Tank (UST) list: This database is comprised of regulated USTs, as defined by WAC 173-360, registered with Ecology. State UST regulations have been in effect since 1986. The UST list identifies the substance stored, quantity range, and status of each UST. Twenty-three sites within the study area have a combined 58 operational USTs and 7 USTs where closure is in progress. Owners of a UST for heating oil, residential USTs with a capacity of 1,100 gallons or less, or any tank under 100 gallons are exempt from registering their UST with the State of Washington. Appendix E lists known exempt, closed, and removed USTs. In addition to these known tanks, three tanks exist in tax parcel 231131-34001-1. The status of these three tanks is unknown. Removed, closed in place, and exempt USTs are not shown in Table 5-2 or on Exhibit 5-2.

Ecology Leaking Underground Storage Tank (LUST) list: Sites on this list have underground storage tanks that have released contaminants to the adjacent soil and groundwater and have been reported to Ecology. USTs installed after 1993 are required to meet all of the leak detection requirements as defined under WAC 173-360. Available information includes the site name and address, release notification date, site status, and media affected. The list does not identify which tank on site was leaking, nor if the tank has been removed.

Owners and operators of registered USTs are required to report a confirmed release in accordance with WAC 173-360 (Washington State Underground Storage Tank Regulations) within 24 hours. Under the Model Toxics Control Act Cleanup Regulation (WAC 173-340), even UST owners that are exempt from registering their UST with the State of Washington are required to report a release from their UST that may pose a threat to human health and the environment. Facilities/sites on the Ecology LUST list submit reports to Ecology regarding the status of any anticipated or on-going cleanup efforts. A status of "reported cleaned up" indicated that cleanup efforts at a site have concluded and that no further action is planned, although the cleanup has not been verified by Ecology (enabling removal from the LUST list). A status of "cleanup started" indicates that facility/sites have initiated a cleanup program. "Monitoring" indicates that the contaminated media are being monitored on a regular basis. This does not provide an indication of the cleanup status of the site. Sites that have been cleaned-up are not shown in Table 5-2 or on Exhibit 5-2 unless there are other groundwater quality concerns on-site.

Table 5-2
City of Sunnyside List of Potential Contaminant Sources

Site ID	Facility	Address	Inventory List	Site Category	Database Listing(s)[1]
1	ARCO 5939	1850 Waneta Rd.	Haz. Waste Generator (small) Four USTs (leaded gasoline) • 5,000-9,999 gal • 5,000-9,999 gal • 5,000-9,999 gal • 5,000-9,999 gal	II	RCRIS UST
2	Bargain Hut	515 Harrison	LUST (Soil)	II	LUST
3	BBP Inc. (Underwood Oil)	106 N. 9th	Four USTs • 10,000-19,999 gal (leaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (diesel)	II	UST
4	Bee Jay Scales (Sandy Farms)	116 N. 1St St.	Haz. Waste Generator (no longer generating) Halogenated Organic Compounds & Pesticides (Soil & Groundwater)	IV	CSCS RCRIS
5	Bleyhl Farm Service	1720 Eastway Dr.	Haz. Waste Generator (no longer generating) Petroleum Products (Soil & Groundwater) LUST (Soil & Groundwater) Four USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (diesel)	II	CSCS LUST RCRIS UST
6	Bleyhl Farm Service	303 E. Lincoln St.	Four USTs • 5,000-9,999 gal (unleaded gasoline) • 5,000-9,999 gal (alcohol blend gasoline) • 10,000-19,999 gal (alcohol blend gasoline) • 10,000-19,999 gal (diesel)	II	UST
7	Bob's Auto Clinic	1006 Lincoln	One UST (closure in progress) • 111-1,100 gal (used/waste oil)	II	UST

Table 5-2
City of Sunnyside List of Potential Contaminant Sources

Site ID	Facility	Address	Inventory List	Site Category	Database Listing(s)[1]
8	Burlington Northern Rail Terminal	MP 54.5 12th Sub. Portland Div.	LUST (Soil & Groundwater)	II	LUST
9	Canam Steel Corp.	2002 Morgan Rd.	Haz. Waste Generator (large) RCRA Facility (shipped off-site for treatment)	II	RCRIS
10	Carnation Company	111 E. Lincoln Ave.	Two USTs (closure in progress) • size unknown (leaded gasoline) • size & substance unknown	II	UST
11	Cascade Natural Gas	512 Decatur Ave.	Petroleum Products & Conventional Organic Contaminants (Soil & Groundwater) LUST (Soil & Groundwater; Cleanup Started)	IV	CSCS LUST
12	Chateau Ste Michelle	245902 N Cold Creek Rd.	Two USTs (status unknown) • size unknown (unleaded gasoline) • size unknown (unleaded gasoline)	II	UST
13	Circle L	809 Hwy 12	Petroleum Products (Soil & Groundwater) LUST (Soil)	II	CSCS LUST
14	Cliff's Battery Service	Scoon & Woodin Rd.	Metals (Soil)	IV	CSCS
15	DRR Fruit Products	380 Alexander Rd.	Food Processor	IV	Facility/Site Query
16	Estudillo's Food Store	2601 Sheller Rd.	Two USTs (diesel tank closed in place) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline)	II	UST
17	Fry Building	111 S. 6th St.	Petroleum Products (Soil & Groundwater) LUST (Soil & Groundwater)	II	CSCS LUST
18	Golob & Sons	2391 Sheller Rd.	Feedlot	I	LCFL
19	Green Valley Implements / Speck Motors	61 E. Allen Rd.	Haz. Waste Generator (small) LUST (Soil; Cleanup started)	II	LUST RCRIS

Table 5-2
City of Sunnyside List of Potential Contaminant Sources

Site ID	Facility	Address	Inventory List	Site Category	Database Listing(s)[1]
20	Hickenbottom Sons Inc.	301 Warehouse Ave.	Halogenated Organics & Pesticides (Soil & Groundwater; State Cleanup Site); Petroleum Products (Soil; State Cleanup Site)	IV	CSCS
21	Independent Food Processors	1525 S 4th St.	Food Processor	IV	Facility/Site Query
22	Jackpot Food Mart 069	600 Yakima Valley Hwy	Three USTs • 5,000-9,999 gal (leaded gasoline) • 5,000-9,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline)	II	UST
23	Jackpot Food Mart 066	1121 S. 16th St.	Three USTs • 5,000-9,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (leaded gasoline)	II	UST
24	James River Corporation (Johnson Concentrates)	310-314 Edison Ave.	Food Processor	IV	Facility/Site Query
25	Jerry's Steel Supply	232 N. Sixth St.	LUST (Soil; Cleanup Started)	II	LUST
26	Johnny's Texaco	636 E. Edison Ave.	Haz. Waste Generator (small) Petroleum Products (Soil, Groundwater & Drinking Water); Halogenated Organics (Groundwater & Drinking Water) LUST (Soil & Groundwater) Three USTs • 5,000-9,999 gal (unleaded gasoline) • 5,000-9,999 gal (leaded gasoline) • 2,001-4,999 gal (unleaded gasoline)	II	CSCS LUST RCRIS UST
27	Johnson Fruit & Cold Storage	336 Blaine	Food Processor	IV	Facility/Site Query
28	Johnson Fruit Cannery	300 Warehouse Ave.	Food Processor	IV	Facility/Site Query

Table 5-2
City of Sunnyside List of Potential Contaminant Sources

Site ID	Facility	Address	Inventory List	Site Category	Database Listing(s)[1]
29	JRJ Service Inc.	405 Scoon Rd.	Haz. Waste Generator (small)	IV	RCRIS
30	Kelloggs Korner	200 Midvale Rd.	Petroleum Products (Soil, Groundwater & Drinking Water) LUST (Soil & Groundwater; Cleanup Started)	II	CSCS LUST
31	La Rosita Bakery	200 N. 1st St.	Petroleum Products & Non-Halogenated Solvents (Soil & Groundwater) LUST (Soil & Groundwater)	II	CSCS LUST
32	Maid O' Clover	1530 Hwy 12	Petroleum Products (Soil & Groundwater) LUST (Media Unknown) Three USTs • 5,000-9,999 gal (unleaded gasoline) • 5,000-9,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline)	II	CSCS LUST UST
33	Manhole 34 PLP Group	600-601 & 612 Hwy 12	Haz. Waste Generator (no longer generating) Petroleum Products (Soil & Groundwater)	IV	CSCS RCRIS
34	Marquez Manufacturing Ltd.	410 Factory Rd.	Haz. Waste Generator (small)	IV	RCRIS
35	Mirastor #62022	2665 E. Lincoln Ave.	Three USTs • size unknown (unleaded gasoline) • size unknown (unleaded gasoline) • size unknown (diesel)	II	UST
36	Monson & Sons (Bar-S)	Lat 46.18.52; Long 120.00.53	Feedlot	I	LCFL
37	Neighborhood Church	1510 Lincoln Ave.	LUST (Soil; Cleanup Started)	II	LUST
38	Outpost	1825 Waneta Rd.	Four USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (leaded gasoline) • 10,000-19,999 gal (diesel)	II	UST
39	Park n Pak	905 Lincoln Ave.	One UST (Size & Substance Unknown)	II	UST

Table 5-2
City of Sunnyside List of Potential Contaminant Sources

Site ID	Facility	Address	Inventory List	Site Category	Database Listing(s)[1]
40	Pet Health Clinic	2210A E. Edison Rd.	LUST (Soil; Cleanup Started)	II	LUST
41	Port of Sunnyside WWTP	825 Midvale Rd.	NPDES Discharge Permit (Groundwater)	I	NPDES
42	PW Pipe	1820 S. 1st St.	Haz. Waste Generator (small)	IV	RCRIS
43	RDO Equipment Co.	140 Midvale Rd.	Haz. Waste Generator (small)	IV	RCRIS
44	Roza Irrigation District	125 S. 13th St.	Haz. Waste Generator (small) Petroleum Products (Soil & Groundwater; State Cleanup Site) LUST (Soil & Groundwater; Monit. in Progress) Two USTs • 1,101-2,000 gal (unleaded gasoline) • 1,101-2,000 gal (diesel)	II	CSCS LUST RCRIS UST
45	School District Bus Garage	Edison & Hwy 12	LUST (Soil & Groundwater)	II	LUST
46	Simplot Soilbuilders	1st & Zillah Ave.	Haz. Waste Generator (small)	IV	RCRIS
47	Star Transport Trailers	230 Hwy 241	Haz. Waste Generator (small)	IV	RCRIS
48	Sun King Fruit Co.	325 E. South Hill Rd.	LUST (Soil & Groundwater; Cleanup Started)	II	LUST
49	Sunny Spot	1850 Yakima Valley Hwy	Two USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline)	II	UST
50	Sunnyside Chevron	1805 S. 1st St.	Three USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 20,000-29,999 gal (unleaded gasoline)	II	UST
51	Sunnyside Municipal Airport	2 Miles East of City	Petroleum Product Storage	II	Facility/Site Query

Table 5-2
City of Sunnyside List of Potential Contaminant Sources

Site ID	Facility	Address	Inventory List	Site Category	Database Listing(s)[1]
52	Sunnyside Municipal Well 1	Grant St.	Halogenated Organic Compounds & Conventional Organics (Soil & Groundwater)	V	CSCS
53	Sunnyside WWTP	1338 S. 4th St.	NPDES Discharge Permit (Sulphur Creek)	I	NPDES
54	Sunnyside Valley Irrigation District	1433 S. 4th St.	LUST (Soil & Groundwater; Cleanup Started)	II	LUST
55	Tom Denchel Ford	301 S. 6th St.	Haz. Waste Generator (small)	IV	RCRIS
56	Tucker & Co	31501 Yakima Valley Hwy.	Five USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (diesel)	II	UST
57	Union Pacific Railroad	S. 5th Ave. & Edison	LUST (Soil & Groundwater; Cleanup Started & Monitoring in Progress)	II	LUST
58	United Telephone Co.	409 S. 5th St.	LUST (Soil & Groundwater; Monitoring in Progress)	II	LUST
59	Unocal Bulk Plant 0766	511 Lincoln St.	Petroleum Products (Soil & Groundwater)	IV	CSCS
60	Upland Farms	Rt. 1 Box 1166	Two USTs (closure in progress) • size unknown (leaded gasoline) • size & substance unknown	II	UST
61	Valley Dry Cleaners	422 S. 6th St.	Halogenated Organic Compounds (Soil & Groundwater; State Cleanup Site)	IV	CSCS
62	Valley Processing	108 E. Blaine Avenue	Food Processor	IV	Facility/Site Query
63	Valley Truck Repair	601 Hwy 241	Haz. Waste Generator (small)	IV	RCRIS

Table 5-2
City of Sunnyside List of Potential Contaminant Sources

Site ID	Facility	Address	Inventory List	Site Category	Database Listing(s)[1]
64	Valley View Gas Mart (Time Oil)	107 W. Lincoln	LUST (Soil & Groundwater; Monitoring in Progress) Two USTs (Closure in Progress) • 5,000-9,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline)	II	LUST UST
65	Washington Hills Cellars	111 E. Lincoln St.	Food Processor	IV	Facility/Site Query
66	West Farm Foods (Darigold)	400 Alexander	Food Processor	IV	Facility/Site Query
67	Wondrack Distributing	111 South Hill Rd.	Three USTs • 5,000-9,999 gal (unleaded gasoline) • 5,000-9,999 gal (unleaded gasoline) • 10,000-19,999 gal (diesel)	II	UST
68	Yakima Chief Inc.	520 S. Hill Rd.	Haz. Waste Generator (medium) Food Processor	IV	Facility/Site Query RCRIS
69	Yakima Co Maint. Shops	321 S. 1st St.	Haz. Waste Generator (no longer generating) Two USTs • 5,000-9,999 gal (unleaded gasoline) • 5,000-9,999 gal (diesel)	II	RCRIS UST

1 Sources:
CSCS: WA Dept. of Ecology. Confirmed and Suspected Contaminated Sites Report. Current as of July 25, 2003.
Facility/Site Query: WA Dept. of Ecology. Current as of September 18, 2003.
Hazardous Waste Generators: WA Dept. of Ecology. Active Hazardous Waste Handlers List. Current as of September18, 2003.

- Small: <220 lbs
- Medium: 220-2200 lbs
- Large>2200 lbs of hazardous waste generated annually

LCFL: WA Dept. of Agriculture. Licensed Certified Feedlot List. Current as of September 18, 2003.
LUST: WA Dept. of Ecology. Leaking Underground Storage Tanks List. Current as of July 25, 2003.
RCRIS: Environmental Protection Agency. Resource Conservation and Recovery Information System. Current as of September 18, 2003.
UST: WA Dept. of Ecology. Underground Storage Tanks List. Current as of July 25, 2003.

EPA Region 10, Resource Conservation and Recovery Information System (RCRIS) report / Ecology Active Handlers Database: Facilities that generate, transport, treat, store, or dispose of hazardous materials are listed in both of these databases. These facilities are closely monitored as the consistent presence of these materials greatly increases the potential for contamination, either through accidental spills or mishandling. Eighteen (18) facilities were listed in the RCRIS database. This list contains 16 small-quantity hazardous waste generators (less than 220 lbs/year), 1 medium-quantity generator (220-2200 lbs/year), and 1 large-quantity generator (more than 2200 lbs/year). No treatment, storage or disposal facilities were located within the study area.

National Pollutant Discharge Elimination System (NPDES) Dairy Operations: Any Dairy Animal Feeding Operation defined under RCW 90.64.010(9) that meets the definition of a Concentrated Dairy Animal Feeding Operation under RCW 90.64.010 (8) or is designated a Significant Contributor of Pollution under RCW 90.64.020 or meets the definition of a Concentrated Animal Feeding Operation identified in 40 CFR Part 122.23 is required to obtain coverage under this general permit or obtain an individual permit. A general discharge permit is written to cover similar types of discharges from similar facilities. The most commonly recognized contaminants or effects associated with dairy wastewater discharges include suspended solids, organics, fecal coliform bacteria, nitrogen, phosphorus, and biochemical oxygen demand (BOD). There are no NPDES dairy operations within the WHPA.

Washington Department of Agriculture Licensed and Certified Feedlot List (LCFL): A certified feed lot, as defined by RCW 15.68.020, means any place, establishment, or facility commonly known as a commercial feed lot, cattle feed lot, or the like. The Washington Department of Agriculture maintains a list of all licensed and certified feedlots in the state. This list includes the name and operating location of the facility. Detail on facility operations is available from the Department of Agriculture. The primary water quality concern from feedlots is elevated fecal coliform bacteria contamination. There are two known feedlots in the study area (see Table 5-2).

EPA Region 10 Toxics Release Inventory System (TRIS): Manufacturing facilities with more than 10 workers that process, manufacture, or use more than a threshold amount of a toxic chemical listed on the TRIS list must separately report their annual releases (in pounds) to air, land, water, and underground. Two sites in the study area, Canam Steel Corporation and West Farm Foods Inc. (Darigold) reported releases on the TRIS; Canam Steel from 1997-2001, and Darigold from 1995-2001. However, all of these releases were either fugitive or stack releases to the air. As such, these releases were not included in the evaluation of contamination risk.

Ecology Solid Waste Facilities Database (SWFD) for Washington State: This list, compiled by Ecology, includes the general site location information (city and state) of municipal solid waste landfills, waste types and amounts, and facility contact information. There are no sites in the study area on the SWFD.

EPA Region 10 Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS): This list, developed by the EPA under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), contains information

regarding hazardous waste sites and their ranking on the National Priorities List (NPL). No sites in the study area were listed in the CERCLIS database.

EPA Region 10 Accidental Release Information Program (ARIP) database: This database contains information about non-routine releases above a reportable quantity of certain hazardous substances. Under CERCLA and RCRA regulations, chemical releases must be reported to the National Response Center or EPA Region 10 Office. Releases resulting in off-site consequence, response, or environmental damage are then listed in the ARIP database. The ARIP database is primarily focused on improving accidental releases prevention and contains information regarding the circumstances of the accident, preventative measures in place before and after the accident, and mitigation measures, if any, that were undertaken. There are no sites in the study area in the ARIP database.

Facility Index System (FINDS) report: This database is a composite listing of facilities regulated under a variety of EPA programs. Information in this database is limited to facility location, standard industrial classification, primary database listing the facility, additional listing databases, and the corresponding system ID numbers. The primary use of this database is as a complementary search tool to help verify that all facilities in the above programs are located. All pertinent facilities listed in the FINDS database were previously accounted for and discussed under the above database sections.

5.4 Additional Groundwater Concerns

5.4.1 Field Survey

City staff identified several of the sites listed in Table 5-2 during a windshield survey of potential contaminant sites. In addition, the five sites listed in Table 5-3 were identified by City staff, but were not present in any of the environmental database searches. For the purposes of ranking, each of the current gas stations were assumed to have two USTs on site, and the food processor was ranked in a similar fashion as the food processing facilities identified in Table 5-2. The two former gas stations listed in Table 5-3 were not included in the ranking as no known contamination exists on-site, and any potential USTs remaining on-site are no longer being used.

Table 5-3
Field Survey Sites

Site ID	Facility Type	Location	Assumed Inventory
A	Gas Station	Northwest Corner of 16th St. & Yakima Valley Hwy	Two USTs
B	Gas Station	Northwest Corner of 6th St. & Decatur Ave.	Two USTs
C	Food Processor	North Side of Blaine Ave. at 3rd St.	Food Processor
---	Former Gas Station	Northeast Corner of 16th St. & Edison Ave.	---
---	Former Gas Station	Southeast Corner of 6th St. & Homer St.	---

5.4.2 Agricultural Production

Sunnyside is surrounded by commercial agriculture. In the production of these crops, a number of commercial fertilizers and pesticides are applied on a regular basis. Some of the more commonly used compounds include: nitrogen (ammonia); 1,3-dichloropropene, metam sodium, EPTC, 2,4-D, alachlor, atrazine, and DCPA. Historically, EDB and 1,2-dichloropropane have also seen wide use. However, these compounds have not been detected in samples collected from the City's production wells. Nitrate has been detected in samples collected from the City's wells as discussed in Section 2. However, those samples did not exceed the MCLs. The exact origin of the nitrate detections has not been clearly defined. However, historic and current use of nitrogen-based fertilizers in the region are a point of concern, as are private residential septic systems. Similarly, irrigation water that percolates into the soil can potentially carry fertilizers, herbicides, and pesticides into the subsurface where contaminants could eventually enter groundwater. The Sunnyside Valley Irrigation District Snipes Mountain Lateral canal and Sulphur Creek Wasteway flow through the western and southern portions of the City. The potential for contamination of the groundwater from normal operations of these systems is minor, but contamination from a spill is possible and would depend upon the amount and type of material released into the canal.

5.4.3 Transportation Corridors

Since Sunnyside sits on a major transportation corridor, there is a potential for contamination of the aquifer through a spill from an accident on Interstate 82. This spill could release contaminants that may threaten groundwater resources. The degree of hazard would depend on the type and quantity of material spilled and left unrecovered. Spill response and management policies of the City and Yakima County will limit the potential contamination risk from these accidental releases.

5.4.4 Abandoned and Exempt Wells

A potential means for contaminants at or near the surface to enter the groundwater is through existing or improperly abandoned wells. Though the community is served by the City's municipal water system, property owners may have private wells that may have been installed prior to construction of the municipal system or were constructed to supply irrigation water. The number and location of abandoned and exempt wells is currently unknown.

Properly constructed wells have a low-permeability surface seal placed around the upper portion of the well casing to prevent the vertical flow of surface water or contaminants into water-bearing formations. In some cases, seals are also placed at greater depths to prevent movement of water from an upper aquifer into a lower aquifer by percolation along the outside of the well casing. There is also some potential for contaminants to enter an aquifer from discharge directly into a well casing, e.g., if a well were under flood water or if it were used for disposal of contaminants. The procedure to abandon wells is prescribed under WAC 173-160. Under those standards, all wells which are no longer in use are to be decommissioned by the removal of any

casing or well pipe and subsequently sealed throughout the borehole with the pressure injection of cement or over-drilling.

5.4.5 Unsewered Areas and Septic Systems

There are several areas within the WHPA that are currently not served by the City sewer system. These areas will likely remain unsewered for the near future, although areas will be brought onto the City sewer system as opportunities become available. The principal concern from properly maintained and used septic systems is the impact of nitrogen, which is converted and transported in the environment as nitrate in the groundwater system. Nitrate is a primary constituent of concern because of its relatively high mobility in groundwater systems and its potential harmful effects to humans at high concentration levels.

5.4.6 Pesticide Application

Pesticides are typically used in residential areas, along transportation corridors, and at electrical substations. The term "pesticide" is used here to describe a suite of related products that include insecticides, herbicides, and fungicides. As of 1995, available pesticides include 19 varieties that are restricted to permitted use and a wide variety of non-permitted, commercially-available products used in smaller quantities. When applied in accordance with manufacturer specifications, pesticides are relatively immobile because they are consumed by the pests, break-down, or become absorbed within the soil. Herbicides are also often used on transportation corridors, mainly to keep highway shoulders free from plant growth. Herbicide use is limited, though, by the use of mowing within the City to control vegetation.

Pesticides are also used by homeowners. They are used to kill garden and lawn pests, destroy weeds, kill tree stumps, and for other purposes. Homeowners are able to purchase only chemicals that have been approved for retail sale. Instruction are included on container labels, but there are no further restrictions provided the chemicals are used as intended.

The presence of multiple sources of pesticides in the wellhead protection management area results in the potential or additive loading to the groundwater system resulting in a possible progressive decline in water quality. To date, pesticides have not been a problem for water quality in the City of Sunnyside.

5.4.5 Petroleum Hydrocarbons

There are numerous sources for petroleum hydrocarbons within the well capture zones. These include gasoline stations, industrial and commercial operations with equipment fueling stations, and heating oil tanks. Petroleum hydrocarbons are typically stored in USTs in volumes ranging from 300 gallons (residential or small commercial) up to 10,000 gallons (large gasoline service stations). Larger storage volume requirements (e.g. greater than 10,000 gallons) are typically stored above ground where monitoring of leaks is easier to achieve.

Petroleum hydrocarbons are not highly soluble in water. Their solubility is related to the length of the hydrocarbon chains that comprise the material. Short chain hydrocarbons, the types which

are found in gasoline, are typically more soluble than longer chain hydrocarbons, which are found in diesel fuel and heating oil. Because these materials are not highly soluble, they are not typically found to migrate very far from the source of a spill. Therefore, the greatest potential threat to groundwater quality is from sources of petroleum hydrocarbons very close to the wellhead, although very large releases of petroleum hydrocarbons should be considered a threat since large spills will travel farther than small spills. Petroleum hydrocarbon releases may also be more of a threat at sites where other types of solvents have been spilled. These materials can sometimes act as co-solvents and increase the solubility of petroleum product, and, therefore, increase the likelihood of transport of the petroleum hydrocarbons to a wellhead. Furthermore, some of the petroleum hydrocarbon components (e.g. benzene and toluene) can dissolve and migrate in groundwater toward the wellheads.

5.4.7 Metals

Groundwater contamination from metals is a potential threat at commercial and industrial sites which handle or use materials with significant metallic constituents and historical pesticide use areas. However, high concentrations of metals typically do not migrate far from their source areas because of their low solubility, tendency to adsorb to clay particles or organic matter, tendency to precipitate, and/or tendency to substitute for other minerals in the aquifer.

5.4.8 Corrosive Materials

Corrosive materials (acidic and basic compounds) may be present in some products used, or contained in waste materials generated from industrial sites. Large-scale storage of corrosive materials can change the pH of shallow groundwater and induce corrosion problems in structures that are in contact with groundwater, including City water distribution system components. Changing the pH of groundwater could also result in mobilization and/or immobilization of other constituents. Extreme changes in pH may make groundwater unsuitable for human consumption or for use in industrial processes. However, no sites with large-scale storage of corrosive materials were identified within the WHPAs.

5.4.9 Other Contaminant Sources

Movement of water through the soil profile from other sources, including stormwater disposal through drywells and wastewater disposal from septic system drain fields or wastewater spray fields, can also provide a means for contaminants at or near the ground surface to move into groundwater. Stormwater runoff from streets and parking lots frequently is contaminated with salts and petroleum products. It is a common practice in eastern Washington, where annual precipitation is low, to utilize drywells for stormwater disposal. This allows the storm water to dissipate by infiltration into the soil, but any contaminants carried by the water also enter the soil profile.

5.4.10 Potential Pathways for Groundwater Contamination

For wellhead protection planning, it is important to understand the potential sources and types of contamination to the WHPAs. However, potential pathways for contaminant migration are also important to understand because these contaminant pathways are the mechanisms through which wellhead protection activities can occur. The following section briefly discusses the main mechanisms for transport of contaminants to the subsurface.

Discharge onto the Ground Surface: One of the main mechanisms for discharge of contaminants to an aquifer is discharge at the ground surface. Direct discharge to the ground occurs when products or waste materials are spilled or placed onto the ground and infiltration of contaminants occurs, often with the help of rainfall. If a sufficient volume of material is released, materials can percolate into the subsurface and they eventually reach the water table and migrate downgradient through the aquifer.

Discharge to Subsurface: Discharge directly to the subsurface occurs from septic systems and dry wells. This is a more direct mechanism for transport because contaminants are discharged directly into the groundwater system, thus bypassing the upper layers of soil that can provide absorption, dispersal, and filtration of many contaminants.

Stormwater Runoff: Rainfall onto the ground either infiltrates into the subsurface or becomes surface water runoff. The quality of the infiltrated water or runoff depends on the type of land use and potential contaminants that such water can pick up along its path. Stormwater runoff is able to pickup and dissolve potential surface contaminants, and eventually discharge these contaminants to groundwater via infiltration from ditches or infiltration structures. The potential constitutes within stormwater are diverse, and include heavy metals and petroleum hydrocarbons from roadways, parking areas, residential developments, industrial areas, and commercial areas. In addition, a wide variety of organic chemicals commonly used for certain business practices can reach groundwater through stormwater runoff (e.g. solvents, paints, dry cleaning solutions).

5.5 Risk Assessment

With the potential contaminant sources identified, knowledge of the inventory may be used to prioritize the risk posed to the City's ground water supply. In addition, this information can be used to help establish action priorities directed at reducing the relative risk associated with particular sites. By prioritizing the risks associated with each source, proper steps can be taken to improve the long-term protection of the quality of the surrounding ground water resource and minimize the daily threat of contamination posed by the overall contaminant inventory. Moreover, the City can use this information to develop an initial priority list for focusing risk reduction efforts without allocating substantial local funds.

5.5.1 Methodology for Establishing Risk Priorities

The basic approach for the risk assessment was to evaluate each source based on three decision-levels: A-Proximity of Site to Water Source; B-Known vs. Potential Risk of Contamination and C-Severity Risk. Using these decision levels, the sites are grouped into four major risk categories: (i) high, (ii) moderate, (iii) low, and (iv) minor. The risk categories are based primarily on their proximity to the wellheads (Decision Level A). The sites within each major risk category are then further prioritized within each risk category based on the two other Decision levels (B and C). Brief descriptions of the ranking methodology used for each decision level are provided in the subsections below. It should be noted that in considering the three decision levels described below, no field surveys or formal site visits were conducted to determine the actual type of storage or volumes of chemicals, nor was there an attempt to determine the specific chemicals stored or used by any of the business owners or operators. Rather professional judgment was used to evaluate the variety of materials, volume, and form of storage characteristic of the type of business or operation based upon information available from the databases reviewed above.

5.5.2 Level A: Proximity of Site to Water Source

Decision Level A is used as the primary ranking criteria for selecting which major risk level a potential contaminant source falls within. The other Decision Levels are used essentially for ranking within the major risk level. Decision Level A uses the capture zones for the 1-, 5-, and 10-year times of travel delineated in Section 4 as the basis for ranking the potential contaminant sources. If a source is located within one of the main time of travel (TOT) zones, the risk is greater than that of a source which is located outside of this area, because the wellhead is likely to be impacted much sooner. Moreover, the risk associated with a source located within the 1-year TOT zone is greater than one located out in the 10-year TOT zone. Hence, the closer a source is located to the wellhead protection area (or the wellhead itself) the greater the risk. Technically, a source located within the 1-year TOT for wells 5 and 8 can be considered a greater risk than a source located within the 1-year TOT for wells 4a, 6, 7, and 9, because wells 5 and 8 are significantly shallower than other City wells. However, emphasis is placed on lateral proximity to the wellheads because management of the potential contaminant sources focuses on its geographical location. Prioritization scores for this decision level can be found in Table 5-4.

Table 5-4
Decision Level A: Proximity of Site to Water Source

Capture Zone	Score
1-Year	High
5-Year	Moderate
10-Year	Low
Outside 10-Year	Minor

5.5.3 Level B: Known vs. Potential Risk of Contamination

Decision Level B further prioritizes those sites within each major risk level. For Decision Level B, the sites were ranked as either known or potential contamination sites. Known sites were defined as sites that have been identified in the CSCS or LUST databases (see Section 5.3 for detail). Potential contamination sites are sites or land areas within the WHPA that are known to be used in ways which potentially could pose a risk to groundwater quality. This category includes both point and non-point sources. Prioritization scores for this decision level can be found in Table 5-5.

Table 5-5
Decision Level B: Known vs. Potential Risk of Contamination

Type of Contaminated Site	Known or Suspected Contamination	Score
CSCS	Known	High
LUST	Known	
Septic/Feedlot/Dairy	Potential	Moderate
USTs & Large Hazardous Waste	Potential	
Transportation Corridors/Sewer Mains/Med Hazardous Waste Generators	Potential	Low
Food Processors, Small Hazardous Waste Generators	Potential	

5.5.4 Level C: Severity Risk

Decision Level C incorporates the type of material on-site as well as the potential volume of material that could be released. Although the type and volume of material is important, this was used as the third level for prioritizing the sites, because of the uncertainty associated with this information in the databases. Different potentially hazardous materials pose a certain level of risk based on the type of material being held. For example, common antifreeze (ethylene glycol) is not generally as harmful to humans or the environment as petroleum products at the same level of exposure. In fact, many of the compounds found in traditional gasoline (e.g. benzene, toluene, and xylene) are known carcinogens. Thus, the type of material and its potential toxicity (if introduced into the drinking water system) are important factors in determining the relative risk for a given source. The more material being handled and/or stored the greater the potential risk to the ground water system. Large volumes for a given source create an increased risk for contamination in the event of a spill or accidental release. As shown in Table 5-6, sites with a UST on-site were considered to have larger volumes of potential contaminants on-site than locations where only existing contamination was noted (e.g. CSCS sites). To be conservative, any site falling in multiple categories was assigned the higher score.

Table 5-6 Decision Level C: Severity Risk	
Contaminant Type & Volume Stored	**Score**
Petroleum and/or Non-Halogenated Solvents with USTs	High
CSCS Sites with No USTs	Moderate
CSCS Sites with Contamination only from Conventional Organics	Low
Sites where UST Closure is in Progress, where a LUST Clean-Up has been Started, or where a RA has been Completed or is In Progress	

5.5.5 Results of Risk Ranking for Potential and Known Contaminant Sources

Table 5-7 provides the rankings for all potential contaminant sites within the Sunnyside WHPA. Risk level distinctions are based primarily upon Decision Level A (Proximity of Site to Water Source). The sites are further prioritized within each risk category by Decision Level B (Known vs. Potential Risk of Contamination). Decision levels C and D are used to rank all sources that have the same ranking scores based on Levels A and B information.

Primary sites within the "high" risk level include sites within the 1-year TOT. Sites within the "moderate" risk level include those within the 5-year TOT. Sites within the "low" risk level are all within a 10-year TOT, and sites within the "minor" risk level are those outside of the 10-year TOT for any well.

Table 5-7
Site Risk Levels for Sunnyside WHPA

Site ID	Facility	Ranking by Decision Level			Site Risk Level
		A	B	C	
5	Bleyhl Farm Service	High	High	High	High
11	Cascade Natural Gas	High	High	High	
13	Circle L	High	High	High	
17	Fry Building	High	High	High	
20	Hickenbottom Sons Inc.	High	High	High	
31	La Rosita Bakery	High	High	High	
61	Valley Dry Cleaners	High	High	High	
52	Sunnyside Municipal Well 1	High	High	High	
4	Bee Jay Scales (Sandy Farms)	High	High	Moderate	
25	Jerry's Steel Supply	High	High		
57	Union Pacific Railroad	High	High		
45	School District Bus Garage	High	High		
48	Sun King Fruit Co.	High	High		
54	Sunnyside Valley Irrigation District	High	High		
58	United Telephone Co.	High	High		
---	Residential – Unsewered	High	Moderate		
36	Monson & Sons (Bar-S)	High	Moderate		
50	Sunnyside Chevron	High	Moderate	High	

Table 5-7
Site Risk Levels for Sunnyside WHPA

Site ID	Facility	Ranking by Decision Level			Site Risk Level
		A	B	C	
56	Tucker & Co	High	Moderate	High	
69	Yakima Co Maint. Shops	High	Moderate	High	
B	Gas Station	High	Moderate	High	
3	BBP Inc. (Underwood Oil)	High	Moderate	High	
67	Wondrack Distributing	High	Moderate	High	
---	Transportation Corridors	High	Low		
68	Yakima Chief Inc.	High	Low		
24	James River Corporation (Johnson Concentrates)	High	Low		
42	PW Pipe	High	Low		
51	Sunnyside Municipal Airport	High	Low		
53	Sunnyside WWTP	High	Low		
27	Johnson Fruit & Cold Storage	High	Low		
28	Johnson Fruit Cannery	High	Low		
46	Simplot Soilbuilders	High	Low		
55	Tom Denchel Ford	High	Low		
C	Food Processor	High	Low		
44	Roza Irrigation District	Moderate	High	High	Moderate
32	Maid O' Clover	Moderate	High	High	
33	Manhole 34 PLP Group	Moderate	High	High	
26	Johnny's Texaco	Moderate	High	Moderate	
59	Unocal Bulk Plant 0766	Moderate	High	High	
2	Bargain Hut	Moderate	High		
8	Burlington Northern Rail Terminal	Moderate	High		
42	Pet Health Clinic	Moderate	High		
64	Valley View Gas Mart (Time Oil)	Moderate	High		
60	Upland Farms	Moderate	Moderate	High	
9	Canam Steel Corp.	Moderate	Moderate		
6	Bleyhl Farm Service	Moderate	Moderate	High	
41	Park n Pak	Moderate	Moderate	High	
49	Sunny Spot	Moderate	Moderate	High	
A	Gas Station	Moderate	Moderate	High	
10	Carnation Company	Moderate	Moderate	Moderate	
29	JRJ Service Inc.	Moderate	Low		
21	Independent Food Processors	Moderate	Low		
65	Washington Hills Cellars	Moderate	Low		
14	Cliff's Battery Service	Low	High	High	Low
22	Jackpot Food Mart 069	Low	Moderate	High	
12	Chateau Ste Michelle	Low	Moderate	High	
7	Bob's Auto Clinic	Low	Moderate	Moderate	
30	Kelloggs Korner	Minor	High	Moderate	Minor
19	Green Valley Implements / Speck Motors	Minor	High		
37	Neighborhood Church	Minor	High		
18	Golob & Sons	Minor	Moderate		
1	ARCO 5939	Minor	Moderate	High	

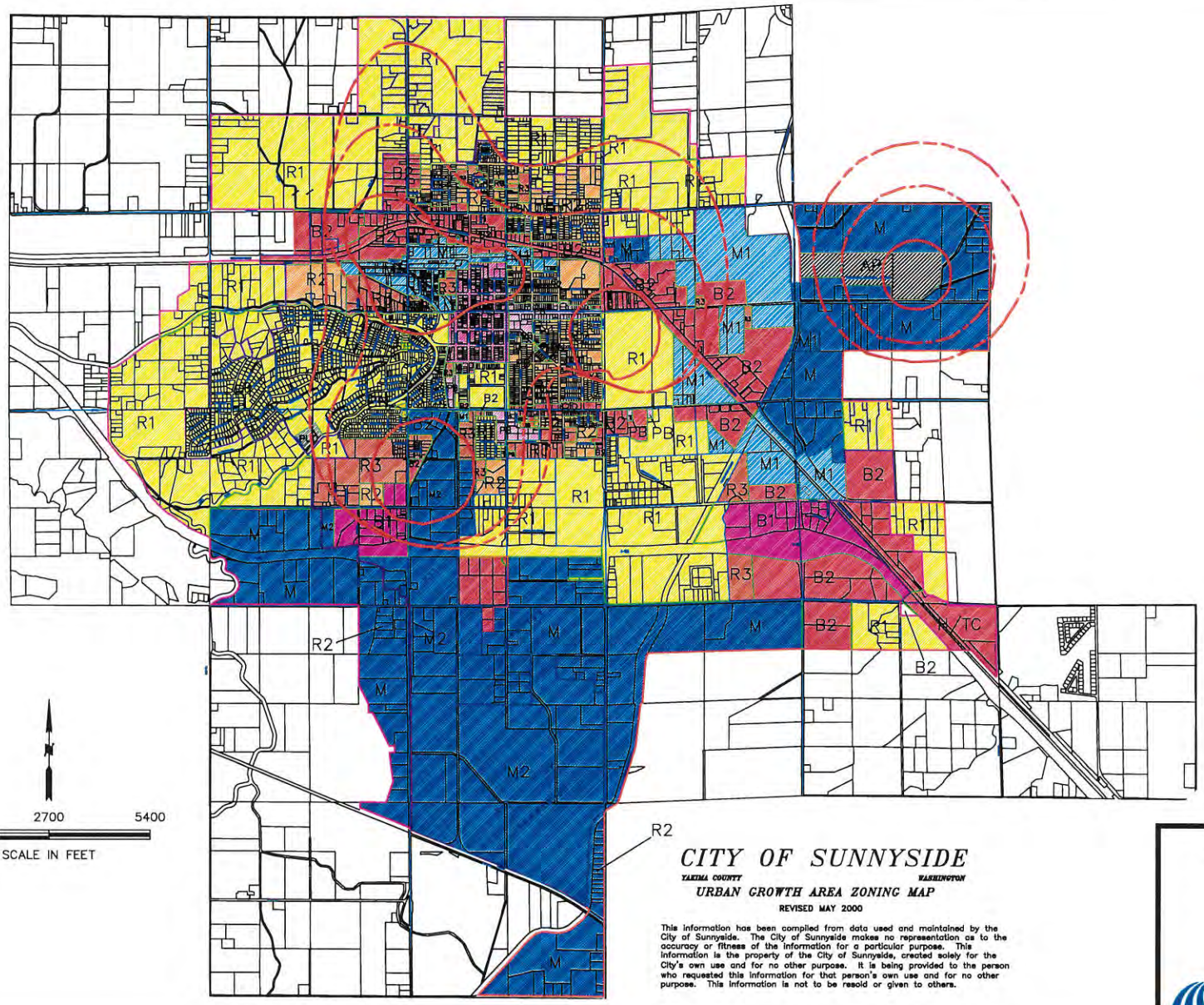
Table 5-7
Site Risk Levels for Sunnyside WHPA

Site ID	Facility	Ranking by Decision Level			Site Risk Level
		A	B	C	
16	Estudillo's Food Store	Minor	Moderate	High	
23	Jackpot Food Mart 066	Minor	Moderate	High	
35	Mirastor #62022	Minor	Moderate	High	
38	Outpost	Minor	Moderate	High	
15	DRR Fruit Products	Minor	Low		
34	Marquez Manufacturing Ltd.	Minor	Low		
41	Port of Sunnyside WWTP	Minor	Low		
43	RDO Equipment Co.	Minor	Low		
47	Star Transport Trailers	Minor	Low		
62	Valley Processing	Minor	Low		
63	Valley Truck Repair	Minor	Low		
66	West Farm Foods (Darigold)	Minor	Low		

5.6 Notification and Contact to Agencies and Owners-Operators

Following DOH guidelines, all owners/operators of known or potential contaminants sources must be notified of their location within the wellhead protection boundaries. In conducting this effort, a sample notification letter is outlined in Appendix F. Notified entities include those identified in Table 5-2.

In addition, notification must be extended to the various regulatory agencies regarding the finding of the contaminant inventory and their locations within the wellhead protection boundaries. A sample of the corresponding letter of notification for regulatory agencies is also outlined in Appendix F. Notified agencies include the Washington Department of Health and Washington Department of Ecology.



DRAFT EXHIBIT 5-1

City of Sunnyside

Wellhead Protection Plan

Zoning Map

October 2003

ees Economic and Engineering Services, Inc.

Bellevue Mount Vernon Olympia Portland Tri-Cities

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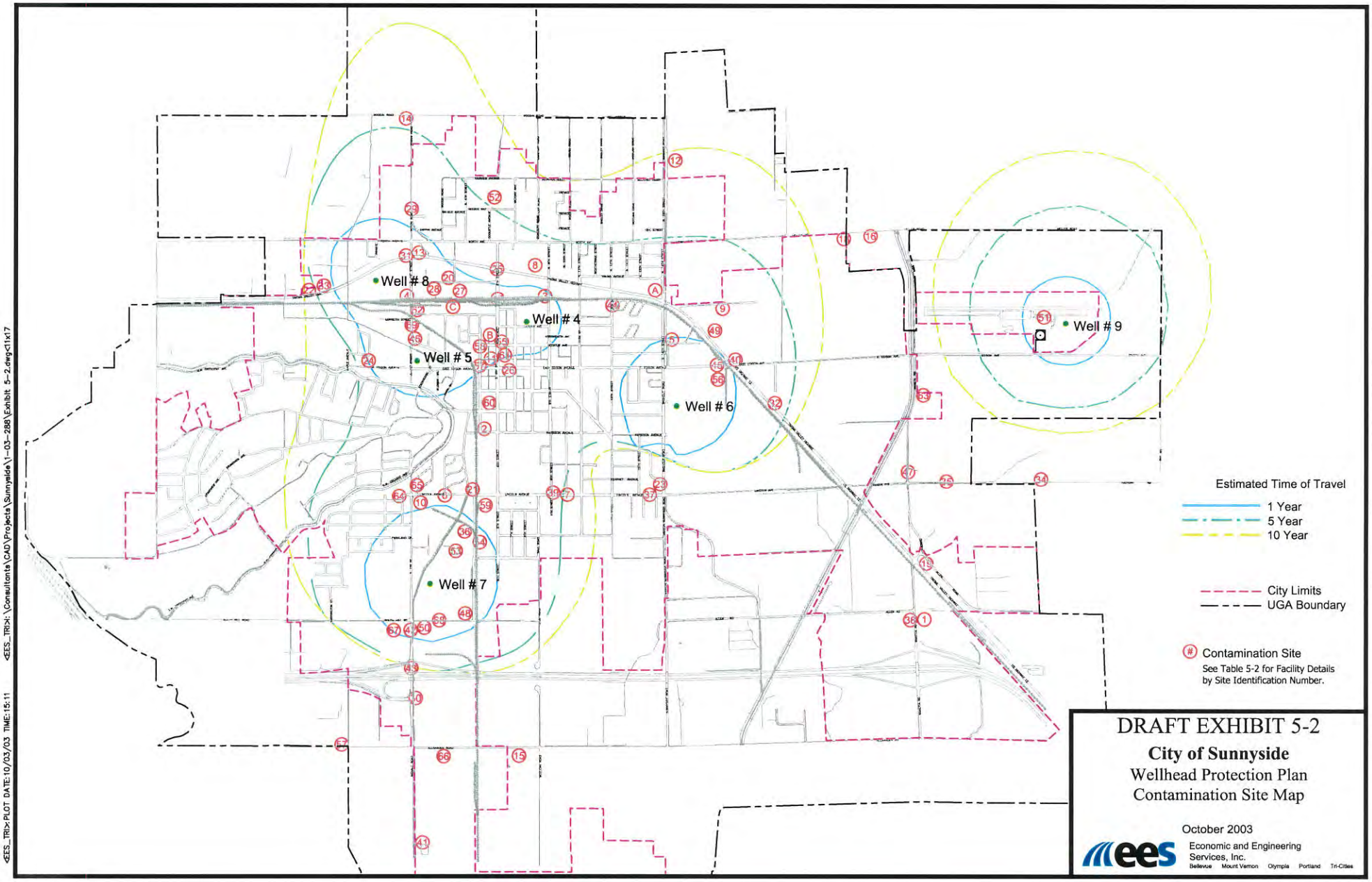

DRAFT EXHIBIT 5-2

City of Sunnyside

Wellhead Protection Plan

Contamination Site Map

October 2003

Economic and Engineering Services, Inc.

Bellevue Mount Vernon Olympia Portland Tri-Cities

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Section 6
Spill Response Plan

6.1 Introduction

The purpose of this section is to outline existing spill response procedures for the City of Sunnyside (City). The City is a community that relies on its residential and commercial base for economic support. With this activity, however, comes the need for the use and storage of potentially hazardous material. The associated threat of a spill and resulting impact to the ground water system is largely a function of the type and quantity of material released, along with the timing and location of the spill event.

Such spills or accidents can occur almost anywhere and at anytime. The types of material of concern may be located at several venues within the community. Moreover, the delivery of that material may be tied to primary transportation routes, including commercial trucking and railroads. In the unfortunate event of a spill or accidental release of a hazardous material, the key to minimization of negative impacts relies on an effective and immediate emergency response plan.

Recognizing the need for such a plan, the City is an active participant in the spill response approach developed by Yakima Valley Office of Emergency Management. The County plan contains detailed guidelines for coordination and procedures to follow in response to a spill event. The following provides a brief discussion of the County's approach.

6.2 Operational Concepts

Relying on shared area resources, the Yakima County Office of Emergency Management (OEM) establishes a multi-level response plan that prioritizes the use of local government agencies and departments in responding to emergency events. OEM is charged with assisting local planning groups to facilitate implementation of the current emergency response procedures. Yakima County's plan is documented in the *"Comprehensive Emergency Management Program."* Agencies of the County and its cities and towns are required to support this plan through annual reviews of the program. In addition all parties are required to participate in exercising and training to assure appropriate personnel are trained in the procedures of this plan. Local governments have a duty to be prepared for disaster emergencies.

Primary response is delegated to local resources made available throughout the County, as needed. If an incident is of sufficiently large magnitude as to likely deplete County resources, assistance may be sought from appropriate State and Federal agencies. A brief description of local service capabilities and interagency coordination are outlined below.

Response to a hazardous material release is initiated through contact with the Yakima Public Safety Communications Center (YPSCC) by dialing "911." Upon notification of a hazardous materials release, the YPSCC will dispatch fire service personnel and law enforcement support, as required, to assess the situation and provide immediate care to any injured persons. YPSCC will also contact Washington State Patrol, which is the Incident Command (IC) Agency for hazardous materials spills on state highways and the rest of the state where the jurisdiction has not taken specific responsibility for hazmat incidents.

As the IC, Washington State Patrol will lead the coordination effort for any hazardous material spill response, including the needs of all emergency response agencies involved and the resources required for response. Under direction by the IC, OEM will activate the Operational Area Emergency Operations Center (OAEOC) when needed to coordinate response disciplines. Dispatchers will conduct all related radio traffic until the OAEOC has been activated through contact with the OEM Director, Sheriff, or designated person in command. For a single incident the OAEOC may not be activated and the event will be managed at the Command Post and related dispatch centers.

Response functions are the responsibility of local fire departments, fire districts, law enforcement, medical services, public works, health, and private sector emergency groups (i.e. responsible parties). Emergency responders in the County shall provide services such as (but not limited to): evaluation of the incident, rescue, emergency medical treatment, evacuation of persons at risk, containment of released material, and isolation of the incident area. Yakima County does not have a hazardous material response team (HazMat)[1].

If adequate resources are available and the Incident Commander determines the spill can be safely contained by local entities, appropriate containment measures will be undertaken to protect life and property. Clean up will be coordinated with, the City of Sunnyside, OEM, the HazMat team, Washington State Department of Ecology, and the responsible party. In the event the incident is beyond local capabilities, the scene will be secured and necessary evacuations conducted until State resources can be mobilized.

6.2.1 Responsible Party

The primary responsibility for assessing, responding to, and containing a spill or discharge falls upon the individual, agency, and/or company responsible for the spill incident. The responsible party (RP), whether there is an approved contingency plan or not, is responsible for containment and cleanup of the spill, disposal of contaminated debris, restoration of the environment, and payment of damages. State and federal law specifically require that the removal of a discharge of oil or hazardous substance should be immediate.

[1] Benton County has at its disposal a fully-equipped HazMat team that is trained to provide an assessment of the spill, emergency public information, protective action recommendations, and containment/handling procedures. Currently, no agreement exists for Benton County HazMat to provide its services to Sunnyside (County). However, these agreements are being discussed at this time (Personal conversation, Jim Hill, Yakima Co. Office of Emergency Management, September 19, 2003).

6.2.2 Local

Within the City, the City Fire Department is responsible for recognition and identification of a spill, and then isolation. The Fire Department does not do clean-up activity, except for ammonia spills. The Sunnyside Fire Department has the functional role for fire control and suppression, emergency medical aid, and light rescue, as well as on-site coordination of hazardous material response team efforts. The City Fire Department is presently up to date on the County's hazardous materials response plan and is an active member of the County's regular hazardous materials training program.

City police are responsible for traffic control and maintaining clear access to any incident site within the City itself, whereas this role will fall to the County Sheriff's office for those events occurring outside the City limits. Another primary responsibility of the police is to provide any necessary emergency notification to the public (e.g. evacuation notice). The City police staff is also presently up to date on the County's hazardous materials response plan and is an active member of the County's regular training program.

6.2.3 State and Federal

Washington State agencies will provide support to local government and response teams through coordinated efforts with the State's Emergency Management Division (EMD). The Washington State Department of Ecology (WaDOE) is the lead agency within the state for environmental pollution response. Once called to respond, it has authority as principal on-site coordinator (OSC) and is in-charge for most spills occurring within state jurisdiction. In the event of a spill occurring on a state highway or part of the state where the local jurisdiction has not taken responsibility for hazmat incidents, Ecology coordinates with the Washington State Patrol, which assumes primary responsibility as lead command agency, while Ecology acts as the lead agency responsible for clean-up activities.

The State of Washington's spill response is organized and managed under an Incident Command System (ICS). The ICS will operate using a Unified Command Structure involving representatives of the Washington State Patrol, Ecology, federal government, industry, and in some circumstances local government. A Unified Command Structure is called for when the spill is multi-jurisdictional in nature, e.g., when public safety and welfare, as well as environmental damage, is imminent.

Under the Unified Command Structure, the three key On-Site Coordinators (OSC) - federal, state, and industry- will share decision making authority in the command post and consult with each other regarding spill response and clean-up, management issues. Participation in the Unified Command Structure does not mean that individual agencies relinquish or surrender their authority through participation. Emergency situations, however, may require some actions to be taken outside of the normal permitting process.

As needed, the following state and federal agencies may be contacted for support depending on the individual characteristics of the spill:

State Agencies	Federal Agencies
Department of Transportation	U.S. Environmental Protection Agency
Department of Health	U.S. Department of Agriculture
Department of Fisheries and Wildlife	U.S. Fish and Wildlife
Washington State Patrol	U.S. Department of Energy
Department of Labor and Industries	

A schematic of the coordination effort between local, state and federal agencies is shown in Exhibit 6-1 (at end of this section).

6.3 Additional Support for Local Spill Response

Depending on the magnitude of the spill event, numerous organizations at all levels of government, some voluntary organizations, and the private sector, can have a role in spill response and cleanup. The County's plan mentioned above describes the relationship and roles of these organizations based on the required level of response. Listed below are a few of the organizations which might be, depending on the size and nature of the release, called in to assist in a spill response within the City's wellhead protection area.

6.3.1 Department of Ecology

A Spill Response Team is available through the Washington State Department of Ecology and is staffed by regional office personnel. This team is responsible for determining the source, cause, and responsible party, as well as initiating appropriate enforcement action. Additional responsibilities include ensuring containment, cleanup, and disposal. The team coordinates its actions with other state, federal, and local agencies.

6.3.2 Local Response Team

Under the State's EMD, a Local Response Team (LRT) may be created consisting of state and local government agencies, industry personnel, academic organizations, and other private interests which may assist the on-site coordinator (OSC) in pollution response and planning. The composition and level of participation in the LRT is dependent upon the area involved, the hazard posed, and the type of assistance required. Normally, the LRT will consist of the state environmental response agency and clean-up contractors.

6.3.3 Natural Resource Damage Assessment Team

The state Natural Resource Damage Assessment (NRDA team consists of representatives from Ecology, the Department of Fish and Wildlife (DFW), the Parks and Recreation Commission, the Department of Natural Resources (DNR), CTED, and the Department of Health (DOH). In the event of a major pollution event which damages natural resources, this committee's mission is to

organize personnel, materials, and equipment necessary to conduct reconnaissance evaluations and initiate detailed assessments of natural resource damages.

6.3.4 U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency administers two important field response programs: (1) the Technical Assistance Team (TAT); and (2) the Environmental Response Team (ERT). The TAT is a contractor-based operation used by the EPA Region 10 office to provide technical oversight at spills and uncontrolled hazardous waste sites. Requests for the TAT are made via the EPA. Once on site, the TAT will report the situation to the EPA duty officer who then decides whether an EPA on site coordinator needs to be on scene.

The U.S. EPA also offers the Environmental Response Team (ERT). Based in Edison, New Jersey, the ERT was established to advise the OSC and Regional Response Team (RRT) on environmental issues surrounding spill containment, cleanup, and damage assessment. ERT personnel have expertise in areas such as treatment technology, biology, chemistry, hydrology, geology, and engineering.

6.4 Contact Names and Telephone Numbers

Notification of any spill is initiated by calling 9-1-1. Following a release, initial response will be directed by dispatching personnel from the City Fire Department, along with City or County law enforcement. Subsequently, notification will proceed with the County's Office of Emergency Management (OEM) and the Emergency Operation Center (EOC), as required.

The list of following names and contact telephone numbers may be used in support of emergency response:

Table 6-1
List of Spill Response Contacts

Agency/Department	Contact and Telephone Number
Yakima Public Safety Communications Center	911
Yakima Valley Office of Emergency Management	(509)574-1900
City of Sunnyside Fire Department (Non-emergency)	(509)837-3999
State Emergency Management Division	(800)258-5990
State Department of Ecology 24-hour Emergency Spill Response	(509)456-2926
U.S. EPA (Seattle)	(206)553-1263

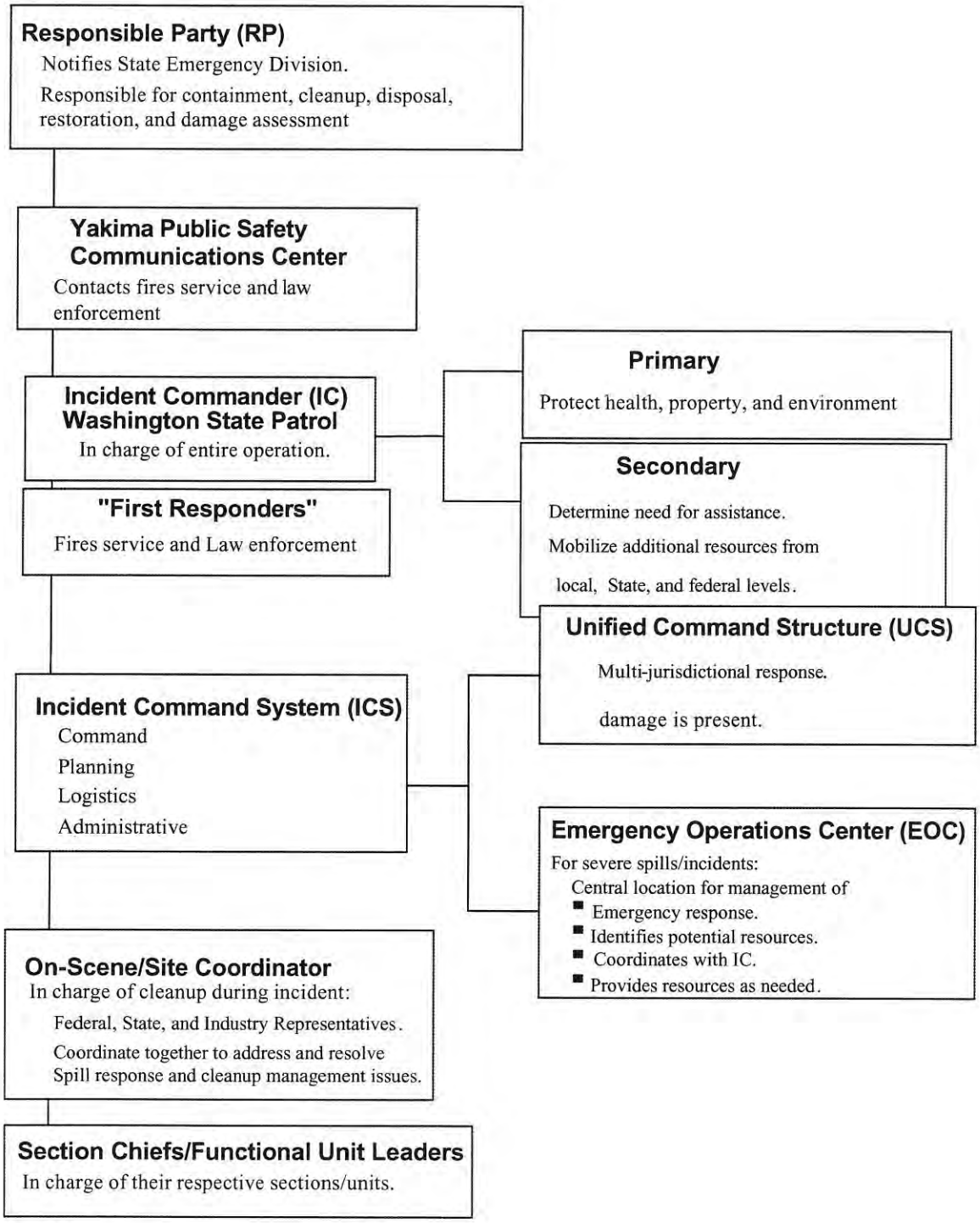


Exhibit 6-1
Outline of Spill Response System
(General)

Section 7
Contingency Planning

7.1 Introduction

Following provision in the 1986 Amendments to the Safe Drinking Water Act (SDWA), all public water systems are to develop contingency plans "*...for the location and provisions of alternate drinking water supplies for each public water system in the event of well or wellfield contamination.*" Contingency plans are considered important because, even with careful planning, unforeseen incidents can occur. A proper contingency plan helps ensure that the City is prepared to respond to an emergency situation. Equally important is the fact that, should the City not be able to identify economically feasible alternatives for its supply, the protection plan and management strategies should be much more stringent.

The Wellhead Protection planning process requires an expanded contingency planning effort. Under the current WHP planning process, the City is required to:

- Identify existing or potential interties with other public water systems and evaluation of the ability to deliver water assuming the loss of the largest well/wellfield.
- Identify future potential sources of drinking water and a description of quality assurances and control methods to be applied to ensure protection of water quality prior to utilization of potential sources as a drinking water supply.
- Evaluate current procedures and the development of recommendations on contingency plans for emergency events.
- Maintain a current list of appropriate emergency phone numbers (addressed in Section 6).

The purpose of this section is to address each of the former and current contingency plan requirements based on existing guidance. The overall contingency plan developed for the City has both emergency (short-term) and long-term alternatives.

7.2 Existing Water Source

Well No. 9 represents approximately 25% of the City's production capacity and approximately 33% of its annual production in 2002. The loss of this well, even for a short period of time, would necessitate a series of dramatic changes in system operation and public use patterns. If a serious problem were identified, the City would be prepared to enact a stringent water use restriction policy and institute an extensive public education program to increase customer awareness of the problem and reduce overall water use. It should also be noted that the replacement of any of the City's present wells would not be easy or inexpensive.

7.3 Existing and Potential Interties

Interties between neighboring water purveyors are increasingly being supported by the waterworks industry as a method to improve the reliability of water systems. However, due to its location, Sunnyside does not have existing interties and has few opportunities for interties with neighboring systems. The City of Sunnyside does not have any plans to develop interties in the near future.

7.4 Potential Contaminants

The following discussion presents scenarios that would require the enactment of contingency procedures.

7.4.1 Detection of Volatile Organic Compounds and Synthetic Organic Compounds

The detection of a VOC/SOC contaminant in a well could result in permanent loss of a source. If the City were to lose a well due to contamination, it could take a considerable amount of time to complete the work, and resolve the issues necessary to site and drill a new well.

7.4.2 Chemical Spill

The most likely scenario for a chemical spill would be a chemical transporting vehicle releasing its cargo due to an accident. However, it is also possible that a chemical spill could happen. A chemical spill does have the potential to contaminate groundwater especially for those wells utilizing the unconsolidated aquifer in the overburden (Wells No. 5 and 8). Probability of a chemical spill with subsequent contamination of groundwater in the Saddle Mountain and Wanapum Basalt (Wells No. 4A, 6, 7, 9) is low in Sunnyside. The City's emergency response procedures is described in Section 6. In addition, the BMPs presented under the management plan (Section 8) should be adopted to prevent chemical spills.

7.4.3 Other Factors

Another factor that may require contingency procedures is related to impacts of the aquifer material on the water quality produced by the well. At times, geologic material may be drawn into the well due to well-screen failure. This problem can be addressed with changes in the pumping capacity or repairs to the well. "Sanding" has occurred in Well No. 3 and 4.

7.5 Water Supply Replacement Options

The primary concern of a water supplier when faced with a disruption in service is providing an uncontaminated supply of water to the customer. Depending on the nature of the problem, an alternative source may be required for a number of hours, days, weeks, or, in a worst-case situation, permanently. Emergency and short-term options include the steps required for immediate provision of water for periods of days, weeks, or months (e.g up to three months). Emergency options are likely to be employed in situations where a near or total loss of the groundwater supply is experienced, for example, if the storage and distribution system must be flushed due to one or more wells producing contaminated water. Emergency options are likely to be employed while appropriate long-term solutions are being evaluated during the loss or contamination of one or more wells. Long-term options for permanent changes to the water supply system may be implemented over a period of more than 3 months to 3 years. These options may be implemented separately or together depending on the situation.

7.5.1 Short-term Contingency Plan

The short-term time frame (less than 3 months) will probably not allow the drilling and/or development of additional wells at a level to achieve a total replacement of impacted well(s). The following options are identified as suitable for short-term contingency planning.

Use of Other Wells

The short-term contingency plan is highly dependent on production of water from the City's other wells that are not impacted. This option may require the use of one or more of the other contingency options discussed below depending on which well(s) are off-line and how much demand can be met by the other operating wells. Should an event require that all of the City's production be limited to one or two wells, extreme care must be taken to closely monitor the water quality of the production wells in use.

Tank Trucks

Alternative water supplies can be brought in by tank truck. Careful attention should be given to disinfecting the tanks to avoid bacterial contamination. If this option is selected, a source of sanitary containers should be identified so that customers are not required to use their own potentially contaminated receptacles.

Conservation/Curtailment

In an emergency situation requiring a complete or partial shutoff of the wells, non-essential water uses must be restricted, preferably by voluntary conservation measures. Users can reduce consumption by limiting activities such as industrial processes, landscape watering, laundry, bathing, washing cars, etc.

In March 1994 DOH promulgated requirements that municipalities develop conservation plans as part of any new Water System Plan. The City has implemented a conservation plan as part of the update to WSP to educate consumers about conservation techniques. This is included in the 2003 Water System Plan prepared in conjunction with this WHPP.

Bottled Water

In an emergency situation that requires the wells to be shut off, bottled water is considered the most accessible supplement for drinking water supply. In many cases, bottled water for drinking supply is immediately available in either stores or a bottling facility. With the City of Sunnyside located close to the City of Yakima and the Tri-Cities, along with other smaller communities including Toppenish, Granger, Grandview, and Prosser, it is feasible that a short supply of bottled water could be available for a short term. However, this option is considered a very short-term contingency for drinking water supplement only.

City Personnel Contacts

Table 7-1 lists the city's emergency contact names and numbers in the event that any of the options in this section are enacted.

Table 7-1
Contact Information for City Staff

Staff Name	Position	Work Phone
Ken Ott	Public Works Superintendent	(509) 836-6360
Jim Bridges	City Engineer	(509) 836-6352

7.5.2 Long-Term Contingency Plans

The long-term plan presumes that one or more of the City's wells will be lost for a period of up to three years. Long-term water replacement options differ from emergency options primarily in the amount of time available to evaluate the various alternatives is longer, permitting more extensive analysis and the considerations of future needs and other factors prior to a decision being made. As a result, the range of alternatives which are viable may be larger.

General Ground Water Exploration and Drilling New Wells

If there exists an untapped supply of groundwater in the form of a separated aquifer or a portion of the contaminated aquifer that is upgradient or cross gradient and is uncontaminated, it may be feasible for Sunnyside to drill new wells.

The City may drill several exploratory wells to identify potential groundwater resources to the north of the City upgradient of existing and historical wells and potential contaminant sources.

The cost of this option would be moderately high as any new site will require the development of production wells and pumping facilities, and these sites may be located at a significant distance from the City's existing infrastructure. The City may decide to transfer water rights as has been done previously or attempt to obtain new water rights, which will be significantly more difficult.

It should be kept in mind that the capture zone geometry of the wells are dependent on localized ground water gradients. Hence, relocation of a well a short distance away can dramatically alter the capture zone orientation. The relative cost of this alternative depends on the ability of the target aquifer to yield suitable quantities of groundwater. This option would involve a moderate amount of capital expenditure for test drilling, production well drilling, potential land acquisition costs, and infrastructure costs.

Treatment

Treatment technologies can also be applied to the water supply system. Treatment method selection depends upon a number of factors, including the chemical characteristics of the contaminants, the extent and severity of the contamination, the treatment removal objective, and the financial and technical resources available. The basic types of treatment technologies for organic chemicals in groundwater are air stripping, activated carbon, and biological treatment. Chemical precipitation is used for removal of inorganic chemicals. For short-term situations, many types of treatment systems can be supplied as a mobile unit.

Treating water for removal of inorganic and organic chemicals can be expensive. The capital investment for the treatment units along with cost of chemicals used to remove inorganic compounds can amount to a significant expenditure. In some cases, disposal of sludge generated by the treatment processes can be a difficult and expensive venture, and customer perception may not allow for use of the water even after treatment.

Treatment is probably not a high priority for Sunnyside because of high capital costs and other issues related to treating contaminated water. In general, treatment of a contaminated water supply should be considered as a last-resort option.

Permanent Replacement Contingency Plan

In the event that the City's supply is lost to production for a period longer than 3 years, it is probable that the well would be permanently lost. At this point, it would be advisable to seek permanent transfer of the water certificate or permit to appropriate supplies developed under the short- or long-term plans. In addition, the City should plan to develop additional ground water supplies both inside and outside the existing service area.

Section 8
Recommended Management Practices

The previous chapters document the City of Sunnyside's potential threats of contamination and define the wellhead protection areas. This section includes recommend additional measures for protecting local groundwater supplies. The City may wish to implement all or a portion of the recommendations depending upon available funding, time, or other concerns.

The WHPA defined in Section 4 lies primarily within the City's boundaries; however, portions exist within County jurisdiction (primarily near Well No. 9 near the airport). This complicates some of the recommendations outlined below due to the need to coordinate two public entities that have different responsibilities for land use planning, permitting, stormwater management, and sewage collection programs in the area. Therefore, the WHPP will be achieved through a cooperative effort between the City and County, and any other entities which regulate land use in the area.

At the end of the section, a table is included which lists general cost and implementation considerations for each of the recommendations.

8.1 Regulatory Management Recommendations

Recommendation 1: Designation of the WHPA as special protection area

The identification and designation of the wellhead protection areas (WHPAs) are fundamental to the development of all other management strategies. With the designation, the City will be able to direct their focus on the potential contaminant sources that are of the greatest threat to their ground water supplies. It also provides a defensible stance if the City is to develop special permitting or regulatory requirements within the WHPAs. These WHPAs are:

- One-year time of travel zone
- One- to five-year time of travel zone; and
- Five- to ten-year time of travel zone

The City should work with legal counsel and planning to develop legal descriptions designating the WHPAs based upon the delineations. These WHPAs will be the building blocks upon which all other management strategies will rely.

The City should coordinate with Yakima County on the delineation of the protection zones as found in the County's Critical Aquifer Resource Area (CARA). Although CARAs are intended to consider the *entire* aquifer recharge area, the capture zones as delineated in wellhead protection plans often are adopted as part of the CARA assessment. The City should strive to

have the WHPA outside City limits designated by the County as aquifer recharge area under the Resource Land and Critical Areas Designation amendment. The City should designate the wellhead protection areas as sensitive areas by creating a City ordinance for the portion of the WHPA within the City limits. A joint coordination with Yakima County will have to be made to designate the entire area. The sensitive area designation will justify subsequent wellhead protection activities, monitoring activities, and requirements developed within the WHPA, along with development of funding mechanisms for the maintenance and updating of the wellhead protection areas.

Recommendation 2: Develop Regulatory Management Tools to Protect WHPA

The City can revise their municipal code to give authority to Public Works Director (Planning Department or other selected City agency) to protect ground water associated with the WHPAs. The appropriate City Department can adopt the WHPP within the City of Sunnyside Administrative Code and use engineering standards and administration as a regulatory control to protect the WHPAs. The City regulates a variety of development activities that can affect ground water based upon building, health, fire, and sanitary codes. Through permitting controls and design and construction standards. Specific recommendations are listed below.

Conditional use permits (CUP). During the facility permitting process, any requests for CUPs within the WHPA will trigger automatic notification to the City Public Works department, and appropriate investigation into the nature of the business will be assessed.

Site plan approval process. The City can use its existing site plan approval process to determine if the proposed development is compatible with existing land use, including the overlay zoning (see Recommendation 1). This process will also allow the Public Works Department to review and enforce design and construction standards that may apply if the development is within the WHPAs (see below). The City may also develop special permitting requirements for USTs such as removal of existing residential USTs and prohibition of all new USTs (unless they have appropriate safeguards) within the WHPAs.

Design and construction standards. Design and construction standards can be used to ensure that new buildings or structures placed within WHPAs are designed and constructed in such a manner as to reduce their threat to the WHPAs. Public Works Department can review spill control best management practices (BMPs) for facilities within the WHPAs to minimize the potential for contamination. The City may prepare design standards for spill containment barriers and other BMPs such as locating emergency spill kits and equipment, use of secondary containers, etc. The City may also develop specific construction standards for USTs including leak testing and construction standards.

Recommendation 3: Manage sewer system in WHPA

The sewer system (both sanitary and septic) within the WHPA can have a significant impact on ground water quality. The City should develop a program to minimize the potential impacts that the sewer system may have in the WHPA. Among the recommended procedures are:

- Develop an emergency response plan for sewer force main breaks within the WHPA
- Develop routine leak detection procedures for sewer lines within the WHPA and an annual review of the programs to reduce these leaks.
- Request that sewer utility use "leak proof" piping for new sewer construction within the WHPA, and where practical replace older lines to reduce leakage.
- The City may require that occupied buildings with old or failing septic systems which are located within wellhead protection areas and are within a specific distance from a sanitary sewer line be connected to the sanitary sewer system, in accordance with applicable city sewer ordinance.

8.2 City Planning and Coordination Recommendations

Recommendation 4: Establish formal communications and information regarding wellhead protection with first responders, other local and State agencies, and industry in the area

The City should develop appropriate lines of communication and appropriate information about the WHPA to first responders (local fire and police departments). The City should direct the fire department to include an assessment of the presence of potentially hazardous materials as part of any routine periodic inspections of facilities within the City.

The City should provide copies of the wellhead protection plan to various County and State agencies including, Yakima County Office of Emergency Management, Yakima County Health Department, Yakima County Planning, Washington State Department of Health, and Department of Ecology.

The City should communicate the locations of the WHPA, explain the basic WHPS philosophy and address specific WHP concerns to industrial and commercial site owners in the City and especially within the WHPA boundaries.

Recommendation 5: Maintain and upgrade Sunnyside WHPP

The wellhead protection plan is designed to be a continuing management activity to be adapted to the City's needs. Therefore, the tasks outlined in this plan provide a general direction, but will periodically need to be updated and refined. On an annual or bi-annual basis, the City should review the wellhead protection activities and make recommendations to the City for additional activities or changes to the plan.

As part of the WHPP, the City is required to maintain and upgrade the contaminant inventory at least every two years. The City may find it advantageous to develop a geographic information system (GIS) to manage and update the inventory. As new potential contaminant sources are identified, the City would notify the potential sources as well as the agency having regulatory responsibility. The database would be used to maintain documentation of notifications.

Recommendation 6: Conduct a "Level 2" Risk Assessment

The "Level 2" assessment is intended as a comprehensive approach to more accurately rank susceptibility to contamination, including investigating previous ground water contamination issues. The assessment could include review of additional data including:

- Review additional well logs and perform a more comprehensive hydrogeologic review to better define confining layers and connectivity of aquifer units;
- Reviewing site-specific water quality data from regulated Ecology facility/sites to better define ground water quality conditions in the aquifer units used by the City;
- Reviewing status of on-going clean-ups; the City should contact owners of known contaminated sites noted in the hazard index to ascertain the progress of site cleanup projects. The City should monitor these activities to verify that cleanup is proceeding at an acceptable pace.

The more detailed information provides the City additional basis for siting future wells should their existing wells be contaminated or become decommissioned in the future. It allows the City to further characterize areas where water quality may already be impacted and which may threaten their existing water supplies.

8.3 Public Education and Outreach

Recommendation 7: Develop a public education and outreach program

The City should seek to educate the public regarding the presence of the WHPA on a continuing basis, where the focus is to increase awareness of the environmental sensitivity of the ground water system. The public education and outreach program an include the following:

- Develop a wellhead protection pamphlet or coordinate outreach efforts by incorporating wellhead protection program efforts and updates, and WHPA map into the City's Consumer Confidence Report.
- Post the WHPA map for public view
- Promote and coordinate education programs concerning the proper use of fertilizer, herbicides, and pesticides in lawn and garden maintenance. Promote and coordinate public education programs concerning underground storage tank hazards, leak detection methods, and proper removal and closure procedures.

- The City should inventory decommissioned, abandoned, or unused wells within the WHPA; owners of these wells should be informed about proper decommissioning procedures.
- Join Groundwater Guardian program. This free program assists communities in their efforts to foster groundwater awareness and protection and rewards communities for successful participation.
- Share sources of publication materials and website with local irrigation districts, schools, co-op extension services, etc. Table 8-1 lists useful websites for this purpose.

Table 8-1
Public Education and Outreach Program Websites

Website	Address	Description of Materials	Agency
Wellhead Protection	www.epa.gov/OGWDW/whpnp.html	• Link to federal wellhead programs • Link to Water for Kids	USEPA
Groundwater Primer	www.epa.gov/seahome/groundwater/src/title.htm	• Guide to groundwater facts • Introduction to the hydrologic cycle • Water protection information	USEPA
Water Science for Schools	http://ga.water.usgs.gov/edu/index.html	Interactive teaching tools about water use, the hydrologic cycle, and groundwater	USGS
Groundwater Foundation	www.groundwater.org	• Public education materials for groundwater protection • Groundwater Guardian Program	Groundwater Foundation
Source Water Assessment Program	www.doh.wa.gov/ehp/dw/Our_Main_Pages/swap.htm	• Information about drinking water sources and potential sources of pollution • Information about best management practices and technical assistance for outreach and public education efforts	Washington State Dept. of Health
Water Education for Teachers	http://www.ecy.wa.gov/news/ec/curricul.html	K-12 activity guides on water availability and water quality issues, such as the hydraulic cycle, aquatic ecosystem health, waterborne disease, and pollution.	Washington State Dept. of Ecology
Watch Over Washington (WOW)	http://apps.ecy.wa.gov/wow/	A resource for volunteer surface water monitoring in Washington	Washington State Dept. of Ecology
Water Quality Program	www.ecy.wa.gov/programs/wq/wqhome.html	Links to surface and groundwater protection programs and information.	Washington State Dept. of Ecology
Surface Water Information Page	http://water.usgs.gov/osw/	Surface water information programs.	USGS
EnviroFacts Warehouse	www.epa.gov/enviro/html/qmr.html	A database with access to information regarding waste generators, potential pollution sources, and water utility ICR data.	USEPA

8.4 Implementation Considerations

A summary of the recommendations, along with estimates of level of effort and implementation costs, is shown in Table 8-2.

Table 8-2
City of Sunnyside
Wellhead Protection Implementation Considerations

Recommendation	Primary Elements	Staff Resources Required(1)	Initial Implementation Cost(2)
1. Designation of the WHPA as special protection area	• Work with County • City ordinance creating a sensitive area	Low to Medium	Low to Medium
2. Develop Regulatory Management Tools to Protect WHPAs	• Ordinance requiring use of BMPs • Review appropriate BMPs	Medium to High	Medium to High
3. Develop protection against potential impacts from sewer system in WHPA	• Emergency response procedures for sewer line breaks • Leak detection program for sewers • Require septic systems connect to sanitary sewer system	Medium	Medium
4. Establish formal communications and information regarding wellhead protection with first responders and other local and State agencies	• Communication program with first responders • Fire Dept. include hazardous waste review as part of annual inspections • Distribute WHPP to local/state agencies	Low	Low
5. Maintain and upgrade Sunnyside WHPP	• Update management plan • Update hazard inventory	Medium	Medium
6. Conduct a "Level 2" risk assessment	• Monitoring well network and monitoring program • Collection of regular ground water samples	High	Medium to High
8. Develop a public education and outreach program	• Public education • Share materials • Staff time/training • Street signs	Medium	Medium

(1) Low = Need ¼ to ¾ fulltime equivalent (FTE) to implement; Medium = Need 1-2 FTE to implement. High = Need > 2 FTE and/or contracted services to implement. Staffing estimates are relative and would likely be reduced if multiple actions are implemented simultaneously.

(1) In general Low = Less than $10,000. Medium = Between $10,000 and $100,000. High = Greater than $100,000

Appendix A

Susceptibility Assessment Survey Forms

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.2

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 SunnySIDE

Water system name : City of SunnySIDE

County: YAKIMA

Water system number: 854003 Source number: S10

Well depth: 1701 (ft.) (*From WFI form*)

Source name: Well 4A

WA well identification tag number: ___ ___ ___-___ ___ ___

_____ well not tagged

Number of connections: 2956 Population served: 12,180

Township: 10N Range: 22E

Section: 25 1/4 1/4 Section: SE, NW

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

____ 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/ 23/ 78 month/day/year

last reconstruction: ___ / ___ /___ month/day/year

_____ information unavailable

2) Well driller: Schneider Equipment Inc
21881 River Road N.E
St. Paul, Oregon 97137

___ well driller unknown

3) Type of well:

✓ **Drilled:** ✓ rotary ___ bored ___ cable (percussion) ___ **Dug**

___ **Other:** ___ spring(s) ___ lateral collector (Ranney)

___ driven ___ jetted ___ other: _____

Additional comments: _____

4) Well report available? ✓ 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: 950 (gallons/min)

Source of information: meter

If not documented, how was pumping rate determined? _____

___ Pumping rate unknown

6) Is this source treated? ✓ YES ___ NO

If so, what type of treatment:

✓ disinfection ___ filtration ___ carbon filter ___ air stripper ✓ other

Purpose of treatment (describe materials to be removed or controlled by treatment):

Chlorination in Irrigation Reservoir

7) If source is chlorinated, is a chlorine residual maintained: ✓ YES ___ NO

Residual level: 2.00 *(At the point closest to the source.)*

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___ (less than) 20 ft ___ 20-50 ft ___ 50-10 ft ___ 100-200 ft ✓ (greater than) 200 ft

___ information unavailable

2) Depth to ground water (static water level):

___ (less than) 20 ft ___ 20-50 ft ___ 50-100 ft ✓ (greater than) 100 ft

___ flowing well/spring (artesian)

How was water level determined?

✓ 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): 745 (ft)

How was elevation determined? ___ 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.)

✓ 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 **bottom** of the **lowest confining layer**? ✓ YES ___ NO

___ information unavailable

7) Sanitary setback:

___ (less than) 100 ft* ✓ 100–120 ft ___ 120–200 ft ___ (greater than) 200 ft

* if less than 100 ft describe the site conditions:

_____

_____

_____

_____

8) Wellhead construction:

___ wellhead enclosed in a wellhouse

✓ controlled access (describe): FENCE

_____

___ other uses for wellhouse (describe): _____

_____

___ no wellhead control

9) Surface seal:

___ 18 ft

___ (less than) 18 ft (no Department of Ecology approval)

___ (less than) 18 ft (Approved by Ecology, include documentation)

✓ (greater than) 18 ft

___ depth of seal unknown

___ no surface seal

10) Annual rainfall (inches per year):

✓ (less than) 10 in/yr ___ 10–25 in/yr ___ (greater than) 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 32,120,000 (gallons)

How was this determined?

✓ meter

___ estimated: ___ pumping rate (_____)

___ pump 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: 1,140 (ft)

Information available on length of screened/open interval?

✓ 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				
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 (greater than) 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 wellhead 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:

1= ABANDONED Wells S03, S04 on 12/23/98

2= Population density

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
Results greater than MCL	___
(less than) 2 mg/liter nitrate	✓
2–5 mg/liter nitrate	___
(greater than) 5 mg/liter nitrate	___
Nitrate sampling records unavailable	___

B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l.)	YES
Results greater than MCL or SAL	___
VOCs detected at least once	___
VOC test performed but never detected	✓
VOC sampling records unavailable	___

C. EDB/DBCP:	YES
(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	___

D. Other SOCs (pesticides and other synthetic organic chemicals):	YES
Other SOCs detected	___
Other SOC tests performed but none detected *	___
Other SOC tests not performed	✓

*If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests w performed, but no SOCs detected, list test methods here: _____

_____

_____

_____

E. Bacterial contamination: YES

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____

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 theses 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 ✓ 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?

✓ 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 ✓ 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		✓	
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? X YES ___ NO

Did you find it useful? X YES ___ NO

Did you seek outside assistance to complete the assessment? ___ YES X 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 Sunnyside

Water system name : CITY of Sunnyside

County: YAKIMA

Water system number: 854003 Source number: 505

Well depth: 458 (ft.) (*From WFI form*)

Source name: WELL #5

WA well identification tag number: ___ ___ ___-___ ___ ___

X well not tagged

Number of connections: 2794 Population served: 11420

Township: 10N Range: 22E

Section: 25 1/4 1/4 Section: SW/NW

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

_____ 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: 12/12/53 month/day/year

last reconstruction: ____/____/____ month/day/year

_____ information unavailable

2) Well driller: DUNLAP / CASE

___ 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: 850 (gallons/min)

Source of information: METERED

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): CHLORINATION for DISINFECTION PRECATIONARY

7) If source is chlorinated, is a chlorine residual maintained: YES / NO

Residual level: .3.0 *(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 ___ 100-200 ft 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 ___ >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:

_____ psi (pounds per square inch)

or

13' 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): 740 (ft)

How was elevation determined? ___ topographic map ___ Drilling/Well Log ___ altimeter

X other: ENGENERS REPORT.

___ 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 < 100 ft* ___ 100-120 ft ___ 120-200 ft ___ > 200 ft
* if less than 100 ft describe the site conditions:

WELL SETBACK IS 40 FT. FROM ROAD AND 70' FROM DRAINAGE DITCH

8) Wellhead construction:

X wellhead enclosed in a wellhouse

___ controlled access (describe): _____

_____

___ other uses for wellhouse (describe): _____

_____

___ no wellhead control

9) Surface seal:

___ 18 ft

X < 18 ft (no Department of Ecology approval) ('<' *means less than*)

___ < 18 ft (Approved by Ecology, include documentation) ('<' *means le*

___ > 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: 334,519,000 (gallons)

How was this determined?

X meter

___ estimated: ___ pumping rate (_____)

___ pump 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: 2200 (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: 60' (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	NO				
stormwater injection wells	NO				
other injection wells	NO				
abandoned ground water well	NO				
landfills, dumps, disposal areas	NO				
known hazardous materials clean-up site	NO				
water system(s) with known quality problems	NO				
population density > 1 house/acre		X	X	X	
residences commonly have septic tanks	NO				
Wastewater treatment lagoons	NO				
sites used for land application of waste	NO				

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 wellhead 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.)

	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		
	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).	___	___
___ 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: _____

_____

_____

_____

	YES	NO
E. Bacterial contamination:		
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 theses 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:

DRAINAGE IMPROVEMENT DIST #3 DITCH RUNS NEXT TO WELL
SUNNYSIDE VALLEY IRRIGATION CANALE (SVID) RUNS THROUGH 1,5,410 YEAR C.F.R

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.)

X 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			WELLS 394

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 asistance 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 Sunnyside

Water system name : CITY of Sunnyside

County: YAKIMA

Water system number: 854003 Source number: 506

Well depth: 760 (ft.) (*From WFI form*)

Source name: WELL #6

WA well identification tag number:__ __ __-__ __ __

X well not tagged

Number of connections: 2794 Population served: 11420

Township: 10 N Range: 22 E

Section: 30 1/4 1/4 Section: NW/SW

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

____ 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: 6 / _ / 63 month/day/year

last reconstruction: ___ / ___ / ___ month/day/year

____ information unavailable

2) Well driller: DILLEY DRILLING CO.

___ 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: 850 (gallons/min)

Source of information: METERED

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): CHLORINATION FOR DISINFECTION PRECAUTIONARY.

7) If source is chlorinated, is a chlorine residual maintained: (YES) / NO

Residual level: .30 (*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 ___ 100-200 ft 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 ___ >100 ft

X flowing well/spring (artesian)

How was water level determined?

___well log X other: MESURE

___ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

32 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): 242(ft)

How was elevation determined? ___ topographic map ___ Drilling/Well Log ___ altimeter

X other: ENGINEER'S REPORT.

___ 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 < 100 ft* ___ 100-120 ft ___ 120-200 ft ___ > 200 ft

* If less than 100 ft describe the site conditions:

WELL IS ON SCHOOL GROUNDS
55' SET BACK FROM 16TH ST.

8) Wellhead construction:

X wellhead enclosed in a wellhouse

___ controlled access (describe): _____

_____

___ other uses for wellhouse (describe): _____

_____

___ no wellhead control

9) Surface seal:

___ 18 ft

X < 18 ft (no Department of Ecology approval) ('<' *means less than*)

___ < 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: 16,483,400 (gallons)

How was this determined?

X meter

___ estimated: ___ pumping rate (_____)

___ pump 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: 1140 (ft)

10 year ground water travel time: 1610 (ft)

Information available on length of screened/open interval?

X YES ___ NO

Length of screened/open interval: 75' + (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	NO				
stormwater injection wells	NO				
other injection wells	NO				
abandoned ground water well	NO				
landfills, dumps, disposal areas	NO				
known hazardous materials clean-up site	NO				
water system(s) with known quality problems	NO				
population density > 1 house/acre		X	X	X	
residences commonly have septic tanks	NO				
Wastewater treatment lagoons	NO				
sites used for land application of waste	NO				

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 wellhead 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 cond
(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		
	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).	___	___
___ 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 t
performed, but no SOCs detected, list test methods here: _____

_____

_____

_____

	YES	NO
E. Bacterial contamination:		
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 theses 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:

DRAINAGE IMPROVEMENT DIST DITCH RUNS NORTH TO SOUTH ON 16TH NOTE: DITCH ON SCHOOL PROPERTY IS NOW PIPED.

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.)

X 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 asistance 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 Sunnyside

Water system name : CITY of Sunnyside

County: YAKIMA

Water system number: 854003 Source number: 506

Well depth: 760 (ft.) (*From WFI form*)

Source name: WELL #6

WA well identification tag number:__ __ __-__ __ __

X well not tagged

Number of connections: 2794 Population served: 11420

Township: 10N Range: 22E

Section: 30 1/4 1/4 Section: NW/SW

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

____ 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: 6 / __ 163 month/day/year

last reconstruction: ___ / ___ / ___ month/day/year

____ information unavailable

2) Well driller: DILLEY DRILLING CO.

___ 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: 850 (gallons/min)

Source of information: METERED

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): CHLORINATION for DISINFECTION PRECAUTIONARY.

7) If source is chlorinated, is a chlorine residual maintained: YES / NO

Residual level: .30 (*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 ___ 100-200 ft 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 ___ >100 ft

X flowing well/spring (artesian)

How was water level determined?

___well log X other: MEASURE

___ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

32 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): 242 (ft)

How was elevation determined? ___ topographic map ___ Drilling/Well Log ___ altimeter

X other: ENGINEER'S REPORT.

___ 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 < 100 ft* ___ 100-120 ft ___ 120-200 ft ___ > 200 ft

* If less than 100 ft describe the site conditions:

WELL IS ON SCHOOL GROUNDS
55' SET BACK FROM 16TH ST.

8) Wellhead construction:

X wellhead enclosed in a wellhouse

___ controlled access (describe): _____

_____

___ other uses for wellhouse (describe): _____

_____

___ no wellhead control

9) Surface seal:

___ 18 ft

X < 18 ft (no Department of Ecology approval) ('<' *means less than*)

___ < 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: 16,483,400 gallons)

How was this determined?

X meter

___ estimated: ___ pumping rate (_____)

___ pump 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: 1140 (ft)

10 year ground water travel time: 1610 (ft)

Information available on length of screened/open interval?

X YES ___ NO

Length of screened/open interval: 75' + (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	NO				
stormwater injection wells	NO				
other injection wells	NO				
abandoned ground water well	NO				
landfills, dumps, disposal areas	NO				
known hazardous materials clean-up site	NO				
water system(s) with known quality problems	NO				
population density > 1 house/acre		X	X	X	
residences commonly have septic tanks	NO				
Wastewater treatment lagoons	NO				
sites used for land application of waste	NO				

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 wellhead 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 cond
(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		
	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).	___	___
___ 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 t
performed, but no SOCs detected, list test methods here: _____

_____

_____

_____

	YES	NO
E. Bacterial contamination:		
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 theses 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:

DRAINAGE IMPROVEMEND DIST DITCH Runs NORTH TO SOUTH on 16TH NOTE: DITCH ON SCHOOL PROPERTY IS NOW PIPED.

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.)

X 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 asistance 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 Sunnyside

Water system name : CITY of Sunnyside

County: YAKIMA

Water system number: 854003 Source number: 507

Well depth: 1057 (ft.) (*From WFI form*)

Source name: WELL # 7

WA well identification tag number:__ __ __-__ __ __

X well not tagged

Number of connections: 2794 Population served: 11420

Township: 10 N Range: 22 E

Section: 36 1/4 1/4 Section: SW/NW

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

____ 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: 3 / 18 / 74 month/day/year

last reconstruction: ___ / ___ / ___ month/day/year

____ information unavailable

2) Well driller: CHAS. JUNGMANN DRILLING CO.
115 REES - PO BOX 624 WALLA WALLA WA

___ well driller unknown

3) Type of well:

X Drilled: ___ 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: 1150 (gallons/min)

Source of information: METERED

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):
CHLORINATION for DISINFECTION PRECATIONARY

7) If source is chlorinated, is a chlorine residual maintained: (YES) / NO

Residual level: 1.50 (*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 ___ 100–200 ft 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 ___ >100 ft

X flowing well/spring (artesian)

How was water level determined?

___well log X other: GAGE

__ depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

32 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): 727 (ft)

How was elevation determined? ___ topographic map ___ Drilling/Well Log ___ altimeter

X other: ENGINEERS REPORT

__ 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:

___ < 100 ft* X 100–120 ft ___ 120–200 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): LOT IS FENCED

_____

___ 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: 362,067,600 (gallons)

How was this determined?

X meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

____ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

6 month ground water travel time : 570 (ft)

1 year ground water travel time : 800 (ft)

5 year ground water travel time: 1800 (ft)

10 year ground water travel time: 2540 (ft)

Information available on length of screened/open interval?

X YES ___ NO

Length of screened/open interval: 80 (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within th travel boundary? YES / NO (mark and identify on map).

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pon 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	no				
stormwater injection wells	no				
other injection wells	no				
abandoned ground water well	no				
landfills, dumps, disposal areas	no				
known hazardous materials clean-up site	no				
water system(s) with known quality problems	no				
population density > 1 house/acre			X	X	
residences commonly have septic tanks	no				
Wastewater treatment lagoons				X	
sites used for land application of waste	no				

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 wellhead 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.)

	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		
	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).	___	___
___ 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: _____

_____

_____

_____

	YES	NO
E. Bacterial contamination:		
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, t 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 theses 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:

DRAINAGE IMPROVMENT DISTRICT DITCH RUNS from NORTH TO SOUTH THROW ALL CFRS

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.)

X 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 asistance 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 SunnySide

Water system name : City of SunnySide

County: Yakima

Water system number: 854003 Source number: SO. 8

Well depth: 440 (ft.) (*From WFI form*)

Source name: Well #8

WA well identification tag number:__ __ __-__ __ __

X well not tagged

Number of connections: 2824 Population served: 11,600

Township: 10N Range: 22E

Section: 26 1/4 1/4 Section: NE-NE

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

_____ global positioning device _____ survey _____ topographic map
____other: _____

* Please refer to Assistance Packet for details and explanations of all questions in Parts

PART II: Well Construction and Source Information

1) Date well originally constructed: 6 / 9 / 94 month/day/year

last reconstruction: ___ / ___ / ___ month/day/year

_____ information unavailable

2) Well driller: STACO WELL SERVICES INC.
220 ACADEMY St.
Mt. ANGEL, OREGON 97360

___ 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: 800 (gallons/min)

Source of information: meterD

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):

Chlorinate as a preventative

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 ___ 100-200 ft 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 X other: TAPE

__ 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): 749.55 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:

X < 100 ft* ___ 100–120 ft ___ 120–200 ft ___ > 200 ft
* if less than 100 ft describe the site conditions:

Well is Located in a fenced Area

8) Wellhead construction:

X wellhead enclosed in a wellhouse

X controlled access (describe): Property fenced

___ 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: 300,000,000 gallons) — Est.

How was this determined?

___ meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

X other: New well site, Less than 1 month of metering

2) "Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

6 month ground water travel time : 570 (ft)

1 year ground water travel time : 800 (ft)

5 year ground water travel time: 1800 (ft)

10 year ground water travel time: 2540 (ft)

Information available on length of screened/open interval?

X YES _ NO

Length of screened/open interval: 98 (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				X
other injection wells				X
abandoned ground water well				X
landfills, dumps, disposal areas				X
known hazardous materials clean-up site				X
water system(s) with known quality problems				X
population density > 1 house/acre		X	X	
residences commonly have septic tanks				
Wastewater treatment lagoons				X
sites used for land application of waste				X

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 wellhead 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.)

	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		
	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
√ 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: SEE Attached Report - 8-3-94

	YES	NO
E. Bacterial contamination:		
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 theses 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:

Drainage Improvement Ditch Runs 1, 5 to 10 yr CFR. Sunnyside Valley Irrig. Canal Run through 10 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?

___ 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.)

X 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				
6 month–1 year travel time				
1–5 year travel time	X			well #5
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.

Suggestions and Comments

Did you attend one of the susceptibility workshops? YES / NO

Did you find it useful? YES / NO

Did you seek outside asistance 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.

_____

_____

_____

_____

_____

_____

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

PAGE 2 of 2

Start Card No. 34671
UNIQUE WELL I.D. # 8
Water Right Permit No.

(1) OWNER: Name City of Sunnyside Address 818 E. Edison, Sunnyside, WA 98944

(2) LOCATION OF WELL: County Yakima NE 1/4 NE 1/4 Sec 26 T.10 N., R.22E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 340 Homer Street

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)
Abandoned ☐ New well ☐ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☐ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well _____ inches.
Drilled _____ feet. Depth of completed well _____ ft.

(6) CONSTRUCTION DETAILS:
Casing installed: _____" Diam. from _____ ft. to _____ ft.
Welded ☐ _____" Diam. from _____ ft. to _____ ft.
Liner installed ☐
Threaded ☐ _____" 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 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.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date
Temperature of water _____ 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
Tuft Bluegreen	262	280
Tuft Greygreen	280	298
Tuft Tan	298	307
Tuft Grey	307	319
Grey Sand Med. Grained	319	327
Sand Dark Brown	327	355
Gravel And Sand	355	360
Sand And Gravel	360	364
Sand Grey Med.	364	366
Sand Very Fine To Course	366	368
Gravel With Small Amounts of Sand	368	374
Gravel With Fine Sand	374	380
Gravel With Very Fine Sand And Mica	380	388
Gravel With Grey Tuft Fine To Med Sand	388	390
Brown Tuft With Gravel	390	392
Multi Colored Tuft	392	428
Basalt Black And Weathered	428	440

Work Started 3-11, 1994 Completed 6-7, 1994

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 STACO WELL SERVICES INC. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address 220 Academy St. MT. Angel, OR 973
(Signed) [signature] (WELL DRILLER) License No. 1789
Contractor's Registration No. STACOWS13-104 Date 7-8, 1994

(USE ADDITIONAL SHEETS IF NECESSARY)

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. 34671

Water Right Permit No. _____

(1) OWNER: Name City of Sunnyside Address 818 E. Edison, Sunnyside, WA 98944

(2) LOCATION OF WELL: County Yakima NE ¼ NE ¼ Sec. 26 T. 10 N., R. 22E W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 340 Homer Street

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal ☒ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) #8

Abandoned ☐ New well ☒ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☒ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 20 inches.
Drilled 440 feet. Depth of completed well 385 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 20 " Diam. from +2 ft. to 325 ft.
Welded ☒ Liner installed ☐ Threaded ☐ 16 " Diam. from +2 ft. to 300 ft.
" Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used N/A
SIZE of perforations N/A in. by N/A in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Houston
Type 304 Stainless Steel Model No. 304
Diam. 10 Slot size .30 from 305 ft. to 308 ft.
Diam. 10 Slot size .30 from 325 ft. to 375 ft.

Gravel packed: Yes ☒ No ☐ Size of gravel 10-20 Colorado Sand
Gravel placed from 295 ft. to 385 ft.

Surface seal: Yes ☒ No ☐ To what depth? 325 ft.
Material used in seal Cement
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 44 ft. below top of well Date 6-18-94
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? Irrigators Inc
Yield: 800 gal./min. with 183 ft. drawdown after 48 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
10:00	227.2	12:00	77.40	10:00pm	62.35
10:00	98.7	2:00	73.8	10:00am	56.8
11:00	83.4	4:00	68.6		

Date of test 6-20-94
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

(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
Fill Dirt and Concrete .	0	5
Sandy Loam	5	30
Dark Brown Sand Med.	30	50
Sand Grey and Black Fine	50	62
Slitstone Grey with Brown	62	68
Fragments Gravel	68	77
Grey Slitstone With Black Gravel	77	88
Clay Tan and Green With Black	88	
Shale Frags.		98
Clay Light Grey	98	102
Clay Dark Grey Black Gravel Frags.	102	120
Gravel	120	123
Grey Clay With Gravel	123	135
Sand Brown Med. With Mica	135	148
Sand And Gravel With Mica	148	151
Sand Brown Med. to Fine	151	167
Gravel With Sand	167	175
Gravel Larger	175	182
Sand With Gravel	182	190
Sand Brown With Small Gravel	190	195
Sand Med. To Fine with Mica	195	200
Sand And Gravel	200	211
Sand Fine To Med. Grained	211	215
Sand And Gravel	215	222
Gravel Med.	222	224
Sand Fine To Course	224	230
Gravel	230	233
Sand Med Fine	233	237
Gravel Well Rounded	237	239
Gravel	239	241
Sand With Some Gravel	241	250
Gravel	250	255
Silt Sand And Gravel	255	262
Cont. on Next Page		

Work started 3-11-94, 19. Completed 6-7-94, 19.

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 STACO WELL SERVICES, INC. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 220 Academy St. Mt. Angel, OR 9736

(Signed) [signature] (WELL DRILLER) License No. 1789

Contractor's Registration No. STACOWS13-10H Date 7-8, 19 94

Ground Water Contamination
Susceptibility Assessment Survey Form
Version 2.2

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 Sunnyside

Water system name : City of Sunnyside

County: Yakima

Water system number: 854003 Source number: S09

Well depth: 919 (ft.) (*From WFI form*)

Source name: Well # 9

WA well identification tag number:___ ___ ___-___ ___ ___

_____ well not tagged

Number of connections: 2956 Population served: 12,180

Township: 10 N Range: 23 E

Section: 29 1/4 1/4 Section: SW/NE

Latitude/longitude (if available): _____/_____

How was lat./long. determined?

____ 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: 11/21/97 month/day/year

last reconstruction: ___ / ___ /___ month/day/year

_____ information unavailable

2) Well driller: SCHNEIDER DRILLING CO
21881 RIVER RD NE 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: 1500 (gallons/min)

Source of information: METERED

If not documented, how was pumping rate determined? _____

___ Pumping rate unknown

6) Is this source treated? X YES ___ NO

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):

CHLORINE INJECTED IN MAIN AS WATER IS PUMPED

7) If source is chlorinated, is a chlorine residual maintained: X YES ___ NO

Residual level: 2.0 *(At the point closest to the source.)*

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

___ (less than) 20 ft ___ 20-50 ft ___ 50-10 ft ___ 100-200 ft X (greater than) 200 ft

___ information unavailable

2) Depth to ground water (static water level):

___ (less than) 20 ft ___ 20-50 ft ___ 50-100 ft ___ (greater than) 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:

27 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 X NO

5) Wellhead elevation (height above mean sea level): 756 (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 **bottom** of the **lowest confining layer**? X YES ___ NO

___ information unavailable

7) Sanitary setback:

___ (less than) 100 ft* X 100-120 ft ___ 120-200 ft ___ (greater than) 200 ft
* if less than 100 ft describe the site conditions:

_____

_____

_____

_____

8) Wellhead construction:

X wellhead enclosed in a wellhouse

X controlled access (describe): FENCE

_____

___ other uses for wellhouse (describe): _____

_____

___ no wellhead control

9) Surface seal:

___ 18 ft

___ (less than) 18 ft (no Department of Ecology approval)

___ (less than) 18 ft (Approved by Ecology, include documentation)

X (greater than) 18 ft

___ depth of seal unknown

___ no surface seal

10) Annual rainfall (inches per year):

X (less than) 10 in/yr ___ 10-25 in/yr ___ (greater than) 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 533,701,000 (gallons)

How was this determined?

X meter

___ estimated: ___ pumping rate (_____)

___ pump capacity (_____)

___ other: _____

2) "Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

6 month ground water travel time : 800 (ft)

1 year ground water travel time : 1140 (ft)

5 year ground water travel time: 2540 (ft)

10 year ground water travel time: 3590 (ft)

Information available on length of screened/open interval?

X YES ___ NO

Length of screened/open interval: 361 (ft)

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6 month time of travel boundary? ___ YES X 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 X 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 (greater than) 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 wellhead 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:

1 CORN FIELD 2 AGRACULTUR SPRAY SERVICE

3 HOMES WITH SEPTIC TANKS

4 IRRIGATION DRAIN

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
Results greater than MCL	___
(less than) 2 mg/liter nitrate	✓
2–5 mg/liter nitrate	___
(greater than) 5 mg/liter nitrate	___
Nitrate sampling records unavailable	___

B. VOCs: (VOC detection level 0.5 ug/l or 0.0005 mg/l.)	YES
Results greater than MCL or SAL	___
VOCs detected at least once	___
VOC test performed but never detected	✓
VOC sampling records unavailable	___

C. EDB/DBCP:	YES
(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	___

D. Other SOCs (pesticides and other synthetic organic chemicals):	YES
Other SOCs detected	___
Other SOC tests performed but none detected *	___
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

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records). ____

Has source (in past 3 years) had a bacteriological contamination problem found in distribution samples that was attributed to the source. ____

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 theses 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:

4 IRRIGATION DRAIN

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.)

X 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	___	___	IRRIGATED CROPS
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.

AREA 1 IS IRRIGATED CORN & HAY FIELDS

Suggestions and Comments

Did you attend one of the susceptibility workshops? X YES ___ NO

Did you find it useful? X YES ___ NO

Did you seek outside assistance to complete the assessment? ___ YES X 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.

Appendix B

Well Logs and Well Construction Logs

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. W07383
UNIQUE WELL I.D. # AAS285
Water Right Permit No.

(1) OWNER: Name City of Sunnyside Address 818 E. Edison, Sunnyside, WA 98944

LOCATION OF WELL: County Yakima - SE 1/4 NW 1/4 Sec 25 T. 10 N., R. 22E W.

(2a) STREET ADDRESS OF WELL (or nearest address) 200-220 S. 7th St. Sunnyside, WA 98944

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal XX Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 4A
Abandoned ☐ New well XX Deepened ☐ Reconditioned ☐
Method: Dug ☐ Cable ☐ Rotary XX Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 16 X 12 cased/lined inches.
Drilled 1701 feet. Depth of completed well 1701 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 16* " Diam. from +2 ft. to 1202 ft.
Welded XX 24* " Diam. from 0 ft. to 50 ft.
Liner installed ☐ Threaded ☐ 12 " Diam. from see (10) ft. to ft.

Perforations: Yes XX No ☐
Type of perforator used factory mill cut
SIZE of perforations 3/16 in. by 3 in.
48/ft perforations from see (10) ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes XX No ☐
Manufacturer's Name Houston
Type V shape wire wrap Model No. 304SS
Diam. 12 Slot size .200 from see (10) ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No XX Size of gravel
Gravel placed from ft. to ft.

Surface seal: Yes XX No ☐ To what depth? 50' o/s 24" csgt.
Material used in seal cement grout 0-1202' o/s 16" csg
Did any strata contain unusable water? Yes ☐ No XX
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 745± ft.
Static level 136 bgs ft. below top of well Date 12/21/98
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 XX No ☐ If yes, by whom? Schneider
Yield: gal./min. with ft. drawdown after hrs.
" See attached graph " "
" " " "

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 graph					

Date of test 12/8/98
Bailer test gal./min. with ft. drawdown after hrs.
Airlift gal./min. with stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water 78°F Was a chemical analysis made? Yes XX 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		
*Top of 24" has plate welded between itself and 16" casing		
24" is cement grout sealed	0	50
16" is cement grout sealed	0	1202
12" liner assembly:		
J receptor & K packer	1182	1187
blank	1187	1283
perforated	1283	1325
blank	1325	1359
screen	1359	1402
blank	1402	1423
screen	1423	1435
perforated	1435	1448
blank	1448	1490
perforated	1490	1541
blank	1541	1552
perforated	1552	1615
blank	1615	1655
screen	1655	1676
blank	1676	1701

Work Started 7/22/98, 19. Completed 12/23, 19 98

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 Rd. NE, St. Paul, OR 97137
(Signed) [signature] (WELL DRILLER) License No. 643
Contractor's Registration No. SCHNEI*226LG Date 1/15, 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

by owner

City of Sunnyside Well No. 4A Log

By Schneider Drilling Co.

Unique Well I.D. # AAS 285

Depth From	To	Description
0	12	Sandy loam, brn, sft.
12	22	Clay brn, w/ course sand
22	27	Clay brn, w/some gravel sm
27	46	Clay brn
46	62	Gravels to sand
62	72	Gravel, pea w/sand brn
72	109	Gravels, cemented w/sand brn
109	140	Clay, silty, tan, sft
140	142	Clay, Hy, tan w/gravel
142	162	Clay, silty, brn w/some sandstone brn
162	169	Sitty, clay, brn w/claystone, tan sft
169	182	Clay, silty w/claystone, tan
182	212	Clay, silty, brn
212	232	Clay, sandy, tan
232	237	Clay, tan w/claystone, gray
237	242	Gravels, cemented
242	281	Gravels, cemented, mult-colored w/white shale stone
281	296	Clay, tan, med, sitty
296	326	Clay, tan, sandy, w/green tint
326	377	Clay, sandy, brn
377	387	Gravels, cemented
387	408	Gravel, w/sand
408	427	Gravel, multi-colored w/sand
427	432	Clay, tan, med, sand, med.
432	446	Clay, green, med, sturdy
446	456	Basalt, dark gray, some vescular
456	502	Basalt, gray, hrd
502	512	Basalt, gray w/green, Claystone & red sinder
512	519	Basalt, gray, hrd w/some blue claystone
519	521	Basalt, black, fractured, med/hd
521	529	Basalt, gray w/blue quartz interbeded, frac
529	538	Basalt, gray w/blue quartz, frac, hd
538	549	Basalt, gray, frac, hd
549	566	Clay, brown and yellow
566	569	Clay, brn & tan, sticky, med

569	603	Clay, gray, sticky, med
603	612	Clay, gray & yellow, sticky, med sft
612	630	Claystone, brn & tan, w/brn claystone, sft
630	637	Sand, with brn & tan claystone, sft
637	641	Clay, tan, sticky, med-sft
641	648	Clay, blue, claystone, med-sft
648	655	Clay, gray - tan, sticky, w/claystone, brn
655	660	Clay, gray-yellow & brn, silt stone, med
660	685	Sand, brn sandstone, sft
685	710	Clay, sandy, sft
710	713	Basalt, multi-colored, ves, w/claystone, tan sft/med
713	718	Basalt, gray, slightly ves, w/claystone blue, frac, med
718	721	Basalt, brn/gray, ves, frac
721	733	Basalt, w/clay, dark brn, ves, frac
733	752	Basalt, gray/brn, ves, frac, w/some claystone grn, hd
752	761	Basalt, gray, frac, med/hd
761	762	Basalt, gray, frac, med/hd
762	772	Basalt, blk & gray, frac, med/hd
772	777	Basalt, gray, frac, hrd/med
777	779	Basalt, gray & blk, frac, hd
779	822	Basalt, gray, frac, hd/med
822	838	Basalt, gray, less frac, hd, w/blue quartz interbed
838	842	Basalt, gray, some frac, little blue/grn claystone interbeded
842	855	Basalt, gray, some frac, little blue/grn claystone interbeded
855	868	Basalt, gray w/quartzise blue, frac, hrd
868	871	Basalt, gray w/some quartioxte, blue, frac, hd
871	901	Basalt, gray,ves
901	906	Basalt, gray, ves, w/quartz, little mud
906	912	Basalt, gray w/brn, some frac, hd
912	927	Basalt, gray w/brn streak, frac, med/hd
927	949	Basalt, gray, frac, med/hd
949	953	Basalt, gray w/inbeded blue quartz, frac, hrd/med
953	959	Basalt, gray, frac, med/hd
959	1024	Basalt, gray, hd, some frac
1024	1026	Basalt, gray & blk w/grn quartz inbeded, med/hd
1026	1032	Basalt, gray & some brn w/grn quartz, frac, med/hd
1032	1037	Basalt, gray, frac, hrd/med
1037	1055	Basalt, gray, frac, hd
1055	1111	Basalt, gray, hd
1111	1112	No returns
1112	1125	Basalt, blk w/blue claystone, ves
1125	1167	Claystone, grn

1167	1180	Basalt, blk, frac.
1180	1182	Basalt, gray, frac, med/hd
1182	1201	Basalt, gray w/brn tint, med/hd
1201	1233	Basalt, gray, med/hd
1233	1239	Basalt, gray w/inbeded blue quartz, frac, hrd/med
1239	1243	Basalt, gray, med/hd
1243	1253	Basalt, gray w/quartz inbeded, frac, med/hd
1253	1285	Basalt, gray, frac, med/hrd
1285	1290	Basalt, w/clay & grn claystone, ves, sft
1290	1294	Basalt, blk w/wood & grn claystone, ves, sft
1294	1295	Clay, grn, silty w/wood, sft
1295	1297	Basalt, blk, ves, med
1297	1301	Basalt, gray/grn, slightly ves, med
1301	1305	Basalt, gray/brn, frac, med
1305	1308	Basalt, gray/brn, frac, w/some ves, med
1308	1313	Basalt, gray, frac, ves, med
1313	1361	Basalt, gray, frac, med/hrd
1361	1367	Basalt, gray w/brn, frac, ves, med
1367	1371	Basalt, w/grn quartzite, frac, ves
1371	1376	Basalt, w/grn quartz inbeded, frac, med/hrd
1376	1380	Basalt, brn w/blue quartz, frac, ves, med
1380	1384	Basalt, gray w/veg. brn quartz, frac, ves, med
1384	1388	Basalt, gray, frac, some poris, med/hrd
1388	1394	Basalt, w/quartz veg. Brn, frac, ves, soft/hrd
1394	1401	Basalt, gray, frac, ves, med
1401	1418	Basalt, gray, frac, med/hrd
1418	1424	Basalt, gray, slightly frac, med/hrd
1424	1433	Basalt w/quartz blue, broken ves, med
1433	1435	Basalt, brn/gray w/pet. wood, ves, sft/med
1435	1437	Basalt, brn w/brn clay, ves, sft/med
1437	1442	Basalt, brn, frac, med
1442	1448	Basalt, brn/gray, frac, med
1448	1453	Basalt, gray/redish, frac, med/hrd
1453	1493	Basalt, gray, hrd
1493	1494	Basalt, brn w/gray clay, sft
1494	1495	Basalt, gray w/grn claystone, ves, sft
1495	1497	Basalt, brn w/cinders red, ves, sft
1497	1503	Basalt, brn, frac, ves, sft/med
1503	1504	Basalt, brn/gray, ves, frac, med
1504	1518	Basalt, gray, frac, ves, med
1518	1538	Basalt, gray, frac, med/hrd
1538	1559	Basalt, gray, frac, hrd

Scl

1559	1562	Basalt, gray w/ves brn claystone, ves, med
1562	1564	Basalt, gray, frac, med/hrd
1564	1568	Basalt, gray, frac w/weatherd basalt, brn, ves, med
1568	1578	Basalt, gray w/gray clay, frac, sft
1578	1583	Basalt, gray, ves, frac, w/silt stone, gray, ves, sft
1583	1584	Basalt, multi-color, frac, ves, w/clay, gray, sft
1584	1586	Basalt, multi-color, frac, ves, sft/med
1586	1593	Basalt, gray, frac, ves, med
1593	1599	Basalt, gray, frac, med/hrd
1599	1609	Basalt, gray, hrd
1609	1611	Basalt, gray, gray, med/hrd
1611	1655	Basalt, gray, v. hrd
1655	1656	Basalt, gray, frac, hrd
1656	1663	Basalt, gray, frac, w/weathered basalt, brn, ves, med
1663	1669	Basalt, gray, frac, ves, med
1669	1673	Basalt, gray, frac, slightly ves, med
1673	1675	Basalt, gray, frac, med/hrd
1675	1687	Basalt, gray, frac, w/brn speckles, med/hrd
1687	1692	Basalt, gray, frac, med/hrd
1692	1701	Basalt, gray, hard

#

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG No. Appli. #3300
Permit #3099

Date January 30, 19 54

Record by Don E. Gray

Source Driller's record

Location: State of WASHINGTON

County Yakima

Area

Map

SW¼SW¼ NW¼ sec. 25 T 10 N., R 22 E

Diagram of Section

Drilling Co. Gray & Osborne, Consulting Engrs.

Address Yakima, Washington

Method of Drilling Date Dec. 23, 19 53

Owner City of Sunnyside, Wash.

Address

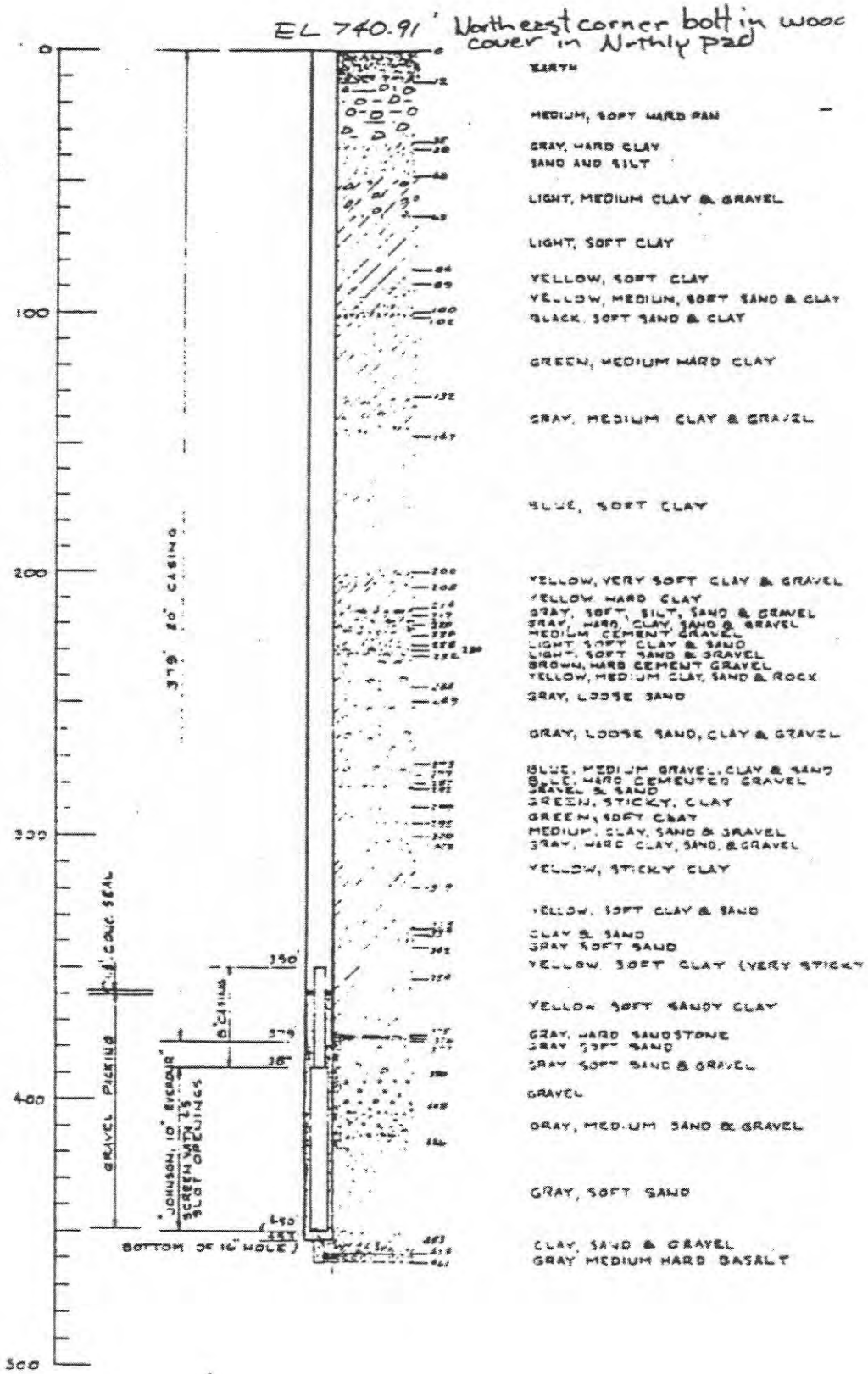
Land surface, datum ft above/below

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: 461' x 20x16"		
	SWL: flowing		
	D.D. 160'		
	Yield 1400 g.p.m.		
	Casing: 20" dia. std. weight from 0 to 379 ft.		
	Perforations: Johnson 10" Everdur 45 slot from 388 to 450 ft.		
	Motor or engine: 150 h.p. turbine		

Turn up

Sheet of

10N/22E/25E



WELL No. 5 LOG

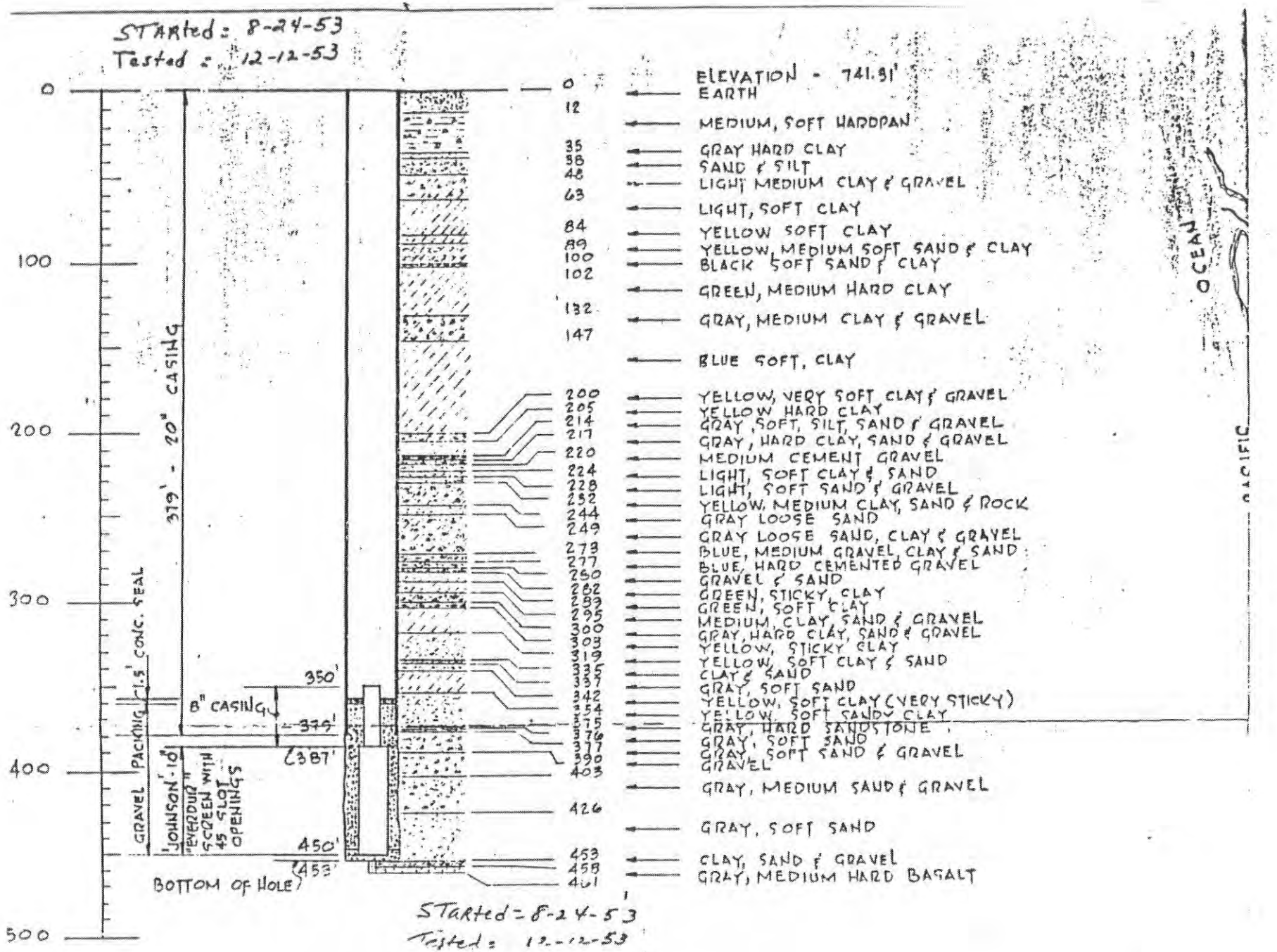
Scale 1:40 vert.

DRILLER - A.S. DURAND

10-22-25 E
A 3300 P 3099

LOG OF WELL #5
CITY OF SUNNYSIDE

Material	Thickness (feet)	Depth (feet)
Earth	12	12
Medium soft hardpan	23	35
Gray Hard clay	3	38
Sand and silt	10	48
Light, medium clay and gravel	15	63
Light, soft clay	21	84
Yellow soft clay	5	89
Yellow medium soft sand and clay	11	100
Black, soft sand and clay	2	102
Green, medium hard clay	30	132
Gray, medium clay and gravel	15	147
Blue, soft clay	53	200
Yellow, very soft clay and gravel	5	205
Yellow hard clay	9	214
Gray, soft, silt, sand and gravel	3	217
Gray, hard, clay, sand and gravel	3	220
Medium cement gravel	4	224
Light, soft clay and sand	4	228
Light, soft sand and gravel	2	230
Brown hard cement gravel	2	232
Yellow, medium clay, sand and rock	12	244
Gray loose sand	5	249
Gray, loose sand clay and gravel	24	273
Blue, med. gravel, clay and sand	4	277
Blue, hard cemented gravel	3	280
Gravel and sand	2	282
Green, sticky, clay	7	289
Green soft clay	6	295
Medium, clay, sand and gravel	5	300
Gray, hard clay, sand and gravel	3	303
Yellow, sticky clay	16	319
Yellow, soft clay and sand	16	335
Clay and sand	2	337
Gray soft sand	5	342
Yellow, soft clay, very sticky	12	354
Yellow, soft sandy clay	21	375
Gray hard sandstone	1	376
Gray soft sand	1	377
Gray, soft sand and gravel	13	390
Gravel	13	403
Gray, medium sand and gravel	23	426
Gray soft sand	27	453
Clay, sand and gravel	5	458
Gray medium hard basalt	3	461


STARTED = 8-24-53
Tested = 12-12-53
ELEVATION - 741.91'
0 EARTH
12 MEDIUM, SOFT HARDPAN
35 GRAY HARD CLAY
38 SAND & SILT
48 LIGHT MEDIUM CLAY & GRAVEL
63 LIGHT, SOFT CLAY
84 YELLOW SOFT CLAY
89 YELLOW, MEDIUM SOFT SAND & CLAY
100 BLACK SOFT SAND & CLAY
102 GREEN, MEDIUM HARD CLAY
132 GRAY, MEDIUM CLAY & GRAVEL
147 BLUE SOFT, CLAY
200 YELLOW, VERY SOFT CLAY & GRAVEL
205 YELLOW HARD CLAY
214 GRAY, SOFT, SILT, SAND & GRAVEL
217 GRAY, HARD CLAY, SAND & GRAVEL
220 MEDIUM CEMENT GRAVEL
224 LIGHT, SOFT CLAY & SAND
228 LIGHT, SOFT SAND & GRAVEL
232 YELLOW, MEDIUM CLAY, SAND & ROCK
244 GRAY LOOSE SAND
249 GRAY LOOSE SAND, CLAY & GRAVEL
273 BLUE, MEDIUM GRAVEL, CLAY & SAND
277 BLUE, HARD CEMENTED GRAVEL
280 GRAVEL & SAND
282 GREEN, STICKY, CLAY
289 GREEN, SOFT CLAY
295 MEDIUM, CLAY, SAND & GRAVEL
300 GRAY, HARD CLAY, SAND & GRAVEL
303 YELLOW, STICKY CLAY
319 YELLOW, SOFT CLAY & SAND
335 CLAY & SAND
337 GRAY, SOFT SAND
342 YELLOW, SOFT CLAY (VERY STICKY)
354 YELLOW, SOFT SANDY CLAY
375 GRAY, HARD SANDSTONE
376 GRAY, SOFT SAND
377 GRAY, SOFT SAND & GRAVEL
390 GRAVEL
403 GRAY, MEDIUM SAND & GRAVEL
426 GRAY, SOFT SAND
453 CLAY, SAND & GRAVEL
458 GRAY, MEDIUM HARD BASALT
461
0
100
200
300
400
500
379' - 20" CASING
1.5' CONC. SEAL
PACKING
GRAVEL
350'
8" CASING
379'
387'
JOHNSON 10" "EVERDUR" SCREEN WITH 45 SLOT OPENINGS
450'
453'
BOTTOM OF HOLE
OCEAN
PACIFIC
STARTED = 8-24-53
Tested = 12-12-53

NO. 5 WELL LOG

original

Top of 20" Casing

0+00

ground level

Well #5
at Zillah + 1st St

Finished ready for
Pump Test 12-12-1953

Well flowing @ 200 G.P.M.
Highest static level was
13 ft above ground level.

Drilling started 8-24-53
Well finished ready for
Test pump 12-12-53

1475 G.P.M.

Johnson Pump
150 H.P. Motor

19 Sections 10" column 10' = 190
2 " 10" " 5' = 10
9 - 10" Bowls 7
10' - 10" Suction 10'
Pump base to bottom Suction 217
Air line 208'-6"

(Contract for this pump
let 2-15-54, $7324.-)

20" casing

Pump installation
completed + started
6-4-1954

3+50

3+56

3+59

cement seal

8" Casing

3+80 end of 20" Casing

3+88

Johnson Screen (Everdur)
Overall length 62'
Overall effective
Screen length: 60'
opening slots .045 inch
6½ slots per lin. inch

Johnson Well Screen

16" uncased hole

Gravel pack

Pump down 5-3-61 to 5-29-61
over hauled + changed from oil
to water lubrication by Decoto Bros

Pump Down 7-5-63
Turning plate machined in motor top
New motor head shaft
New " top bearing.
New gear head guide bearing.
New motor to pump [illegible]

Inside bail on solid end plug.

4+50

Basalt rock 4+58

WELL NO. [illegible]
Zilla and 1 St. St.

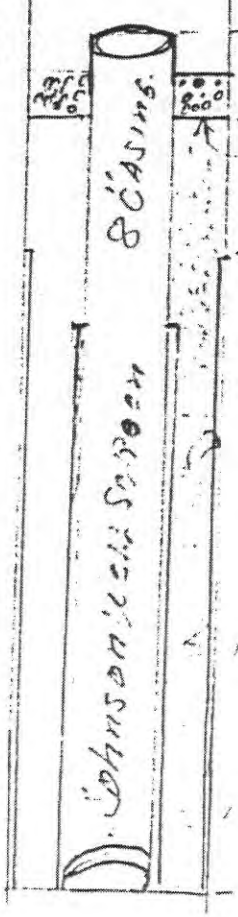
Top of [illegible] Casing.

GROUND Level

Drilling Started
8-24-53. Finished and Ready
For test 12-12-53.
Flowing [illegible] Artesian
Static Level 13' above Ground.
Temperature of Artesian 6[illegible]

Johnson pump
150 hp. 3 ø Oil Lub
=19= 10' Sections of 10'
Column.
=2= 5' Sections of 10"
Column.
=9= 10" bowls
10' of Suction
Total 217'3"
Airline 208'6"

Johnson Screen (Everdur)
Length 62'
Screen Length 60'
Slots .045
6 1/2 Slots per inch



3+50
3+56
3+59
Cement Seal
3+80 end of 20" Ca
16" uncased hole
Gravel Pack
Inside bail on Solid end
4+50
Basalt Rock A-5

#6

STATE OF WASHINGTO
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT Appli.#6475

WELL LOG No. ____/____-____

Date April 12, 19 63

Record by Driller

Source Driller's Record

Location: State of WASHINGTON

County Yakima

Area

Map

____¼ ____¼ set 30 T. 10 N., R. 23 E. W.

Diagram of Section

Drilling Co. Don E. Gray

Address 228 South 2nd St., Yakima, Washington

Method of Drilling ____ Date Sept. 6, 19 62

Owner City of Sunnyside

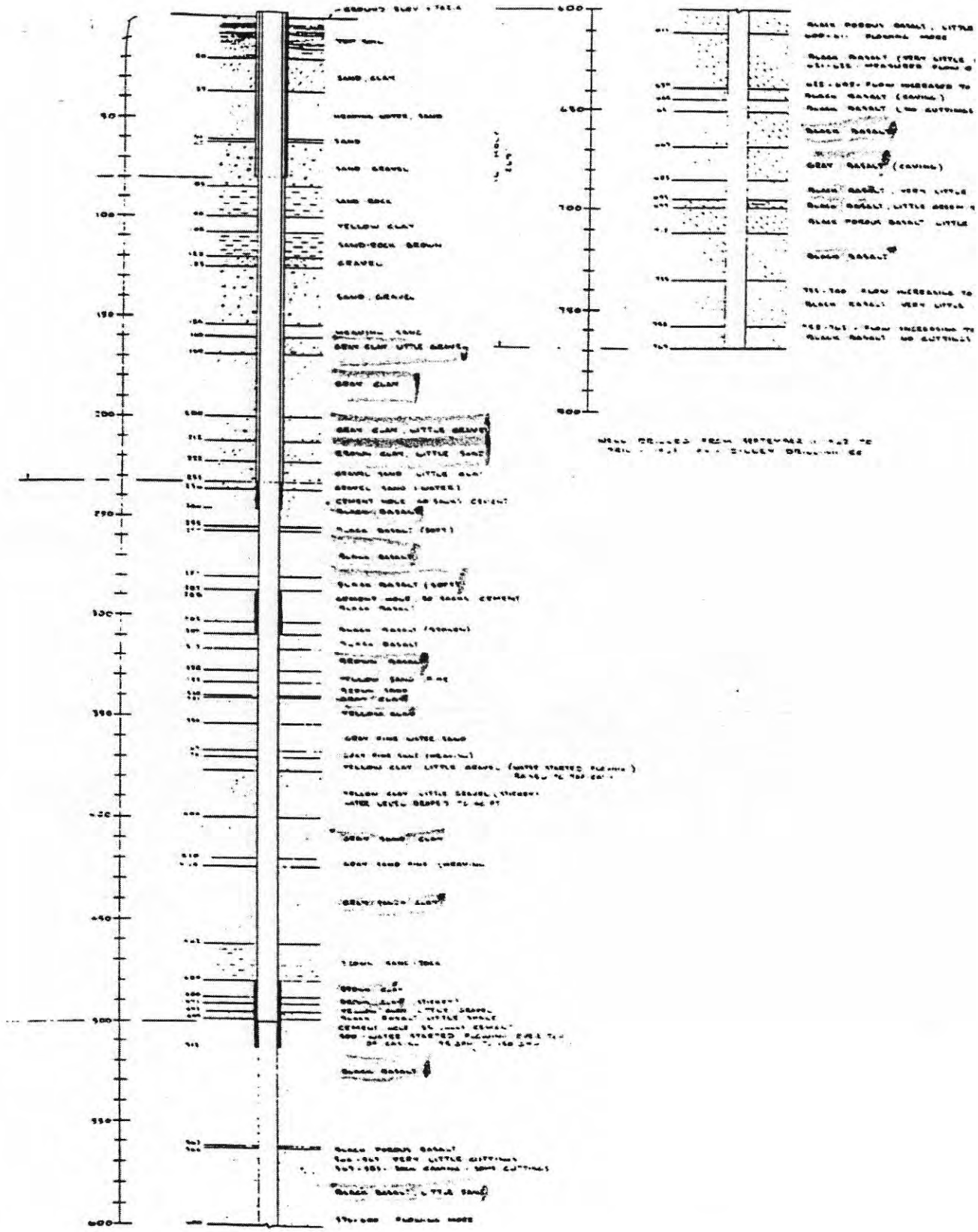
Address Sunnyside, Washington

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.)		
	See detailed log with file		
	Log of Well #3 also ;included		
	~~SWL 1570 gpm with 189 DD after 12 hours~~		
	~~Yields~~		
	Casing: 24" from 0 to 80'		
	20" from 0 to 233'		
	16" from 0 to 500'		
	16" from 500 to 769'		
	SWL: 600 gpm on April 5, 1963		
	Yields 1570 gpm with 189 DD after 12 hours		
	2 minute recovery		

Turn up

Sheet ____ of ____ sheets



WELL #6

WELL # 7

Note: Carbon paper not necessary, as forms are impregnated with chemical which automatically reproduces the written material on each underlying copy.

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Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

Page 1 of 2 Application No. .....

STATE OF WASHINGTON

Permit No. .....

(1) OWNER: Name Sunnyside Port District Address Box 353; Sunnyside, Washington

(2) LOCATION OF WELL: County Yakima — SW ¼ NW ¼ Sec. 36 T. 10 N., R. 22E. W.M.

Bearing and distance from section or subdivision corner 750' NNE of W ½ Corner Sec. 36

(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 24" – 8" inches.
Drilled 1,057 ft. Depth of completed well 1,057 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 24" Diam. from 0 ft. to 98'7" ft.
Threaded ☐ 20" Diam. from 0 ft. to 421'6" ft.
Welded ☒ 16" Diam. from 0 ft. to 541'2" 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? 541 ft.
Material used in seal Cement
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 .... 720 ft.
Static level ..... ft. below top of well Date .....
Artesian pressure 4 lbs. per square inch Date 3-13-74
Artesian water is controlled by Cap and Valve (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? driller
Yield: 450 gal./min. with 300 ft. drawdown after 8 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 7 Nov 73
Bailer test ..... gal./hr. with ..... ft. drawdown after ..... hrs.
Artesian flow 30 g.p.m. Date 7 Nov 73
Temperature of water 75 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
Soil	0	5
Gray Sand and Silt	5	11
Brown Silt, Trace Fine Sand	11	52
Brown Silt and Coarse Sand	52	69
Brown Silt	69	71
Brown Silt and Coarse Sand	71	88
Red Sand and Silt	88	91
Brown Silt, Sand & Small Gravel	91	118
Light Brown Clay, Sand, and	118	
Small Gravel		186
Light Brown Sticky Clay and	186	
Small Gravel		216
Blue Clay	216	249
Brown Clay	249	257
Green Brown Clay and Sand	257	280
Hard Green Brown Sandstone	280	299
Soft Brown Sandstone	299	321
Green Brown Clay	321	354
Blue Clay	354	389
Dark Brown Clay	389	445
Blue Clay	445	534
Gray Basalt Rock	534	540
Hard Gray Basalt Rock	540	678
Hard, Sticky Blue Clay	678	731
White fine Sand	731	
(Well started flowing)		739
Gray Sticky Clay	739	818
Hard Gray Basalt Rock	818	903
Cracks in Gray Basalt Rock	903	
(Well started flowing over		
12" Pipe)		906
Very Hard Gray Basalt Rock	906	941
Gray-Black Hard Rock and Cinders	941	
(Caving Formation)		967
Very Hard Gray Basalt Rock	967	1010

Work started 24 Nov 19 72 Completed 13 Mar 19 74

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)

S. F. No. 7356—OS—(Rev. 5-69)—5-69.

WELL #7

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Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT Page 2 of 2

STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Sunnyside Port District Address Box 353 Sunnyside, Washington

(2) LOCATION OF WELL: County ..... ¼ ..... ¼ Sec. ..... T. ..... N., R. ..... 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 ..... inches.
Drilled ..... ft. Depth of completed well ..... ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 12 " Diam. from 0 ft. to 828 ft.
Threaded ☐ 10 " Diam. from 767 ft. to 967 ft.
Welded ☒ 8 " Diam. from 926 ft. to 1026 ft.

Perforations: Yes ☒ No ☐
Type of perforator used Torch
SIZE of perforations ½ in. by 4 in.
4 per/ft perforations from 887 ft. to 927 ft.
6 per/ft perforations from 986 ft. to 1026 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 ..... 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? driller
Yield: 600 gal./min. with 6' 10½" ft. drawdown after 10 hrs.
" 800 " 18' 6½" " 18 "
" 1000 " 31' 2½" " @ 32 hr. 30 min

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	32' 5"	10 mn.	3' 2"	1 hr.	1' 11"
1 min.	5' 0"	20 mn.	2' 7"	1 hr 15 min	1' 83/4"
2 min.	4' 4"	30 mn.	2' 4"	Flowing	

Date of test 2 Mar 74
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow 500 g.p.m. Date 13 Mar 74
Temperature of water 75 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
Soft Black Basalt Cinders	1010	
(Increased from 30 GPM to		
500 GPM) Flowing		1022
Porous Black Basalt Rock	1022	1057

Work started 24 Nov. 1972 Completed 13 Mar 1974

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 Chas. Jungmann Drilling Co.
(Person, firm, or corporation) (Type or print)

Address 115 Rees - P.O. Box 624 Walla Walla, Wa.

[Signed] .....
(Well Driller)

License No. 428 Date 18 Mar. 1974

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7255—05—(Rev. 5-69)—5-69.

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. 34671

Water Right Permit No.

(1) OWNER: Name City of Sunnyside Address 818 E. Edison, Sunnyside, WA 98944

(2) LOCATION OF WELL: County Yakima NE ¼ NE ¼ Sec. 26 T. 10 N., R. 22E W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 340 Homer Street

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal ☒ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) #8

Abandoned ☐ New well ☒ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☒ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 20 inches.
Drilled 440 feet. Depth of completed well 385 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 20 " Diam. from +2 ft. to 325 ft.
Welded ☒ 16 " Diam. from +2 ft. to 300 ft.
Liner installed ☐
Threaded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used N/A
SIZE of perforations N/A in. by N/A in.
— perforations from — ft. to — ft.
— perforations from — ft. to — ft.
— perforations from — ft. to — ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Houston
Type 304 Stainless Steel Model No. 304
Diam. 10 Slot size .30 from 305 ft. to 308 ft.
Diam. 10 Slot size .30 from 325 ft. to 375 ft.

Gravel packed: Yes ☒ No ☐ Size of gravel 10-20 Colorado Sand
Gravel placed from 295 ft. to 385 ft.

Surface seal: Yes ☒ No ☐ To what depth? 325 ft.
Material used in seal Cement
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 44 ft. below top of well Date 6-18-94
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? Irrigators Inc
Yield: 800 gal./min. with 183 ft. drawdown after 48 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
10:00	227.2	12:00	77.40	10:00pm	62.35
10:00	98.7	2:00	73.8	10:00am	56.8
1:00	83.4	4:00	68.6		

Date of test 6-20-94

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

(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
Fill Dirt and Concrete .	0	5
Sandy Loam	5	30
Dark Brown Sand Med.	30	50
Sand Grey and Black Fine	50	62
Slitstone Grey with Brown	62	68
Fragments Gravel	68	77
Grey Slitstone With Black Gravel	77	88
Clay Tan and Green With Black	88	
Shale Frags.		98
Clay Light Grey	98	102
Clay Dark Grey Black Gravel Frags.	102	120
Gravel	120	123
Grey Clay With Gravel	123	135
Sand Brown Med. With Mica	135	148
Sand And Gravel With Mica	148	151
Sand Brown Med. to Fine	151	167
Gravel With Sand	167	175
Gravel Larger	175	182
Sand With Gravel	182	190
Sand Brown With Small Gravel	190	195
Sand Med. To Fine with Mica	195	200
Sand And Gravel	200	211
Sand Fine To Med. Grained	211	215
Sand And Gravel	215	222
Gravel Med.	222	224
Sand Fine To Course	224	230
Gravel	230	233
Sand Med Fine	233	237
Gravel Well Rounded	237	239
Gravel	239	241
Sand With Some Gravel	241	250
Gravel	250	255
Silt Sand And Gravel	255	262
Cont. on Next Page		

Work started 3-11-94, 19. Completed 6-7-94, 19.

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 STACO WELL SERVICES, INC. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 220 Academy St. Mt. Angel, OR 9736

(Signed) [signature] (WELL DRILLER) License No. 1789

Contractor's Registration No. STACOWS 13-10 H Date 7-8, 19 94

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. 34671
UNIQUE WELL I.D. # 8
Water Right Permit No.

OWNER: Name City of Sunnyside Address 818 E. Edison, Sunnyside, WA 98944

(2) LOCATION OF WELL: County Yakima NE 1/4 NE 1/4 Sec 26 T. 10 N., R. 22E W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) 340 Homer Street

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)
Abandoned ☐ New well ☐ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☐ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well _____ inches.
Drilled _____ feet. Depth of completed well _____ ft.

(6) CONSTRUCTION DETAILS:
Casing installed: _____" Diam. from _____ ft. to _____ ft.
Welded ☐ _____" Diam. from _____ ft. to _____ ft.
Liner installed ☐ _____" Diam. from _____ ft. to _____ ft.
Threaded ☐
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 _____ 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.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date
Temperature of water _____ 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
Tuft Bluegreen	262	280
Tuft Greygreen	280	298
Tuft Tan	298	307
Tuft Grey	307	319
Grey Sand Med. Grained	319	327
Sand Dark Brown	327	355
Gravel And Sand	355	360
Sand And Gravel	360	364
Sand Grey Med.	364	366
Sand Very Fine To Course	366	368
Gravel With Small Amounts of Sand	368	374
Gravel With Fine Sand	374	380
Gravel With Very Fine Sand And Mica	380	388
Gravel With Grey Tuft Fine To Med Sand	388	390
Brown Tuft With Gravel	390	392
Multi Colored Tuft	392	428
Basalt Black And Weathered	428	440

Work Started 3-11, 1994 Completed 6-7, 1994

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 STACO WELL SERVICES INC (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address 220 Academy St. MT. Angel, OR 97
(Signed) [signature] (WELL DRILLER) License No. 1789
Contractor's Registration No. STACOWS13-10H Date 7-8, 1994

(USE ADDITIONAL SHEETS IF NECESSARY)

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. W07379
UNIQUE WELL I.D. # AAR 996
Water Right Permit No.

(1) OWNER: Name City of Sunnyside Address 818E. Edison, Sunnyside, WA. 98944

(2) LOCATION OF WELL: County Yakima - SW 1/4 NE 1/4 Sec 29 T. 10 N., R. 23

(2a) STREET ADDRESS OF WELL (or nearest address) Edison Road, Sunnyside, WA

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal XX Other ☐

(4) TYPE OF WORK: Owner's number of well (If more than one) 9
Abandoned ☐ New well XX Deepened ☐ Reconditioned ☐
Method: Dug ☐ Cable ☐ Rotary ☐ Bored ☐ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 30x28x22x15 inches.
Drilled 919 feet. Depth of completed well 919 ft.

(6) CONSTRUCTION DETAILS:
Casing Installed: 24" Diam. from 0 ft. to 51 ft.
Welded ☒ 16" Diam. from +2.5 ft. to 471 ft.
Liner installed ☒ 14" Diam. from 447 ft. to 453 ft.
Threaded ☐ 12" except@screen: Diam.from 453 ft.to. 919 ft.

Perforations: Yes ☒ No ☐
Type of perforator used factory mill cut
SIZE of perforations 3/16 in. by 3 in.
3300 perforations from 465 ft. to 535 ft.
13560 perforations from 613 ft. to 904 ft.
perforations from ft. to ft.

Screens: Yes XX No ☐
Manufacturer's Name Johnson
Type V shape wire wrap-XX strong Model No. 304SS
Diam. 12 Slot size .250 from 535 ft. to 613 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No XX Size of gravel
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 471 ft.
Material used in seal cement grout
Did any strata contain unusable water? Yes ☒ No ☐
Type of water? Different aquifer system Depth of strata < 451'
Method of sealing strata off cement grout seal

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level 756± ft.
Static level ft. below top of well Date
Artesian pressure 28 lbs. per square inch Date 10/22/97
Artesian water is controlled by 12" valve, etc., per variance (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes XX No ☐ If yes, by whom? Schneider
Yield: gal./min. with ft. drawdown after hrs.
" SEE ATTACHED GRAPHS OF STEP "
" AND CONSTANT RATE TESTS "
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 Graph					

Date of test 9/15-17/97(constant rate pumping)
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow 800 g.p.m. Date 10/7-13/97
Temperature of water 78°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 and the kind and nature of the material in each stratum penetrated, with at least one entry change of information.

MATERIAL	FROM
SEE ATTACHED LOG	

Work Started 3/19/97, 19. Completed 11/21, 1

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, ar compliance with all Washington well construction standards. Materials usec the information reported above are true to my best knowledge and belief.

NAME Schneider Drilling Co. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address 21891 River Rd, NE St. Paul, OR. 971
(Signed) Stephen Schneider (WELL DRILLER) License No. 0643
Vice President
Contractor's Registration No. SCHNEI*226LG Date 11/21, 19

(USE ADDITIONAL SHEETS IF NECESSARY)

Ecology is an Equal Opportunity and Affirmative Action employer. For cial accommodation needs, contact the Water Resources Program at (407-6600. The TDD number is (206) 407-6006.

ECY 050-1-20 (9/93) * * I

City of Sunnyside Well No. 9 Log

By Schneider Drilling Co.

Unique Well I.D. # AAR 996

From	To	Description
0	7	Sandy silt, brown
7	27	Clay, silty, brown, w/some coarse sand
27	30	Sand & gravel
30	37	Clay, silty, brown, w/some coarse sand
37	51	Sand & gravel, cemented, w/clay
51	68	Sand & gravel
68	75	Sand & gravel, w/clay, gray, & sand, coarse, cemented
75	106	Gravel & claystone, brown
106	148	Clay, brown, soft
148	160	Clay, brown & blue-gray
160	165	Claystone, blue, med-soft
165	187	Clay, blue
187	201	Claystone, white, & clay, blue
201	248	Basalt, blue, hard
248	250	Basalt, blue & claystone, brown
250	282	Basalt, blue, hard
282	286	Basalt, blue, hard, slightly fractured
286	293	Basalt, blue, hard, fractured
293	297	Basalt, blue & sandstone, brown
297	298	Basalt, weathered, sandstone, brown & some clay, gray
298	302	Sandstone & clay, gray
302	310	Sand, coarse & clay
310	317	Sand, fine & clay
317	319	Sand, med-fine & clay, gray
319	326	Clay, white-gray
326	337	Clay, white
337	339	Sand, coarse & clay
339	343	Clay, white-gray
343	347	Sand, coarse
347	348	Sand, coarse, & sandstone
348	375	Clay & some sand, coarse, sticky
375	383	Clay, white-gray, & sand
383	393	Claystone, gray
393	400	Clay, brown & sand, coarse
400	422	Sand, coarse, & clay
422	426	Claystone, gray, & sandstone, brown
426	427	Sand, coarse, & clay, brown
427	434	Clay, brown, sandstone, brown & claystone, brown
434	436	Sandstone, brown, claystone, gray & basalt, weathered
436	440	Basalt, weathered, broken

440	451	Basalt, fractured, & claystone, blue-green
451	474	Basalt, black, hard
474	476	Basalt, fractured, w/some vesicular, gray, med
476	490	Basalt, fractured, w/claystone, blue
490	495	Basalt, some fractures, gray, med-hard
495	515	Basalt, fractured, w/claystone, blue, med-hard
515	530	Basalt, fractured, gray, med-hard
530	535	Basalt, fractured, light gray, med-hard
535	539	Basalt, gray, hard
539	546	Basalt, weathered, brown, vesicular
546	547	Basalt, gray, vesicular, w/some basalt, weathered, brown, & quartz, multi-colored
547	549	Basalt, vesicular, gray, medium, fractured
549	550	Basalt, fractured, medium
550	555	Basalt, fractured, gray, w/claystone, blue, medium
555	562	Basalt, weathered, multi-colored, w/quartz, medium
562	574	Basalt, broken, vesicular, gray, w/basalt, weathered, multi-colored, medium
574	584	Basalt, fractured, gray, vesicular, medium, some quartz
584	585	Basalt, broken, gray, vesicular, some weathered
585	591	Basalt, broken, vesicular, multi-colored, med-soft
591	598	Basalt, broken, weathered, vesicular, multi-colored, medium
598	602	Basalt, fractured, gray, some vesicular, & quartz, medium
602	607	Basalt, weathered, vesicular, brown, w/claystone, brown, medium
607	609	Basalt, fractured, vesicular, green-gray, w/some claystone, brown, medium
609	613	Clay, green, w/basalt, fractured, medium
613	618	Basalt, fractured, gray, w/weathered, basalt, brown, medium
618	620	Basalt, gray, hard
620	623	Basalt, fractured, w/siltstone, gray, & shale, blue, medium
623	624	Siltstone, blue, w/basalt, fractured, gray, medium
624	626	Basalt, fractured, gray, med-hard
626	666	Basalt, gray, hard
666	668	Basalt, fractured, gray, med-hard
668	696	Basalt, gray, very hard
696	697	Siltstone, blue, w/basalt imbedded
697	705	Basalt, gray, very hard
705	730	Basalt, slightly fractured, gray, med-hard
730	736	Basalt, fractured, gray, med-hard
736	760	Basalt, gray, hard
760	761	Basalt, gray, fractured, w/quartz, med-hard
761	790	Basalt, fractured, gray, med-hard
790	798	Basalt, gray, hard
798	806	Basalt, gray, very hard
806	807	Basalt, gray, medium
807	811	Basalt, gray, hard
811	815	Basalt, frac, gray, ves, w/obsidian, black, medium
815	817	Basalt, weathered, brown & gray, medium
817	820	Basalt, vesicular, gray-brown, medium

820	823	Basalt, weathered, red-brown-gray, w/silty clay, brown, soft
823	832	Basalt, weathered, brown, w/silty clay, brown & blue, & claystone, soft
832	833	Basalt, weathered, vesicular, brown-green, soft
833	842	Clay, silty, gray, w/claystone, gray, soft
842	846	Clay, silty, green, w/claystone, blue, soft
846	853	Sand, coarse, w/claystone, red, medium
853	856	Clay, sticky, green, w/claystone, green, soft
856	863	Clay, sticky, gray, w/claystone, green, soft
863	869	Clay, sticky, green, w/claystone, green, some basalt, soft, red
869	875	Clay, sticky, gray, w/siltstone, flaky, green, soft
875	885	Siltstone, flaky, green, w/clay, sticky, gray, some cinders
885	890	Cinders, brown & gray, medium-soft
890	893	Cinders, vesicular, brown, medium-soft
893	895	Basalt, brown, vesicular, w/siltstone, green, med
895	896	Claystone, green, soft
896	900	Basalt, vesicular, brown, w/claystone, gray, med
900	901	Shale, green, soft
901	903	Basalt, broken, brown, med
903	919	Basalt, gray, hard

Appendix C

Water Quality Summary Tables from Annual Water Quality Reports

CITY OF SUNNYSIDE
WATER QUALITY ANALYSIS RESULTS 1998

COMPOUNDS	UNITS	WELL 5	WELL 6	WELL 7	WELL 8	WELL 9	EPA'S MCL	SOURCES OF CONTAMINANT AND OTHER INFORMATION
IRON	ppm	Not Detected	0.23	0.14	Not Detected	Not Detected	0.3	*Average 0.074 / Natural Geology*
MANGANESE	ppm	Not Detected	0.056	0.042	Not Detected	0.049	0.05	*Average 0.029 / Natural Geology*
SODIUM	ppm	20	14	22	17	25	20	*Average 19.6 / Natural Geology*
FLUORIDE	ppm	0.5	Not Detected	0.5	0.5	0.4	2	*Average 0.38 / Natural Geology*
NITRATE	ppm	1.3	Not Detected	Not Detected	1.5	Not Detected	10	*Average 0.56 / Natural Geology*
SULFATE	ppm	33	35	Not Detected	31	19	250	*Average 23.6 / Natural Geology*
TURBIDITY	NTU	0.2	0.3	0.3	0.2	0.35	1.0	*Natural Geology*
LEAD	ppb	REGULATED AT TAP - 3ppb					15	*Household plumbing / Natural Geology*
COPPER	ppm	REGULATED AT TAP - 0.085ppm					1.3	*Household plumbing / Natural Geology*
HARDNESS	mg/l	160	130	99	140	91	Not Regulated	*Natural in Well Water Hardwater over 100 mg/l*
MAGNESIUM	ppm	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	10	Not Regulated	*Natural Geology*
CALCIUM	ppm	Not Analyzed	Not Analyzed	Not Analyzed	Not Analyzed	20	Not Regulated	*Natural Geology*

GIARDIA - *NOT PRESENT in City Water*
CRYTOSPORIDIUM - *NOT PRESENT in City Water*
E.COLI - *(monthly testing) NONE DETECTED*
COLIFORM - *(monthly testing) NONE DETECTED since 1997*

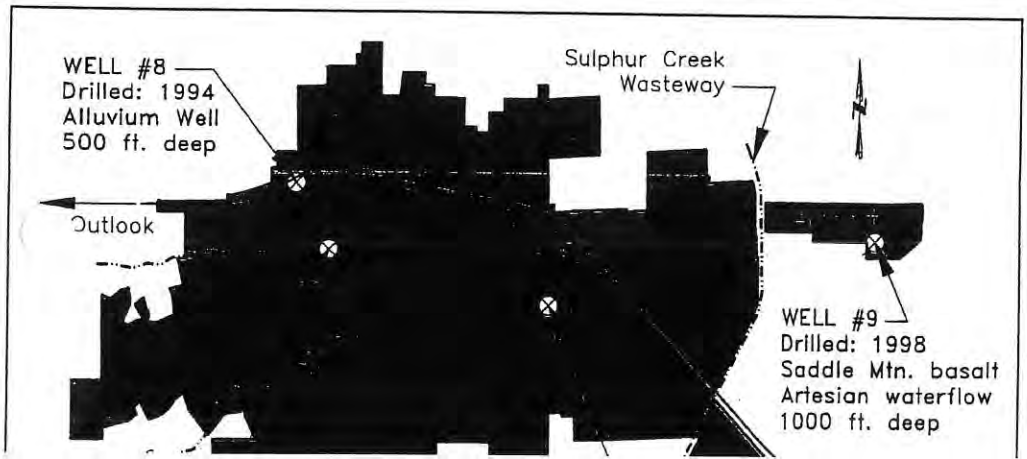
Definitions:

Maximum Contaminant Level (MCL)
The highest level of a contaminant that is allowed in drinking water.

mg/l - *(Milligrams per liter)* ***ppm*** - *(one part per million)*
NTU - *(Turbidity units)* ***ppb*** - *(one part per billion)*
UNITS - *(Measurement Value for each Compound)*

General Information

As seen from this report, the City has a number of domestic water well sources from various basalt and alluvium aquifers. The water from these sources enters the storage and distribution system and is generally co-mingled prior to reaching the tap. The co-mingling of source water averages out the compound percentages. Listed above are 12 compounds detected in Sunnyside drinking water during 1996, 1997 and 1998. Not listed are hundreds of other compounds which we tested that were not detected.



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CITY OF SUNNYSIDE
WATER QUALITY ANALYSIS RESULTS 1999

COMPOUNDS	UNITS	WELL 5	WELL 6	WELL 7	WELL 8	WELL 9	EPA'S MCL	SOURCES OF CONTAMINANT AND OTHER INFORMATION
IRON	ppm	Not Detected	0.16	0.14	Not Detected	Not Detected	0.3	*Average 0.06 / Natural Geology*
MANGANESE	ppm	Not Detected	0.060	0.045	Not Detected	0.048	0.05	*Average 0.031 / Natural Geology*
SODIUM	ppm	20	14	21	17	20	20	*Average 18.4 / Natural Geology*
FLUORIDE	ppm	0.4	0.03	0.3	0.4	.03	2	*Average 0.286 / Natural Geology*
NITRATE	ppm	3.9	1.2	1.3	3.3	1.3	10	*Average 2.2 / Natural Geology*
SULFATE	ppm	30	32	Not Detected	31	23	250	*Average 23.2 / Natural Geology*
TURBIDITY	NTU	0.14	0.51	0.18	0.16	0.21	1.0	*Natural Geology*
LEAD	ppb	REGULATED AT TAP - 3ppb					15	*Household plumbing / Natural Geology*
COPPER	ppm	REGULATED AT TAP - 0.085ppm					1.3	*Household plumbing / Natural Geology*
HARDNESS	mg/l	160	140	110	150	110	Not Regulated	*Natural in Well Water Hardwater over 100 mg/l*
MAGNESIUM	ppm	15	15	10	13	12	Not Regulated	*Natural Geology*
CALCIUM	ppm	40	33	27	38	23	Not Regulated	*Natural Geology*

GIARDIA - ***NOT PRESENT*** *in City Water*
CRYTOSPORIDIUM - ***NOT PRESENT*** *in City Water*
E.COLI - *(monthly testing)* ***NONE DETECTED***
COLIFORM - *(monthly testing)* ***NONE DETECTED***
ASBESTOS - *(tested in May '99)* ***NONE DETECTED***
DISINFECTANT CHLORINE - *Residual levels* ***do not exceed MCL***

Definitions:

Maximum Contaminant Level (MCL)
The highest level of a contaminant that is allowed in drinking water.
mg/l - *(Milligrams per liter)* ***ppm*** - *(one part per million)*
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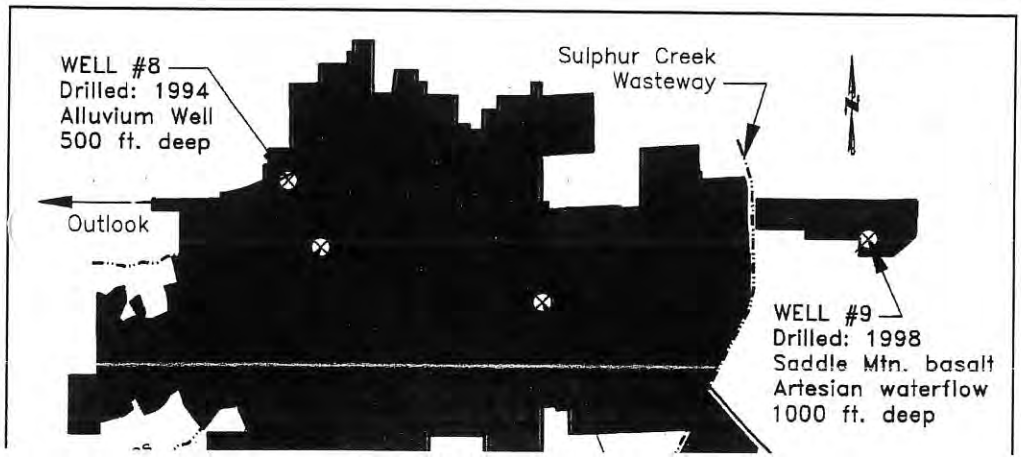

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CITY OF SUNNYSIDE
WATER QUALITY ANALYSIS RESULTS 2000

COMPOUNDS	UNITS	WELL 5	WELL 6	WELL 7	WELL 8	WELL 9	EPA'S MCL	SOURCES OF CONTAMINANT AND OTHER INFORMATION
IRON	ppm	1.35	0.16	Not Detected	Not Detected	Not Detected	0.3	*Average 0.30 / Natural Geology*
MANGANESE	ppm	0.045	0.064	0.045	Not Detected	0.044	0.05	*Average 0.041 / Natural Geology*
SODIUM	ppm	19	14	Not Detected	17	18.5	20	*Average 13.7 / Natural Geology*
FLUORIDE	ppm	0.4	0.3	0.3	0.4	0.33	2	*Average 0.35 / Natural Geology*
NITRATE	ppm	2.7	0.6	1.3	3.3	0.65	10	*Average 1.71 / Natural Geology*
SULFATE	ppm	34	32	Not Detected	31	24	250	*Average 24.2 / Natural Geology*
SELENIUM	ppm	Not Detected	Not Detected	Not Detected	Not Detected	0.01	0.5	*Natural Geology*
TURBIDITY	NTU	0.14	0.51	0.18	0.16	0.21	1.0	*Natural Geology*
LEAD	ppb	REGULATED AT TAP - 3 ppb					15	*Household plumbing / Natural Geology*
COPPER	ppm	REGULATED AT TAP - 0.085 ppm					1.3	*Household plumbing / Natural Geology*
HARDNESS	mg/l	160	140	110	150	96	Not Regulated	*Natural in Well Water Hardwater over 100 mg/l*
MAGNESIUM	ppm	15	15	10	13	10.8	Not Regulated	*Natural Geology*
CALCIUM	ppm	40	33	27	38	20	Not Regulated	*Natural Geology*

GIARDIA - ***NOT PRESENT*** *in City Water*
CRYTOSPORIDIUM - ***NOT PRESENT*** *in City Water*
E.COLI - *(monthly testing)* ***NONE DETECTED***
COLIFORM - *(monthly testing)* ***NONE DETECTED***
ASBESTOS - *(tested in May '99)* ***NONE DETECTED***
DISINFECTANT CHLORINE - *Residual levels do not exceed MCL*

Definitions:

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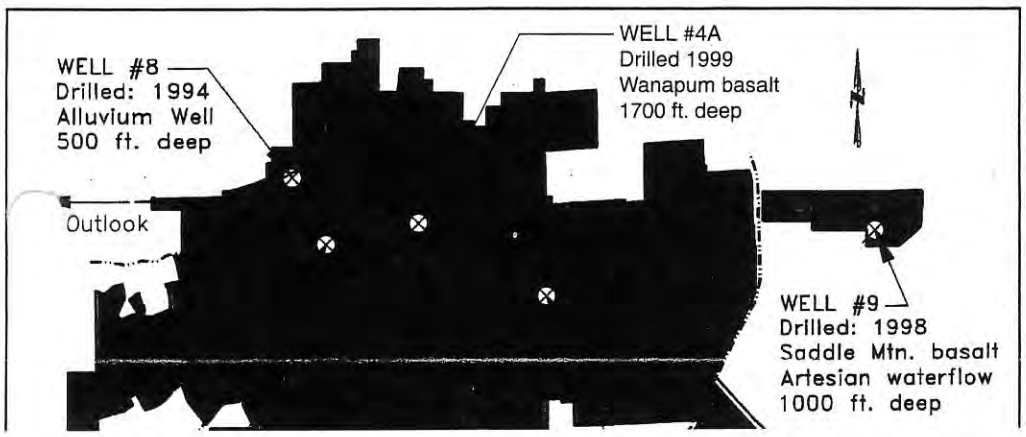

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CITY OF SUNNYSIDE
WATER QUALITY ANALYSIS RESULTS 2001

COMPOUNDS	UNITS	WELL 5	WELL 6	WELL 7	WELL 8	WELL 9	EPA'S MCL	SOURCES OF CONTAMINANT AND OTHER INFORMATION
IRON	ppm	2.7	0.16	Not Detected	Not Detected	Not Detected	0.3	*Average 0.57 / Natural Geology*
MANGANESE	ppm	0.091	0.06	0.054	Not Detected	0.044	0.05	*Average 0.050 / Natural Geology*
SODIUM	ppm	19	14	Not Detected	17	17	20	*Average 13.4 / Natural Geology*
FLUORIDE	ppm	Not Detected	0.3	0.3	0.4	0.35	2	*Average 0.27 / Natural Geology*
NITRATE	ppm	1.4	Not Detected	Not Detected	3.3	Not Detected	10	*Average .94 / Natural Geology*
SULFATE	ppm	38	32	Not Detected	31	25	250	*Average 25.2 / Natural Geology*
SELENIUM	ppm	Not Detected	Not Detected	Not Detected	Not Detected	0.01	0.5	*Natural Geology*
TURBIDITY	NTU	14	0.51	0.18	0.16	Not Detected	1.0	*Natural Geology*
LEAD	ppb	REGULATED AT TAP - 3 ppb					15	*Household plumbing / Natural Geology*
COPPER	ppm	REGULATED AT TAP - 0.085 ppm					1.3	*Household plumbing / Natural Geology*
HARDNESS	mg/l	160	140	110	150	82	Not Regulated	*Natural in Well Water Hardwater over 100 mg/l*
MAGNESIUM	ppm	15	15	10	13	10.85	Not Regulated	*Natural Geology*
CALCIUM	ppm	41	33	27	38	20	Not Regulated	*Natural Geology*

GIARDIA - ***NOT PRESENT*** *in City Water*
CRYTOSPORIDIUM - ***NOT PRESENT*** *in City Water*
E.COLI - *(monthly testing)* ***NONE DETECTED***
COLIFORM - *(monthly testing)* ***NONE DETECTED***
ASBESTOS - *(tested in May '99)* ***NONE DETECTED***
DISINFECTANT CHLORINE - *Residual levels do not exceed MCL*

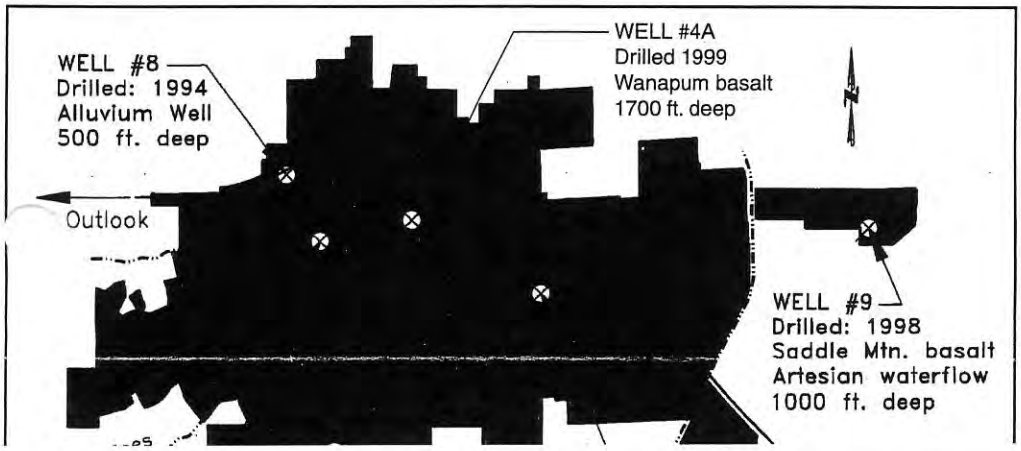
Definitions:

Maximum Contaminant Level (MCL)
The highest level of a contaminant that is allowed in drinking water.
mg/l - *(Milligrams per liter)* ***ppm*** - *(one part per million)*
NTU - *(Turbidity units)* ***ppb*** - *(one part per billion)*
UNITS - *(Measurement Value for each Compound)*

General Information

Wells No. 5 and 6 have exceeded the MCL for Iron and Manganese. The Department of Health confirms that this is not a health concern, but only affects the aesthetics of the water color and taste.

Well water is normally higher in Iron and Managnese because of the time it is in contact with minerals in the ground.



Water...Too Precious To Waste

10 CONSERVATION TIPS FOR EFFICIENT WATER USE

1. Check for toilet leaks by placing a dye tablet or food coloring in the tank and looking for the color to appear in the bowl. Toilet leaks can be silent wasters of more than 50 gallons of water per day.
2. Water in the evening or early morning to minimize waste to evaporation. Mornings are usually less windy.
3. Measure water applied to lawn to apply 1 inch per week.
4. Wash full load in the washing machine and

City of SUNNYSIDE

WATER QUALITY ANALYSIS RESULTS 2002

COMPOUNDS	UNITS	WELL 5	WELL 6	WELL 7	WELL 8	WELL 9	EPA'S MCL	SOURCES OF CONTAMINANT AND OTHER INFORMATION
IRON	ppm	Not Detected	0.16	Not Detected	Not Detected	Not Detected	0.3	*Average 0.32 / Natural Geology*
MANGANESE	ppm	0.016	0.06	0.054	Not Detected	0.053	0.05	*Average 0.36 / Natural Geology*
SODIUM	ppm	18	14	Not Detected	17	15	20	*Average 12.8 / Natural Geology*
FLUORIDE	ppm	.5	0.3	0.3	0.4	0.4	2	*Average 0.38 / Natural Geology*
NITRATE	ppm	2.0	Not Detected	Not Detected	1.8	Not Detected	10	*Average .76 / Natural Geology*
SULFATE	ppm	36	32	Not Detected	31	27	250	*Average 25.2 / Natural Geology*
SELENIUM	ppm	Not Detected	Not Detected	Not Detected	Not Detected	0.018	0.5	*Natural Geology*
TURBIDITY	NTU	1.7	0.51	0.18	0.16	Not Detected	1.0	*Natural Geology*
LEAD	ppb	REGULATED AT TAP - 3 ppb					15	*Household plumbing / Natural Geology*
COPPER	ppm	REGULATED AT TAP - 0.085 ppm					1.3	*Household plumbing / Natural Geology*
HARDNESS	mg/l	160	140	110	150	120	Not Regulated	*Natural in Well Water Hardwater over 100 mg/l*
MAGNESIUM	ppm	15	15	10	13	13	Not Regulated	*Natural Geology*
CALCIUM	ppm	41	33	27	38	26	Not Regulated	*Natural Geology*
ARSENIC	ppb	0.011	.010	Not Detected	.003	.0063	0.010	*Average .00606 / Natural Geology*

GIARDIA - ***NOT PRESENT*** *in City Water*

CRYTOSPORIDIUM - ***NOT PRESENT*** *in City Water*

E.COLI - *(monthly testing)* ***NONE DETECTED***

COLIFORM - *(monthly testing)* ***NONE DETECTED***

ASBESTOS - *(tested in May '99)* ***NONE DETECTED***

CHLORINE DISINFECTANT AT EACH SOURCE - *Residual levels do not exceed MCL*

DEFINITIONS:

Maximum Contaminant Level (MCL)
The highest level of a contaminant that is allowed in drinking water.

l - *(Milligrams per liter)* ***ppm*** - *(one part per million)*
NTU - *(Turbidity units)* ***ppb*** - *(one part per billion)*
UNITS - *(Measurement Value for each Compound)*

ARSENIC

The City of Sunnyside water does contain low levels of arsenic. The arsenic level in Well Number 5 exceeds the EPA's MCL. This Well Number 5 is used as a back-up well and is seldom in service. The average, after co-mingling with other waters, is well under the EPA's MCL. This compound is found in the natural geology. There is a small chance that some people who drink water containing low levels of arsenic for many years could develop circulatory diseases, cancer or other health problems. Most types of cancer and circulatory diseases are due to factors other than exposure to arsenic. EPA's standard balances the current understanding of arsenic health affects against the cost of removing arsenic from drinking water. Additional testing will be ongoing with treatment for arsenic concerns in city water being required in 2006. For additional information contact the City of Sunnyside Public Works Department at 837-5206.

WATER QUALITY ANALYSIS RESULTS 2003

COMPOUNDS	UNITS	WELL 6	WELL 7	WELL 8	WELL 9	EPA'S MCL	SOURCES OF CONTAMINANT AND OTHER INFORMATION
IRON	ppm	**0.16**	Not Detected	Not Detected	Not Detected	**0.3**	*Average 0.04 / Natural Geology*
MANGANESE	ppm	**0.06**	**0.054**	Not Detected	**0.053**	**0.05**	*Average 0.04 / Natural Geology*
SODIUM	ppm	**14**	Not Detected	**17**	**15**	**20**	*Average 11.5 / Natural Geology*
FLUORIDE	ppm	**0.3**	**0.3**	**0.4**	**0.4**	**2**	*Average 0.35 / Natural Geology*
NITRATE	ppm	Not Detected	Not Detected	**1.58**	**0.47**	**10**	*Average .51 / Natural Geology*
SULFATE	ppm	**32**	Not Detected	**31**	**27**	**250**	*Average 22.5 / Natural Geology*
SELENIUM	ppm	Not Detected	Not Detected	Not Detected	**0.018**	**0.5**	*Average 0.0045 / Natural Geology*
TURBIDITY	NTU	**0.51**	**0.18**	**0.16**	Not Detected	**1.0**	*Average 0.21 / Natural Geology*
LEAD	ppb	**REGULATED AT TAP - 3 ppb**				**15**	*Household plumbing / Natural Geology*
COPPER	ppm	**REGULATED AT TAP - 0.085 ppm**				**1.3**	*Household plumbing / Natural Geology*
HARDNESS	mg/l	**140**	**110**	**150**	**120**	Not Regulated	*Natural in Well Water Hardwater over 100 mg/l*
MAGNESIUM	ppm	**15**	**10**	**13**	**13**	Not Regulated	*Natural Geology*
CALCIUM	ppm	**33**	**27**	**38**	**26**	Not Regulated	*Natural Geology*
ARSENIC	ppb	**.0095**	Not Detected	**.003**	**.0063**	**0.010**	*Average 0.0047/ Natural Geology*

GIARDIA - ***NOT PRESENT*** *in City Water*
CRYTOSPORIDIUM - ***NOT PRESENT*** *in City Water*
E.COLI - *(monthly testing)* ***NONE DETECTED***
COLIFORM - *(monthly testing)* ***NONE DETECTED***
ASBESTOS - *(tested in May '99)* ***NONE DETECTED***
DISINFECTANT CHLORINE - *Residual levels do not exceed MCL*

Definitions:

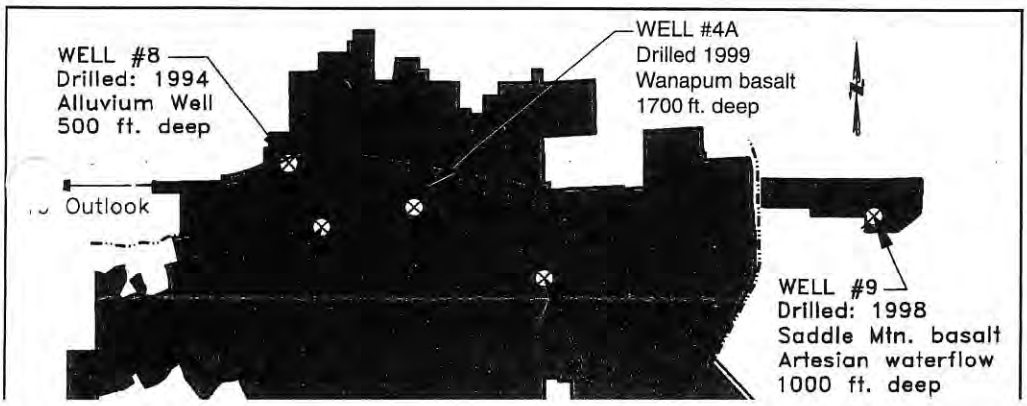
Maximum Contaminant Level (MCL)
The highest level of a contaminant that is allowed in drinking water.

mg/l - *(Milligrams per liter)* ***ppm*** - *(one part per million)*
NTU - *(Turbidity units)* ***ppb*** - *(one part per billion)*
UNITS - *(Measurement Value for each Compound)*

General Information

As you can see in the table above, Wells 6, 7 and 9 slightly exceed the MCL for Manganese. This normally occurs because of the time the water is in contact with minerals in the ground. The Department of Health confirms that this is not a health concern, but only affects the aesthetics of the water color and taste.

You will also notice that Wells 4A and 5 are no longer listed in the table. We have listed the status of these wells as "Emergency Use Only" and as a result of that, are not required to test them until such time they are brought back in to service.



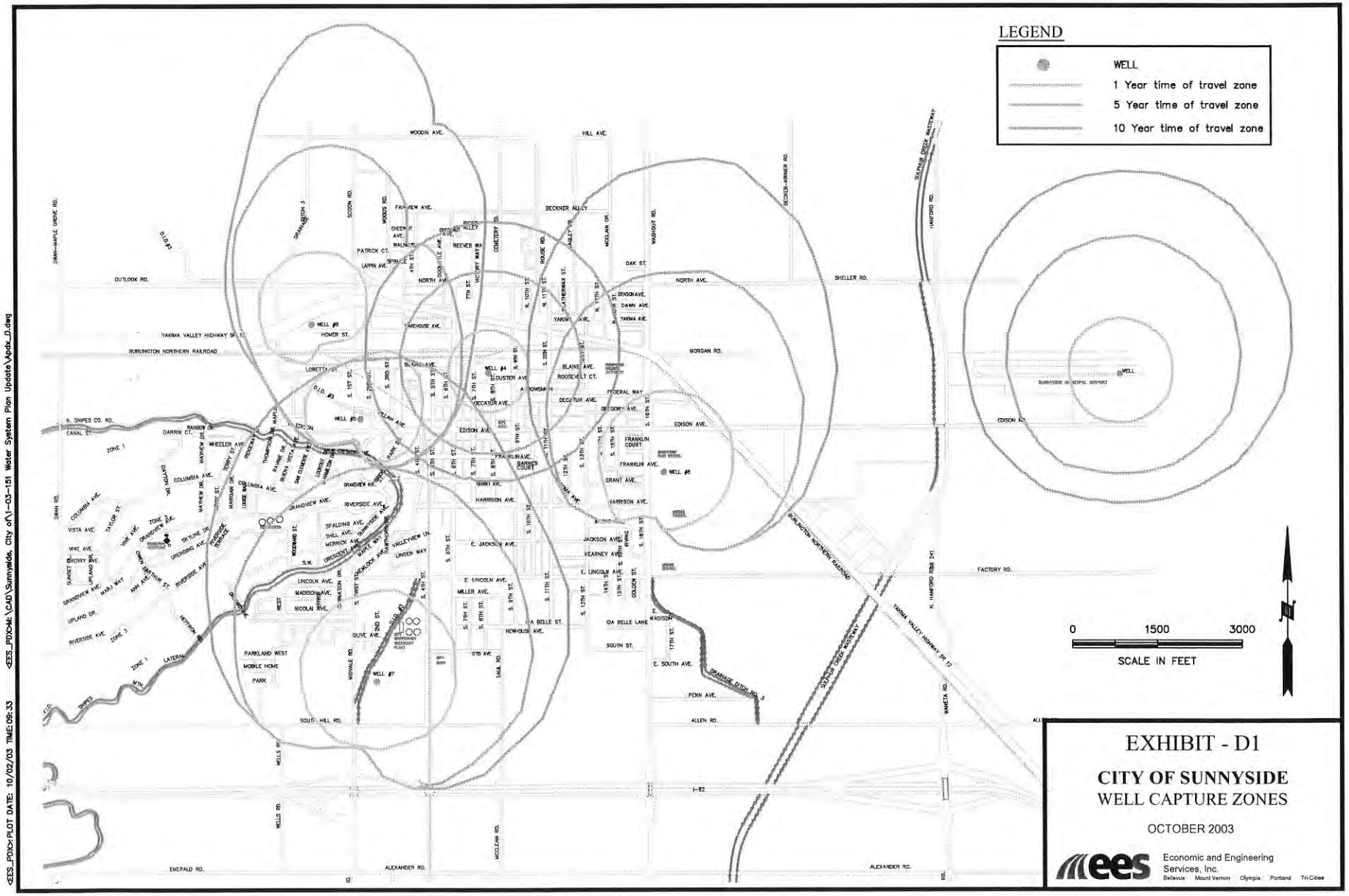
Water...Too Precious To Waste

10 CONSERVATION TIPS FOR EFFICIENT WATER USE

1. Check for toilet leaks by placing a dye tablet or food coloring in the tank and looking for the color to appear in the bowl. Toilet leaks can be silent wasters of more than 50 gallons of water per day.
2. Water in the evening or early morning to minimize waste to evaporation. Mornings are usually less windy.
3. Measure water applied to lawn to apply 1 inch per week.

Appendix D

Input Sheets for WHPA Modeling



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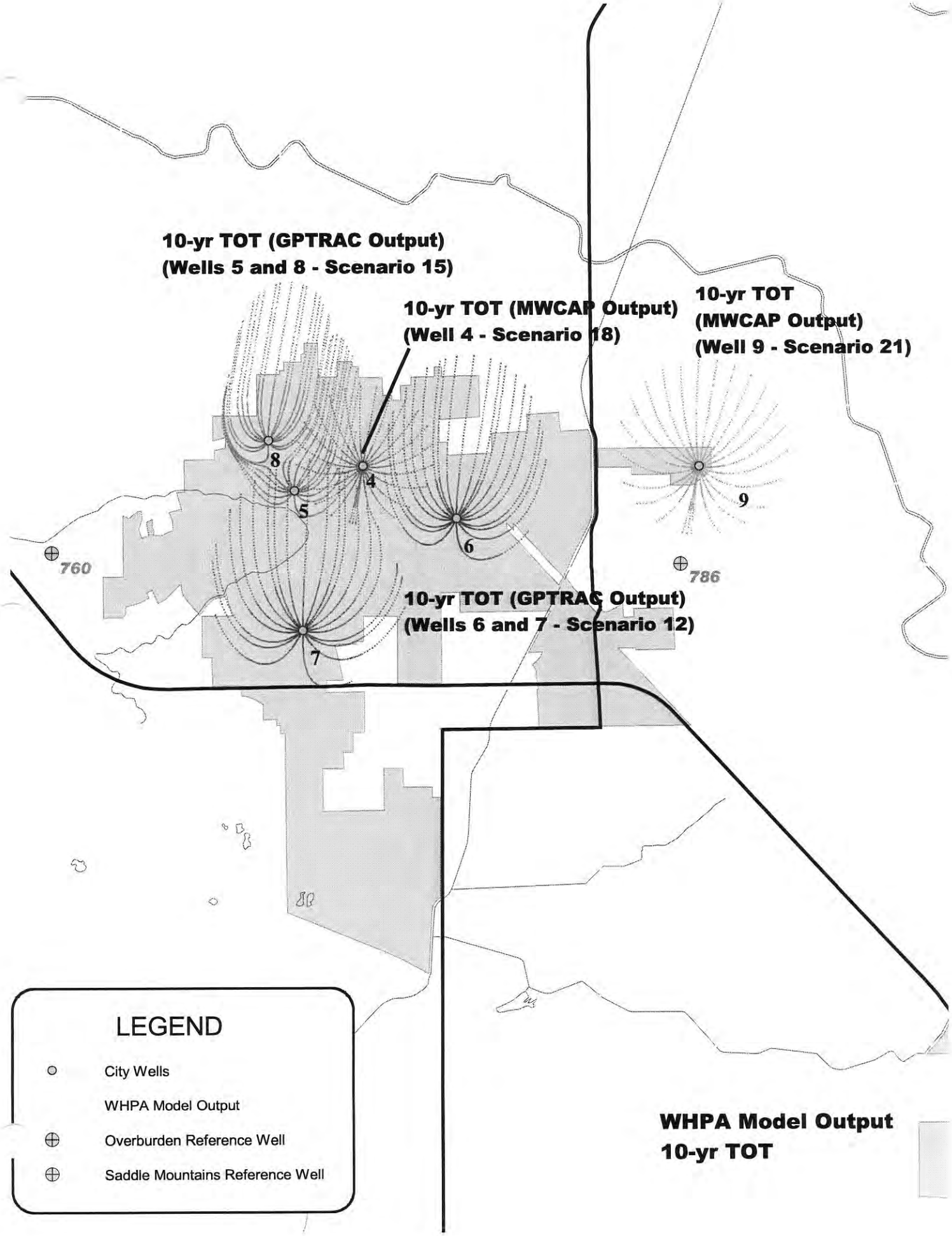
WHPA Modeling Input and Scenario Summary

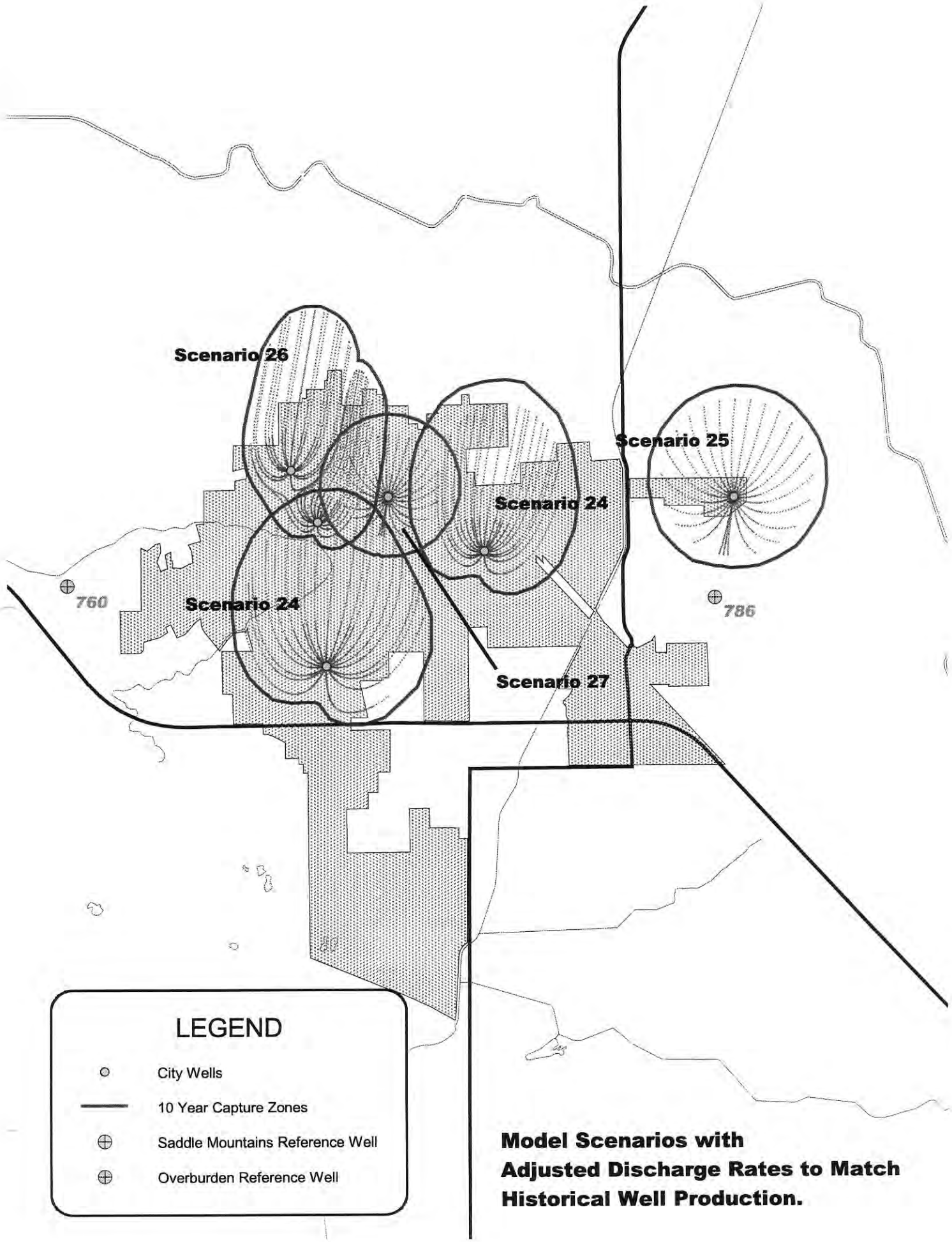
Parameter	Reported Units	Geologic Unit			Model Units	Well Parameters for WHPA Model Input Listed by Water Source: Overburden		Saddle Mountains			Wanapum
hydraulic gradient	n/a	*Overburden*	*Saddle Mtns*	*Wanapum*	n/a	**8**	**5**	**6**	**7**	**9**	**4a**
maximum[1]		0.006	0.006	0.006		0.006	0.006	0.006	0.006	0.006	0.006
mean[1]		0.004	0.0035	0.0035		0.004	0.004	0.0035	0.0035	0.0035	0.0035
minimum[1]		0.001	0.0025	0.0025		0.001	0.001	0.0025	0.0025	0.0025	0.0025
selected						**0.003**	**0.003**	**0.0035**	**0.0035**	**0.0035**	**0.0035**
transmissivity	(ft^2/s)				(ft^2/d)						
maximum[2]		3.12E+00	2.29E-02	1.08E-01		269,568	269,568	1,979	1,979	1,979	9,331
mean[2]		2.13E-01	5.29E-03	1.55E-02		18,403	18,403	457	457	457	1,339
minimum[2]		2.60E-05	2.80E-05	5.00E-05		2	2	2	2	2	4
selected						**6,557**	**13,125**	**3,053**	**3,053**	**3,053**	**1,838**
porosity	n/a				n/a						
maximum		0.5	0.2	0.2		0.5	0.5	0.2	0.2	0.2	0.2
mean		0.2	0.1	0.1		0.2	0.2	0.1	0.1	0.1	0.1
minimum		0.1	0.05	0.05		0.1	0.1	0.05	0.05	0.05	0.05
selected						**0.22**	**0.22**	**0.1**	**0.1**	**0.1**	**0.1**
thickness	(ft)				(ft)						
maximum[2]		570	710	1000		450	450	275	250	300	550
mean[2]		190	370	530		190	190	125	100	150	400
minimum[2,4]		75	20	30		50	72	30	50	20	75
selected						**150**	**150**	**120**	**120**	**400**	**400**
well discharge rate	(gpm)				(ft^3/d)						
selected		pump capacity				**154,011**	**163,636**	**163,636**	**221,390**	**288,770**	**182,888**

[1] Calculated from water level measurements compiled for USGS Yakima Groundwater Study. Data available at http://wa.water.usgs.gov/yakimagw/Data.html.
[2] Values taken from USGS Professional Paper 1413-A, Summary of the Columiba Plateau Regional Aquifer-System Analysis, Washington, Oregon, and Idaho.
[3] Values taken from reported values on Susceptibility Survey Forms.
[4] As a conservative estimate, the minimum aquifer thickness for each well is assumed to be the total screened interval.
[5] Values taken from vertical hydraulic conductance for the overburden aquifer, USGS Professional Paper 1413-A.

Model Scenarios

ScenarioID	ScenarioName	Source	Variable	Notes	Time Period	Level	Shapefile Name	Comments
12	Baseline	Saddle Mountains	None	GPTRAC	10 yrs	Selected Values	scen12.shp	Delineation of Wells 6 and 7
13	Baseline	Saddle Mountains	None	GPTRAC	5 yrs	Selected Values	scen13.shp	Delineation of Wells 6 and 7
14	Baseline	Saddle Mountains	None	GPTRAC	1 yr	Selected Values	scen14.shp	Delineation of Wells 6 and 7
15	Baseline	Overburden	None	GPTRAC	10 yrs	Selected Values	scen15.shp	Delineation of Wells 5 and 8
16	Baseline	Overburden	None	GPTRAC	5 yrs	Selected Values	scen16.shp	Delineation of Wells 5 and 8
17	Baseline	Overburden	None	GPTRAC	1 yr	Selected Values	scen17.shp	Delineation of Wells 5 and 8
18	Baseline	Wanapum	None	MWCAP	10 yrs	Selected Values	scen18.shp	Delineation of Well 4a
19	Baseline	Wanapum	None	MWCAP	5 yrs	Selected Values	scen19.shp	Delineation of Well 4a
20	Baseline	Wanapum	None	MWCAP	1 yr	Selected Values	scen20.shp	Delineation of Well 4a
21	Baseline	Saddle Mountains (well9)	None	MWCAP	10 yrs	Selected Values	scen21.shp	Delineation of Well 9
22	Baseline	Saddle Mountains (well9)	None	MWCAP	5 yrs	Selected Values	scen22.shp	Delineation of Well 9
23	Baseline	Saddle Mountains (well9)	None	MWCAP	1 yr	Selected Values	scen23.shp	Delineation of Well 9
24	Adjusted Pumping Rates	Saddle Mountains	Discharge Rate	GPTRAC	10 yr	well 6 - 50% pump capacity, well 7 - 75 % pump capacity	scen24.shp	adjusted discharge rates based on historical usage and projected year 2025 demands
25	Adjusted Pumping Rates	Saddle Mountains (well9)	Discharge Rate	MWCAP	10 yr	well 9 - 75% pumping capacity	scen25.shp	adjusted discharge rates based on historical usage and projected year 2025 demands
26	Adjusted Pumping Rates	Overburden	Discharge Rate	GPTRAC	10 yr	well 5 - 50% pumping capacity, well 8 - 75% pumping capacity	scen26.shp	adjusted discharge rates based on historical usage and projected year 2025 demands
27	Adjusted Pumping Rates	Wanapum (well4)	Discharge Rate	MWCAP	10 yr	well 4 - 50% pumping capacity	scen27.shp	adjusted discharge rates based on historical usage and projected year 2025 demands


10-yr TOT (GPTRAC Output)
(Wells 5 and 8 - Scenario 15)
10-yr TOT (MWCAP Output)
(Well 4 - Scenario 18)
10-yr TOT
(MWCAP Output)
(Well 9 - Scenario 21)
8
4
5
9
6
760
786
10-yr TOT (GPTRAC Output)
(Wells 6 and 7 - Scenario 12)
7
LEGEND
City Wells
WHPA Model Output
Overburden Reference Well
Saddle Mountains Reference Well
WHPA Model Output
10-yr TOT



Model Scenarios with Adjusted Discharge Rates to Match Historical Well Production.

Appendix E

Summary Tables from Contaminant Inventory Databases

Table E-1 Potential Contaminated Sites and Wellhead Protection Area Impacted			
		WHPA	
Site ID	Facility	Well #	Time of Travel
1	ARCO 5939		N.A.
2	Bargain Hut	7	5-year
3	BBP Inc. (Underwood Oil)	4a	1-year
4	Bee Jay Scales (Sandy Farms)	5 8	5-year 1-year
5	Bleyhl Farm Service	6	1-year
6	Bleyhl Farm Service	7	5-year
7	Bob's Auto Clinic	7	10-year
8	Burlington Northern Rail Terminal	4	5-year
9	Canam Steel Corp.	6	5-year
10	Carnation Company	7	5-year
11	Cascade Natural Gas	4 5&8 7	5-year 5-year 10-year
12	Chateau Ste Michelle	6	10-year
13	Circle L	5 8	5-year 1-year
14	Cliff's Battery Service	5 8	10-year 10-year
15	DRR Fruit Products		N.A.
16	Estudillo's Food Store		N.A.
17	Fry Building	4 5&8	1-year 5-year
18	Golob & Sons		N.A.
19	Green Valley Implements / Speck Motors		N.A.
20	Hickenbottom Sons Inc.	4 5&8	10-year 5-year
21	Independent Food Processors	7	5-year
22	Jackpot Food Mart 069	5&8	10-year
23	Jackpot Food Mart 066		N.A.
24	James River Corporation (Johnson Concentrates)	5 8	1-year 5-year
25	Jerry's Steel Supply	4 5&8	5-year 5-year
26	Johnny's Texaco	4 7	5-year 10-year
27	Johnson Fruit & Cold Storage	4 5&8	5-year 5-year
28	Johnson Fruit Cannery	4 5&8	10-year 5-year
29	JRJ Service Inc.	5&8	5-year
30	Kelloggs Korner		N.A.
31	La Rosita Bakery	8	1-year
32	Maid O' Clover	6	5-year
33	Manhole 34 PLP Group	5&8	5-year
34	Marquez Manufacturing Ltd.		N.A.

Table E-1 Potential Contaminated Sites and Wellhead Protection Area Impacted			
		WHPA	
Site ID	Facility	Well #	Time of Travel
35	Mirastor #62022		N.A.
36	Monson & Sons (Bar-S)	7	1-year
37	Neighborhood Church		N.A.
38	Outpost		N.A.
39	Park n Pak	7	5-year
40	Pet Health Clinic	6	5-year
41	Port of Sunnyside WWTP		N.A.
42	PW Pipe	7	1-year
43	RDO Equipment Co.		N.A.
44	Roza Irrigation District	4	10-year
		6	5-year
45	School District Bus Garage	6	1-year
46	Simplot Soilbuilders	5	1-year
		8	5-year
47	Star Transport Trailers		N.A.
48	Sun King Fruit Co.	7	1-year
49	Sunny Spot		N.A.
50	Sunnyside Chevron	7	1-year
51	Sunnyside Municipal Airport	9	1-year
52	Sunnyside Municipal Well 1	4	10-year
		5&8	10-year
53	Sunnyside WWTP	7	1-year
54	Sunnyside Valley Irrigation District	7	1-year
55	Tom Denchel Ford	4	1-year
		5&8	5-year
56	Tucker & Co	6	1-year
57	Union Pacific Railroad	4	5-year
		5&8	5-year
58	United Telephone Co.	4	5-year
		5&8	5-year
59	Unocal Bulk Plant 0766	7	5-year
60	Upland Farms	4	10-year
		7	10-year
61	Valley Dry Cleaners	4	5-year
		5&8	10-year
62	Valley Processing	4	10-year
		5	1-year
		8	5-year
63	Valley Truck Repair		N.A.
64	Valley View Gas Mart (Time Oil)	7	5-year
65	Washington Hills Cellars	7	5-year
66	West Farm Foods (Darigold)		N.A.
67	Wondrack Distributing	7	5-year
68	Yakima Chief Inc.	7	1-year
69	Yakima Co Maint. Shops	5	1-year
		8	5-year

Table E-2 Confirmed and Suspected Contaminated Sites					
Facility	**Address**	**Media [1] – Status**	**Contaminants**	**WARM Ranking**	**Clean-up Status [2]**
Bee Jay Scales	116 N 1st St.	Soil -Confirmed GW - Confirmed	Halogenated Organics; Pesticides	1	RA in Progress
Bleyhl Farm Services	1720 Eastway Dr.	Soil -Confirmed GW - Confirmed	Petroleum Products	N.A.	Awaiting Site Hazard Assessment
Cascade Natural Gas	512 Decatur Ave.	Soil -Confirmed GW - Confirmed	Conventional Organics; Petroleum Products	1	RA Conducted; Residual Contamination Remains On-Site; On-going Institutional Controls Required
Circle L	809 State Hwy 12	Soil -Suspected GW - Suspected	Petroleum Products	1	Ranked; Awaiting RA
Cliff's Battery Service	Scoon & Woodin Rd.	Soil - Confirmed	Heavy Metals	4	Ranked; Awaiting RA
Fry Building	111 S. 6th St.	Soil -Confirmed GW - Confirmed	Petroleum Products	N.A.	Awaiting Site Hazard Assessment
Hickenbottom Sons	301 Warehouse Ave.	Soil -Confirmed GW - Confirmed	Halogenated Organics; Pesticides; Petroleum Products (Soil only)	N.A.	Awaiting Site Hazard Assessment
Johnny's Texaco	636 E. Edison Ave.	Soil -Confirmed GW - Confirmed DW - Suspected	Petroleum Products; Halogenated Organics (GW & DW only)	4	RA in Progress
Kellogg's Korner	200 Midvale Rd.	Soil -Confirmed GW - Confirmed DW - Suspected	Petroleum Products	1	RA Completed; Monitoring In Progress
La Rosita	200 N. 1st St.	Soil -Confirmed GW - Confirmed	Non-Halogenated Solvents; Petroleum Products	2	Ranked; Awaiting RA
Maid O Clover	1530 Hwy 12	Soil -Confirmed GW - Confirmed	Petroleum Products	3	Ranked; Awaiting RA
Manhole 34 PLP Group	600-601 & 621 Hwy 12	Soil -Confirmed GW – Confirmed	Petroleum Products	1	Construction Completed; Operations & Maintenance Underway
Roza Irrigation District	125 S. 13th St.	Soil -Confirmed GW - Confirmed	Petroleum Products	3	Interim RA Report Completed
Sunnyside Municipal Well No. 1	Grant St.	Soil -Confirmed GW - Confirmed	Halogenated & Conventional Organics	3	Ranked; Awaiting RA
Unocal Bulk Plant 0766	511 Lincoln St.	Soil -Confirmed GW - Confirmed	Petroleum Products	1	Interim RA Report Completed

Table E-2 Confirmed and Suspected Contaminated Sites					
Facility	**Address**	**Media [1] – Status**	**Contaminants**	**WARM Ranking**	**Clean-up Status [2]**
Valley Dry Cleaners	422 S. 6th St.	Soil -Confirmed GW - Confirmed	Halogenated Organics	2	Ranked; Awaiting RA

1 Media: DW=Drinking Water; GW=Groundwater
2 RA=Remedial Action; Taken from WARM rankings.

Table E-3 Operational Registered Underground Storage Tanks		
Facility	**Address**	**Size and Substance Stored**
Arco 5939	1850 Waneta Rd.	Four USTs (leaded gasoline) • 5,000-9,999 gal • 5,000-9,999 gal • 5,000-9,999 gal • 5,000-9,999 gal
BBP Inc. (Underwood Oil)	106 N. 9th	Four USTs • 10,000-19,999 gal (leaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (diesel)
Bleyhl Farm Service	1720 Eastway Dr.	Four USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (diesel)
Bleyhl Farm Service	303 E. Lincoln St.	Four USTs • 5,000-9,999 gal (unleaded gasoline) • 5,000-9,999 gal (alcohol blend gasoline) • 10,000-19,999 gal (alcohol blend gasoline) • 10,000-19,999 gal (diesel)
Bob's Auto Clinic	1006 Lincoln	One UST (closure in progress) • 111-1,100 gal (used/waste oil)
Carnation Company	111 E. Lincoln Ave.	Two USTs (closure in progress) • size unknown (leaded gasoline) • size & substance unknown
Chateau Ste Michelle	Box 55 Vernita Star Rt.	Two USTs (status unknown) • size unknown (unleaded gasoline) • size unknown (unleaded gasoline)
Estudillo's Food Store	2601 Sheller Rd.	Two USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline)
Jackpot Food Mart 069	600 Yakima Valley Hwy	Three USTs • 5,000-9,999 gal (leaded gasoline) • 5,000-9,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline)
Jackpot Food Mart 066	1121 S. 16th St.	Three USTs • 5,000-9,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (leaded gasoline)
Johnny's Texaco	636 E. Edison Ave.	Three USTs • 5,000-9,999 gal (unleaded gasoline) • 5,000-9,999 gal (leaded gasoline) • 2,001-4,999 gal (unleaded gasoline)
Maid O' Clover	1530 Hwy 12	Three USTs • 5,000-9,999 gal (unleaded gasoline) • 5,000-9,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline)

Table E-3 Operational Registered Underground Storage Tanks		
Facility	**Address**	**Size and Substance Stored**
Mirastor #62022	2665 E. Lincoln Ave.	Three USTs • size unknown (unleaded gasoline) • size unknown (unleaded gasoline) • size unknown (diesel)
Outpost	1825 Waneta Rd.	Four USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (leaded gasoline) • 10,000-19,999 gal (diesel)
Park n Pak	905 Lincoln Ave.	One UST (Size & Substance Unknown)
Roza Irrigation District	125 S. 13th St.	Two USTs • 1,101-2,000 gal (unleaded gasoline) • 1,101-2,000 gal (diesel)
Sunny Spot	1850 Yakima Valley Hwy	Two USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline)
Sunnyside Chevron	1805 S. 1st St.	Three USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 20,000-29,999 gal (unleaded gasoline)
Tucker & Co	31501 Yakima Valley Hwy.	Five USTs • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline) • 10,000-19,999 gal (diesel)
Upland Farms	Rt. 1 Box 1166	Two USTs (Closure in Progress) • size unknown (leaded gasoline) • size & substance unknown
Valley View Gas Mart (Time Oil)	107 W. Lincoln	Two USTs (Closure in Progress) • 5,000-9,999 gal (unleaded gasoline) • 10,000-19,999 gal (unleaded gasoline)
Wondrack Distributing	111 South Hill Rd.	Three USTs • 5,000-9,999 gal (unleaded gasoline) • 5,000-9,999 gal (unleaded gasoline) • 10,000-19,999 gal (diesel)
Yakima Co Maint. Shops	321 S. 1st St.	Two USTs • 5,000-9,999 gal (unleaded gasoline) • 5,000-9,999 gal (diesel)

Table E-4 Exempt, Closed, or Removed Registered Underground Storage Tanks				
Facility	Address	Tanks		
		Removed	Closed in Place	Exempt
Bargain Hut	515 Harrison	1		
BBP Inc. (Mercer Oil)	349 6th St.	7		
BBP Inc. (Underwood Oil)	106 N 9th	2		
Bee-Jay Scales	116 N. 1St St.		1	
Bleyhl Farm Service	1720 Eastway Dr.	3		
Bob's Auto Clinic	1006 Lincoln	3		
Burlington Northern Railroad	MP 54.5 12th Sub.	4		
Cascade Natural Gas	512 Decatur Ave.	4		
Circle L	809 Hwy 12	3		
City Fire Station	513 8th St.		1	
Clapp Orchards	1081 N. Puterbaugh Rd.	3		
Debock's Used Cars	1104 E. Hwy 12	3		
Emerald Acres	Route 1 Box 1164	2		
Estudillo's Food Store	2601 Sheller Rd.		4	
Fry Building	111 S. 6th St.	2		
Green Valley Implements (Speck Motors)	61 E. Allen Rd.	7		
Hickenbottom and Sons	301 Warehouse Ave.	2		
Hutchinson, Jerry W.	511 Midvale Rd.	2		
Independent Food Processors	1525 S. 4th St.	2		
Irving Newhouse & Sons	S. Emerald Rd.	1		
James River Corporation (Johnson Concentrates)	310-314 Edison Ave.	1		
Jerry's Steel Supply	232 N. 6th St.	2		
Jim's Texaco	1236 Hwy 12	8		
Johnny's Mobil	636 E. Edison	3		
Kellogg's Korner	270 Midvale Rd.	3		
La Rosita Bakery	200 N. 1st St.	2		
Lower Valley Golf Course	31 Ray Rd.	2		
Marquez Manufacturing	Factory Rd.	2		
Mountain States Const. Co.	803 Scoon Rd.			9
Neighborhood Church	1510 Lincoln Ave.			1
Pacific Power & Light	4th & Lincoln	1	1	
Park N Pak	905 Lincoln Ave.	5		
Pet Health Clinic	2210A E. Edison Rd.	2		
Quality Auto	11th & Hwy 12		3	
Rainier Pathology	821 Yakima Valley Hwy	2	1	
Phillipp Petroleum	612 Hwy 12	4		
Roza Irrigation District	125 S. 13th St.	3		
Silver Dollar Café	Star Rt. Vernita		2	
Star Trailers	Hanford & Factory Rds.	2		
Stimson Lane Ltd.	5 mi. E of Jct 241 & 24 Cold Creek Rd.			2
Sun King Fruit Co.	325 E. South Hill Rd.	2		
Sunny Lube	820 Yakima Valley Hwy	1		
Sunny Mart	603 E. Lincoln	3		
Sunnyside Community Hospital	10th & Tacoma St.	1		
Sunnyside Land Group	Holmason Rd.	3		

Table E-4 Exempt, Closed, or Removed Registered Underground Storage Tanks				
Facility	Address	Tanks		
		Removed	Closed in Place	Exempt
Sunnyside Maintenance Headquarters	1509 S. 6th	2		
Sunnyside Maintenance Shops (Closed)	5th &Grant	3		
Sunnyside School District Bus Garage	Edison & Hwy 12	5		
Sunnyside School Maintenance Shops	9th ST.		4	
Sunnyside Texaco	6th & Hwy 12	5		
Sunnyside Valley Irrigation District	120 S. 11th	4		
Sunnyside Valley Irrigation District Shops	1433 S. 4th St.	1		
Sunnyside Wildlife Area	230 Holaday Rd.			2
Swan Market	791 Swan Rd.	2		
Ted Durfey	Emereld Rd.	1		
Union Pacific Railroad	S. 5th Ave. & Edison		4	
United Telephone Co.	409 S. 5th	2		
U.S. Bank	7th & Franklin			1
Van de Graaf Ranches	Rt 1 Box 1378	4		
Vance Dairy Construction	¾ Mi E. of Hwy 26	2		
WA State Patrol	Lat 46 29 11, Long 120 00 10	1		
WA State Patrol	110 E. North Ave.	1		
WA State Patrol	Lat 46 49 24, Long 120 51 20	1		
Wayne Linder Auto Repair	100 N. 16th		2	
Wind Irrigation	1501 Factory Rd.	2		
Yakima Rendering Col	Midvale	2		
Zelenka Nursery	Van Belle & Scoon Rds.	2		

Table E-5 Reported Leaking Underground Storage Tank Locations				
Facility	Address	Reported Status	Media	
			Soil	Groundwater
Bargain Hut	515 Harrison	Awaiting Cleanup	X	
Bleyhl Farm Service	1722 Eastway Dr.	Awaiting Cleanup Monitoring	X	X
Bob's Auto Clinic	1006 Lincoln	Cleanup Started	X	
Burlington Northern Railroad	MP 54.5 12th Sub.	Cleanup Started	X	X
Cascade Natural Gas	512 Decatur Ave.	Cleanup Started	X	X
Circle L	809 Hwy 12	Cleanup Started	X	
Fry Building	111 S 6th St.	Cleanup Started	X	X
Green Valley Implements (Speck Motors)	61 E. Allen Rd.	Cleanup Started	X	
Hickenbottom & Sons	301 Warehouse Ave.	Cleaned Up (1996)	X	X
Jerry's Steel Supply	232 N. 6th St.	Cleanup Started	X	
Johnny's Mobil	636 E. Edison	Cleanup Started	X	X
Kelloggs Korner	270 Midvale Rd.	Cleanup Started Monitoring	X	X
La Rosita Bakery	200 N. 1st St.	Awaiting Cleanup	X	X
Maid O' Clover	1524 Yakima Valley Hwy	Awaiting Cleanup	Unknown	
Neighborhood Church	1510 Lincoln Ave.	Cleaned Up (2001; Exempt Tank)	X	
Pet Health Clinic	2210A E. Edison Rd.	Cleanup Started	X	
Roza Irrigation District	125 S. 13th St.	Monitoring	X	X
Sun King Fruit Co.	325 E. South Hill Rd.	Cleanup Started	X	X
Sunny Mart	603 E. Lincoln	Cleaned Up (2002)	X	
Sunnyside School District Bus Garage	Edison & Hwy 12	Cleaned Up (2000)	X	X
Sunnyside Valley Irrigation District	1433 S. 4th St.	Cleanup Started	X	X
Union Pacific Railroad	S 5th Ave & Edison	Cleanup Started Monitoring	X	X
United Telephone Co.	409 S. 5th	Monitoring	X	X
US Bank	7th & Franklin	Cleaned Up (1998)	X	
Valley View Gas Mart	107 W. Lincoln	Monitoring	X	X
Zelenka Nursery	Van Belle & Scoon Rds.	Cleaned Up (2001)	X	

Table E-6 Hazardous Waste Generators		
Facility	**Address**	**Quantity & Status**
Arco 5939	1850 Waneta Rd.	Small Generator
Bee Jay Scales (Sandy Farms)	116 N. 1st St.	No Waste Reported for 3 Years (EPA ID # Remains Active)
Bleyhl Farm Service	1722 Eastway Dr.	No Waste Reported for 3 Years (EPA ID # Remains Active)
Canam Steel Corp.	2002 Morgan Rd.	Large Generator RCRA Facility (all waste shipped off-site)
Green Valley Implements / Speck Motors	61 E. Allen Rd.	Small Generator
Johnny's Texaco	636 E. Edison Ave.	Small Generator
JRJ Service Inc.	405 Scoon Rd.	Small Generator
Manhole 34 PLP Group	Yakima Valley Hwy & N. 6th St.	No Waste Reported in 2002 EPA ID # Reactivated in 2002
Marquez Mfg. Ltd	410 Factory Rd.	Small Generator
PW Pipe	1820 S. 1st St.	Small Generator
RDO Equipment	140 Midvale Rd.	Small Generator
Roza Irrigation District	125 S. 13th St.	Small Generator
Simplot Soilbuilders	1st & Zillah Ave.	Small Generator
Star Transport Trailers	230 Hwy 241	Small Generator
Tom Denchel Ford	301 S. 6th St.	Small Generator
Valley Truck Repair	601 Hwy 241	Small Generator
Yakima Chief Inc.	520 S. Hill Rd.	Medium Generator
Yakima Co Maint. Shops	321 S. 1st St.	Small Generator No Waste

Table E-7 Licensed and Certified Feedlots	
Facility	**Address**
Golob & Sons	2391 Sheller Rd.
Monson & Sons (Bar-S)	Lat 46.18.52; Long 120.00.53

Appendix F

Sample Notification Letters

Letter to Interested Agencies

Date

Mr./Mrs.

Dear (Agency/Local Government):

As part of the wellhead protection program for the City of Sunnyside, we are hereby informing you of the findings of our wellhead protection area delineation. This is in accordance with State regulations (WAS246-290-135).

Our utility serves a population of approximately 14,500 people. The enclosed map shows the 1, 5 and 10 year time of travel boundaries for our wellhead protection area. Any ground water contamination that occurs within this wellhead protection area has a high potential to reach our well. It is therefore of utmost importance to us that all reasonable steps be taken to ensure that land use activities within this area do not contaminate our customers' drinking water supplies

Thank you for your support in protecting our drinking water.

Sincerely,

Letter to Property Owners

Date

Mr.

Dear (Owner/Operator):

In order to protect the drinking water supply for the customers of the City of Sunnysdie, we are developing a wellhead protection program in accordance with State requirements and wanted to notify you that your property is sited in the wellhead protection area.

The wellhead protection area is an area which falls within the short-term recharge zone of our drinking water supply wells. We conducted an inventory of potential sources of ground water contamination within this area and found that the nature of the activities on your site, and its location within our wellhead protection area, means that these activities have the potential to affect our customers' drinking water supply.

We have notified the regulatory agency(ies) that regulates your type of business/facility of your presence within our wellhead protection area. We suggest that you contact them to request technical assistance to help manage your business in a way that will best prevent ground water contamination.

We realize you are already careful to protect the environment as you conduct your business. We hope that informing you of your location in our wellhead protection area will result in an increase in precautions to ensure that your activities will not impact our drinking water quality.

Sincerely,

Appendix 7 Cross Connection Control Documents

A. Cross Connection Control Plan
B. 2016 Annual Summary Report

Cross-Connection Control Plan

For

City of Sunnyside

Prepared By: Backflow Management Inc.

Cross-Connection Control Program Plan
For
The City of Sunnyside

The City of Sunnyside, PWS ID # 854003, hereinafter referred to as "the City", has the responsibility to protect the public water system from contamination due to cross connections. A cross connection may be defined as *"any actual or potential physical connection between a potable water line and any pipe, vessel, or machine that contains or has a probability of containing a non-potable gas or liquid, such that it is possible for a non-potable gas or liquid to enter the potable water system by backflow."*

All public water systems are required to develop and implement cross-connection control (CCC) programs. The CCC requirements are contained in Washington Administrative Code (WAC) 246-290-490 of the Group A Drinking Water Regulations. The minimum required elements of a CCC program are:

1. Establishment of legal authority and program policies;
2. Evaluation of premises for cross-connection hazards;
3. Elimination and/or control of cross connections;
4. Provision of qualified personnel;
5. Inspection and testing of backflow preventers;
6. Quality control of testing process;
7. Response to backflow incidents;
8. Public education for consumers;
9. Record keeping for CCC program; and
10. Special requirements for reclaimed water use.

Other CCC program requirements include:

1. Coordination with the Authority Having Jurisdiction (AHJ), i.e., the local building or plumbing official regarding CCC activities;
2. Prohibition of the return of used water into the public water system (PWS) distribution system; and
3. Inclusion of a written CCC program in a Water System Plan (WSP).

Note: Throughout the CCC program plan the term *customer* is used. *Customer* as used herein means the property owner and/or occupant of the premises served by the PWS (i.e., whoever interfaces with the PWS regarding water service). Also, unless otherwise defined, all CCC-related terms used in this example program have the same definitions as those contained in WAC 246-290-010 of the Washington State Drinking Water Regulations.

B. Program Objectives

The objectives of the CCC program are to:

1. Reasonably reduce the risk of contamination of the public water distribution system; and
2. Reasonably reduce the City's exposure to legal liability arising from the backflow of any contaminant originating from the customer's plumbing system and then supplied to other customers.

C. Summary of Program Decisions

The following table summarizes the major policy and program decisions adopted for The City of Sunnyside. The items in the table represent CCC program areas that have more than one acceptable approach or option.

CCC Program Decision Summary Table for The City of Sunnyside

Decision Item	Decision
1. Type of Program [General, WAC 246-290-490(2)(e)]	
a. Premises isolation only	
b. Premises isolation and in-premises protection (combination program)	*
2. Extent of Coordination with AHJ [WAC 246-290-490(2)(d)]	
a. Information exchange	*
b. Interaction	
c. Joint program	
3. Relationship with Customer [Element 1]	
a. Signed service agreement or contract	
b. Ordinance/resolution; implied service agreement	*
4. Enforcement of Corrective Action [Element 1]	
a. Rely upon shut-off of water service	*
b. Rely upon City-installed premises isolation	
5. Assessment and Re-assessment of Hazard [Element 2]	
a. By City's staff or equivalent	*
b. By cross-connection control specialist (CCS) employed by customer; report reviewed by City's CCS	
6. Location and Ownership of Premises Isolation Assembly [Element 3]	
a. On City's service line	
b. On customer's service line	*
7. CCS Option – City's Program Management [Element 4]	
a. City's staff member certified	*
b. Inter-agency agreement or use other agency's CCS	
c. Contract with consultant CCS	
8. Testing of Assemblies [Element 5]	
a. By City's staff or City-employed backflow assembly tester (BAT)	
b. By customer-employed (contractor) BAT	*
9. Cost Recovery [WAC 246-290-100(4)(h) and –105(4)(p)]	
a. Borne by all customers (general water rates)	
b. Assessed to specific class (commercial meters)	
c. Each customer directly bears cost	*

D. Required Elements of Program

The drinking water regulations for Group A public water systems in Washington, WAC 246-290, require CCC programs to include certain minimum elements. The elements are listed in WAC 246-290-490(3). This section describes how the water system intends to comply with each of the required program elements. Elements are numbered the same as they appear in the WAC.

Element 1: *Adoption of a written legal instrument authorizing the establishment and implementation of a CCC program.*

The City of Sunnyside has adopted an Ordinance (Ordinance No. 2079), which authorizes the City to implement a CCC program. The Ordinance also authorizes the City to terminate water service to consumers who do not comply with the requirements. However, the primary method for protection of the distribution system will be the installation of a backflow preventer by the customer, at the customer's expense.

For customers supplied prior to the adoption of the ordinance, an implied service contract allows the City to protect the distribution system from contamination through a City-installed backflow preventer on a customer's service.

Element 2: *Development and implementation of procedures and schedules for evaluating new and existing service connections to assess the degree of hazard.*

Initial Cross-Connection Hazard Surveys

The procedures for evaluating the backflow prevention requirements for new and existing customers are as follows:

1. For all ***new non-residential services***, the City will require that the customer submit with the application for water service to an evaluation by a DOH-certified cross-connection control specialist (CCS) employed by the City, of the hazard posed by the proposed plumbing system, with recommendations for the installation at the meter of either a double-check valve assembly (DCVA) or a reduced-pressure principle backflow assembly (RPBA) or commensurate in-premises backflow protection.

   As an alternative to the above requirement for a survey by a CCS, the customer may agree to install an approved air gap (AG) or RPBA for premises isolation as a condition of service.

2. For all ***new residential services***, the City will require that the customer submit with the application for water service a completed "Water Use Questionnaire". If the customer's questionnaire indicates special plumbing, such as a lawn sprinkler system, or hazardous water use on the premises, the customer shall submit to the City to an evaluation by a DOH-certified CCS employed by the City, of the hazard posed by the special plumbing system, with recommendations for the installation at the meter of either a DCVA or an RPBA or

commensurate in-premises protection.

As an alternative to the above requirement for a survey by a DOH-certified CCS, the City, at his/her discretion, may specify the backflow preventer required to be installed as a condition of service.

3. For all ***existing non-residential services***, the City will require the customer to submit to an evaluation by a DOH-certified CCS employed by the City, of the hazard posed by the plumbing system, with recommendations for the installation at the meter of either a DCVA or an RPBA or commensurate in-premises backflow preventers.

   As an alternative to the above requirement for a survey by a DOH-certified CCS, the customer may agree to install an AG or RPBA for premises isolation within 90 days of notification by the City or an alternate time period acceptable to the City.

4. For all ***existing residential services***, the City will require the customer to submit to the City, within four months of notification, a completed "Water Use Questionnaire." If the customer's reply indicates special plumbing or water use on the premises, the customer shall submit to an evaluation by a DOH-certified CCS employed by the City of the hazard posed to the water system by the customer's plumbing system, with recommendations for the installation at the meter of either a DCVA or an RPBA or commensurate in-premises backflow preventers.

   As an alternative to the above requirement for a survey by a CCS, the City may specify the backflow preventer required to be installed as a condition of service. The City's CCS will provide guidance on the type of backflow preventer to be installed.

5. For all existing services, should the customer fail to supply the required information for a hazard assessment or fail to submit a completed "Water Use Questionnaire," the City may require the installation of an RPBA for premises isolation, or take other such actions consistent with the previously stated policies and bill the customer for the associated costs.

Cross-Connection Hazard Survey Schedule for Initial Hazard Assessments

The schedule for initial hazard assessment is outlined in the following table. The schedule starts from the date the CCC program is established.

Initial Assessment Task	Schedule
Assessment of all new connections	At time of application for water service
Identification and assessment of high-hazard premises which are listed on Table 9 of Washington Administrative Code (WAC) 246-290-490	Within nine months
Identification and assessment of hazardous premises supplemental to Table 9 of WAC 246-290-490	Within 12 months
Identification of residential connections with special plumbing facilities and/or water use on the premises	Within 15 months

Cross-Connection Hazard Survey Schedule for Subsequent Hazard Re-Assessments

For subsequent cross-connection hazard surveys, procedures for evaluating the backflow prevention requirements are:

1. For **residential services,** the City will require the customer to submit to the City, within two months of City notification, a completed "Water Use Questionnaire." The procedure used for evaluating the hazard re-assessment and the potential change in the required backflow prevention will be the same as used for the initial hazard assessment.
2. For all **non-residential services**, the City will require the customer to submit to a hazard re-assessment within two months of City notification.

The frequency of hazard re-assessments will be as shown in the table below:

Type of Service	Frequency of Re-Evaluation
Any services with reduced-pressure principle backflow assembly (RPBA) installed for premises isolation	None required as long as the RPBA passes annual tests and inspections
Commercial services with double-check valve assembly (DCVA) installed for premises isolation	Every two years and upon change in use or ownership
Commercial services when City relies upon in-premises protection	Every two years and upon change in use, ownership, or plumbing system
Residential services with special plumbing where the City relies upon compliance with Uniform Plumbing Code (UPC)	Every 2-3 years (questionnaire)
Residential services with DCVA installed for premises isolation	Every 4-5 years (questionnaire)

The City will inform the customer that the City's survey of a customer's premises (whether by a representative of the City or through the evaluation of a questionnaire completed by the customer) is for the sole purpose of establishing the City's minimum requirements for the protection of the public water supply system, and that the required backflow protection will be commensurate with the City's assessment of the degree of hazard.

The City will also inform the customer or any regulatory agencies that the City's survey, requirements for the installation of backflow prevention assemblies, lack of requirements for the installation of backflow prevention assemblies, or other actions by the City's personnel or agent do not constitute an approval of the customer's plumbing system or an assurance to the customer or any regulatory agency of the absence of cross connections.

Element 3: *Development and implementation of procedures and schedules for elimination and/or control of cross-connections.*

Backflow Preventer Requirements

The following service policy shall apply to all new and existing customers:

1. The City will require that water service to all **non-residential customers** be isolated at the meter by a DOH-approved DCVA or RPBA acceptable to the City. All high-hazard connections of the type described in Table 9 of WAC 246-290-490 shall be isolated with an RPBA.

   In lieu of isolation with a DCVA, other non-residential customers, with the concurrence of the City's CCS, may install in-premises protection commensurate with the degree of hazard, as determined by the City's CCS.

2. The City will require all **residential customers** with facilities of the type described in Table 9 of WAC 246-290-490 to be isolated with an RPBA. All other residential customers with special plumbing or water use on the premises will be isolated with a DCVA. "Special plumbing" includes, but is not limited to, the following:

   a. A lawn irrigation system;
   b. A solar heating system;
   c. An auxiliary source of supply, e.g., a well or creek;
   d. Piping for livestock watering, hobby farming, etc.;
   e. Residential fire sprinkler system; and
   f. Property containing a small boat moorage.

3. Residential customers not required to be isolated with an RPBA may install in-premises protection in accordance with the Uniform Plumbing Code (UPC) in lieu of isolation with a DCVA.

4. For all customers, a required premises isolation DCVA or RPBA shall be:

   - Purchased and installed by the customer (at the customer's expense) immediately downstream of the water meter in accordance with the City's standards described hereinafter; and
   - Maintained, tested, and inspected in accordance with the City's standards described hereinafter.

   For new customers, the City will not turn on water (except for testing purposes) at the meter until the customer complies with the above requirements.

   The failure of the customer to comply with the City's installation and maintenance requirements shall constitute a breach of contract by the customer. The City may then proceed with corrective action provisions stipulated in the contract.

5. **Approved Backflow Preventers and Installation**

   All backflow preventers relied upon by the City to protect the public water system shall meet the definition of "approved backflow preventer" as contained in WAC 246-290-010. The City will obtain and maintain a current list of assemblies approved for installation in Washington State from the DOH Office of Drinking Water.

   All backflow preventers will be installed in:

   - The orientation for which they are approved;
   - A manner and location that facilitates their proper operation, maintenance, and testing or inspection;
   - A manner that will protect them from weather-related conditions such as flooding and freezing; and
   - Compliance with applicable safety regulations.

Installation standards contained in the most recently published edition of the Pacific Northwest Section, American Water Works Association (PNWS-AWWA) *CCC Manual* or the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USCFCCCHR) *CCC Manual* shall be followed unless the manufacturer's requirements are more stringent.

The City has no regulatory responsibility or authority over the installation and operation of the customer's plumbing system. The customer is solely responsible for compliance with all applicable regulations and for prevention of contamination of his plumbing system from sources within his/her premises. Any action taken by the City to survey plumbing, inspect or test backflow prevention assemblies, or to require premises isolation (installation of DCVA or RPBA on service) is solely for the purposes of reducing the risk of contamination of the City's distribution system.

The City will inform the customer that any action taken by the City shall not be construed by the customer as guidance on the safety or reliability of the customer's plumbing system. The City will not provide advice to the customer on the design and installation of plumbing other than through the general public education program discussed in Element 8.

Except for easements containing the City's distribution system, the City will not undertake work on the customer's premises.

8. Schedule for Installation of Backflow Preventers

The following table shows the schedule that the City will follow for installation of backflow preventers when they are required (based on the hazard evaluation).

Type of Service	Schedule
New connections with cross-connection hazards	Before service is initiated
Existing connections with Table 9-type hazards and other high cross-connection hazards	Within 90 days after notification
Existing connections with other than Table 9 of WAC 246-290-490 or high cross-connection hazards	Within 180 days after notification (suggested)
Existing fire protection systems using chemicals or supplied by unapproved auxiliary water source	Within 90 days after notification
Existing fire protection systems not using chemicals and supplied by City's water	Within 1 year after notification (suggested)

The City may consider granting an extension of time for installation of backflow preventer for an existing connection if requested by the premises owner.

Element 4: *Provision of qualified personnel, including at least one person certified as a CCS, to develop and implement the CCC program.*

1. **Program Administration:** The responsibility for administration of the CCC Program rests with the City. General policy direction and risk management decisions are established by the City council. The City will employ or have on staff at least one person certified by DOH as a CCS to develop and implement the CCC program. As an alternative, or when no staff or employees are properly qualified, the City may retain a DOH-certified CCS on contract to provide the necessary expertise and services.

2. The following cross-connection related tasks will be performed by or under the direction of the City's certified CCS (on staff or under contract):

   - Preparation of and recommendations regarding changes to the CCC program;
   - Performance of and/or reviews of CCC hazard evaluations;
   - Recommendations on the type of backflow preventer to be installed;
   - Recommendations on schedules for retrofitting of backflow preventers;
   - Inspections of backflow preventers for proper application and installation;
   - Reviews of backflow preventer inspection and test reports;
   - Reviews of backflow testing quality control information;
   - Recommendations and/or the granting of exceptions to mandatory premises isolation;
   - Participation in or cooperation with other water utility staff in the investigation of backflow incidents and other water quality problems;
   - Completion of Backflow Incident Reports; and
   - Completion of CCC Activity and Program Summary Reports.

3. The City may delegate other CCC program activities to other personnel who are not certified CCSs, including clerical support staff. These activities include:

   - Administration of paperwork associated with service agreements;
   - Mailing, collecting, and initial screening of hazard evaluation/water use questionnaires;
   - Mailing of assembly testing notices;
   - Receiving and screening of assembly testing reports;
   - CCC program database administration and record keeping;
   - Dissemination of public education material; and
   - Assisting tasks associated with coordination with the AHJ.

Element 5: *Development and implementation of procedures to ensure that approved backflow preventers are inspected and/or tested (as applicable).*

1. **Inspection and Testing of Backflow Preventers**

All backflow preventers that the City relies upon for protection of the water system will be subject to inspection and, if applicable, testing. This includes backflow preventers installed for in-premises protection that the City relies upon for protection of the water systems.

Inspection and testing of backflow preventers will be as follows:

- The City's DOH-certified CCS will inspect backflow preventers for proper application (i.e., to ensure that the preventer installed is commensurate with the assessed degree of hazard).
- Either a DOH-certified CCS or backflow assembly tester (BAT) will perform inspections of backflow preventers for correct installation.
- A DOH-certified backflow assembly tester will test all assemblies relied upon by the City to protect the public water system.

2. **Frequency of Inspection and Testing**

Inspection and testing of backflow preventers will be conducted:

- At the time of installation;
- Annually after installation;
- After a backflow incident; and
- After repair, reinstallation, relocation, or re-plumbing.

The City may require a backflow preventer to be inspected and/or tested more frequently than once a year, when it protects against a high-health hazard or when it repeatedly fails tests or inspections.

3. **Responsibility for Inspection and Testing**

The City will be responsible for inspection and testing of all City-owned backflow preventers.

The City will require the customer to be responsible for inspection and testing of backflow preventers owned by the customer. The customer shall employ, at customer expense, a DOH-certified BAT to conduct the inspection and test within the time period specified in the testing notice sent by the City. The test report shall be completed and signed by the BAT, then countersigned and returned by the customer to the City, before the due date specified by the City. The customer may request an extension of the due date for returning a

test report by submitting a written request to the City. The City may grant one extension up to 90 days.

4. Approved Test Procedures

The City will require that all assemblies relied upon to protect the public water system be tested in accordance with DOH-approved test procedures as specified in WAC 246-290-490(7)(d). Any proposal to use alternate test procedures must be approved by the City's CCS.

5. Notification of Inspection and/or Testing

The City will notify in writing all customers who own backflow preventers that are relied upon to protect the public water system to have their backflow preventer(s) inspected and/or tested. Notices will be sent out not less than 30 days before the due date of the inspection and/or test. The notice will also specify the date (up to 30 days after the due date of the inspection and/or test date) by which the inspection/test report must be received by the City.

6. Enforcement

When a customer fails to send in the inspection/test report within 15 days after the due date specified, and the City has not approved an extension to the due date, the City will take the following enforcement action:

- The City will send a second notice giving the customer an additional 15 days to send in the inspection/test report.
- If the customer has not sent in the inspection/test report within 15 days of the due date given in the second notice, the City will send a third notice, giving the customer an additional 15 days to send in the report. The notice will also inform the customer that failure to satisfactorily respond to this notice will result in water service shut-off.
- The City will send copies of the third notice to the owner and occupants of the premises (if different from the customer) and to the AHJ.
- If the owner and/or occupants have not responded satisfactorily to the City within 10 days of the due date specified in the third notice, the City will implement water service shut-off procedures.

Element 6: *Development and implementation of a backflow prevention assembly testing quality assurance/quality control program.*

The City will maintain a list of local, DOH-certified BATs that are pre-approved by the City to perform the following activities:

- Backflow preventer inspection for proper installation; and
- Backflow assembly testing.

2. Pre-Approval Qualifications

BATs who wish to be included on the City's pre-approved list and/or provide testing in the City's service area must apply to the City and furnish the following information:

- Evidence of current DOH certification in good standing;
- Make and model of testing equipment (BAT listing only);
- Evidence of test equipment verification of accuracy and/or calibration within the past 12 months (BAT listing only);

3. Quality Assurance

The City's CCS will review within 30 days of receipt the backflow preventer inspection/test report forms submitted by the customer.

The City's CCS will provide follow up on test reports that are deficient in any way.

The City's CCS will report incidences of fraud or gross incompetence on the part of any BAT or CCS to DOH Operator Certification program staff.

Element 7: *Development and implementation (when appropriate) of procedures for responding to backflow incidents.*

1. Backflow Incident Response Plan

The City's CCS will participate in developing a backflow incident response plan that will be part of the water system's emergency response program as required by WAC 246-290-415(2). The incident response plan will include, but will not be limited to:

- Notification of affected population;
- Notification and coordination with other agencies, such as DOH, the AHJ, and the local health jurisdiction;
- Identification of the source of contamination;
- Isolation of the source of contamination and the affected area(s);

- Cleaning, flushing, and other measures to mitigate and correct the problem; and
- Apply corrective action to prevent future backflow occurrences.

2. Technical Resources

The City will use the most recently published edition of the manual, *Backflow Incident Investigation Procedures*, published by the PNWS-AWWA as a supplement to the Backflow Incident Response plan.

Element 8: *Development and implementation of a cross-connection control public education program.*

1. Customer Education

The City will distribute with water bills or some other means, at regular intervals, public education brochures to system customers. For residential customers, such brochures will describe the cross-connection hazards in homes and the recommended assemblies or devices that should be installed by the homeowner to reduce the hazard to the public water system. The education program will emphasize the responsibility of the customer in preventing the contamination of the public water supply. The City's staff will produce the public education brochures or the City will obtain brochures from:

- PNWS-AWWA;
- Spokane Regional Cross-Connection Control Committee (SRC4);
- Western Washington Cross-Connection Prevention Professionals Group (The Group);
- USC FCCCHR;
- Other national backflow prevention associations, such as the American Backflow Prevention Association (ABPA); and/or
- Other water utilities.

The information distributed by the City will include, but not be limited to, the following subjects:

- Cross-connection hazards in general;
- Irrigation system hazards and corrective actions;
- Fire sprinkler cross-connection hazards;
- Importance of annual inspection and/or testing of backflow preventers; and
- Thermal expansion in hot water systems when backflow preventers are installed for premises isolation.

The City will distribute information brochures to all customers every two to three years, and to every new customer at the time the service agreement is signed.

Element 9: *Development and maintenance of cross-connection control records.*

1. **Types of Records and Data to be Maintained**

   The City will maintain records of the following types of information required by WAC 246-290-490:

   - Service connections/customer premises information including:
     - Assessed degree of hazard; and
     - Required backflow preventer to protect the public water system.
   - Backflow preventer inventory and information including:
     - Air gap (AG) location, installation and inspection dates, inspection results and person conducting inspection;
     - Backflow assembly location, assembly description (type, manufacturer, make, model, size, and serial number), installation, inspection and test dates, test results and data, and person performing test; and
     - Information on atmospheric vacuum breakers used for irrigation system applications, including manufacturer, make, model, size, dates of installation and inspections, and person performing inspections.

   The City will maintain records on all assemblies that protect the public water system from contamination in a software database. At a minimum, the City will maintain records on all premises isolation assemblies required to protect the public water system. Where applicable, the above information will also be maintained for backflow preventers installed for in-premises protection that are relied upon by the City to protect the public water system.

2. **Reports to be Prepared and Submitted to DOH**

   The City will prepare the following reports required by WAC 246-290-490 including:

   - Cross-connection control program activities report for the calendar year, to be sent to DOH when requested;
   - Cross-connection control program summary information, when required, or when there are significant policy changes;
   - Backflow incident reports to DOH (and voluntarily to the PNWS-AWWA CCC Committee); and
   - Documentation when exceptions to mandatory premises isolation are granted.

   At a minimum, the City's CCS will prepare and sign the exceptions reports.

   The City's CCS will prepare and sign all CCC-related reports required by WAC 246-290-490.

Element 10: *Additional cross-connection control requirements for reclaimed water.*

At this time the City of Sunnyside does not receive or distribute reclaimed water. In the event that reclaimed water use is proposed within the PWS's service area, the City will make all cross-connection control requirements mandated by the Permitting Authority in accordance with Chapter 90.46 RCW part of the written CCC program plan and comply with such additional requirements.

E. Other Provisions

1. Coordination with Authority Having Jurisdiction

Both WAC 246-290-490 and the Uniform Plumbing Code amended for Washington require coordination between the City and the Authority Having Jurisdiction (AHJ) in all matters pertaining to cross-connection control.

The City will provide a copy of this CCC program to the building department via a copy of the City's water system plan or in a separate document. The City will inform the AHJ of any changes in policy or procedure that may impact the AHJ.

The City will provide information to the AHJ in a timely manner regarding any:

- Requirement imposed on a residential customer for the installation of a DCVA or an RPBA on the service, with a description of the cross-connection hazard identified;
- Upgrade of the premises isolation backflow preventer, i.e., from a DCVA to an RPBA;
- Action taken to discontinue water service to a customer; and
- Backflow incident known by the City to have contaminated the public water system or a customer's plumbing system.

2. *Written Agreement with Authority Having Jurisdiction*

The City will pursue development of a written agreement with the Authority Having Jurisdiction regarding the details of the coordination on CCC issues between the two parties. The agreement will include, but not be limited to, the following items:

- The purpose of the written agreement;
- Identification of the parties and other interested agencies;
- Delineation of responsibilities;
- Procedures regarding new service connections;
- Procedures regarding existing and changes to existing services;
- Special policies and procedures, such as for fire protection and irrigation services;
- Procedures regarding water service shut-offs, backflow incidents, and other events;
- Communications between parties; and
- Other contingencies.

3. ***Prohibition of Return of Used Water***.

Used water is defined as water that has left the control of the City. This includes water used for heating and cooling purposes and water that may flow back into the distribution system from customers with multiple connections.

It is the policy of the City of Sunnyside to:

- Prohibit the intentional return of used water to the distribution system by any customer served by the public water system; and
- Require that all customers with multiple connections, where the hydraulics permit the potential return of used water, to install a backflow preventer (DCVA or RPBA) commensurate with the degree of hazard at <u>each</u> point of connection.

5. *Unapproved Auxiliary Supplies.* *All water supplies other than those owned by the City are considered unapproved auxiliary supplies as defined in WAC 246-290-010. The City will require backflow protection for customers with auxiliary supplies on their premises as follows:*

- Per Table 9 of WAC 246-290-490, the City will require the installation of an RPBA for premises isolation at the service connection to any customer having an unapproved auxiliary supply on the premises that is interconnected with the City's water system.

6. *Tanker Trucks.* *The City may allow tanker trucks to obtain water from the City's water system under the following conditions:*

- The tanker truck is equipped with an approved AG or an approved RPBA with a current satisfactory inspection or test report.

7. *Temporary Water Connections.* *The City will not supply water through temporary connections, such as those used for construction projects or main disinfection, except through a backflow preventer arrangement approved by the City. The applicant for the temporary connection shall document that the backflow preventer is a DOH-approved model and has passed an inspection and/or test within the past 12 months and/or upon relocation, whichever is more recent.*

8. *Interties and Wholesale Water Customers.* *The City will require that interties with other public water systems or wholesale customers (such as mobile home parks) be isolated at the point of delivery by:*

- A minimum of a DCVA; and
- A minimum of an RPBA if the City considers the purchasing system or wholesale customer to pose a high-health hazard to the City's system.

The City may waive or reduce the level of protection at the intertie, if the purchasing public water system or wholesale customer:

- Is a Group A public water system **not** exempt from DOH regulation as per WAC 246-290-020(2);
- Has a CCC program that complies with WAC 246-290-490 and which has been approved by DOH; and
- Implements the CCC program at a level satisfactory to the City.

F. Relationship to Other Planning and Operations Program Requirements

The City will consider the requirements and consequences of the CCC program on the utility's planning and operations requirements. Such considerations include, but are not limited to ensuring:

- And promoting adequate communication between CCC program personnel and other water utility staff;
- That adequate training is provided to all staff to recognize potential cross-connection control problems;
- That cross-connection issues be considered in water quality investigations;
- That the design of the water distribution system makes adequate provisions for expected head losses incurred through the installation of experienced by backflow assemblies;
- That CCC program personnel be consulted in the design of water and wastewater treatment facilities and when proposals are made to receive or distribute reclaimed water;
- That operations under normal and abnormal conditions do not result in excessive pressure losses; and
- That adequate financial and administrative resources are available to carry out the CCC program.

Cross-Connection Control Activities (Blue)
Annual Summary Report (ASR) for 2015

PWS ID: **854003** PWS Name: **SUNNYSIDE, CITY OF** County: **YAKIMA**

Part 1: Designated Cross-Connection Control Specialist (CCS) Information

CCS Name	Kirk D Weets	**CCS Phone**	509-837-5206	**CCS Cert. #**	010797	**BAT Cert. #**	
CCS is: PWS owner or employee							

(Written program may be a separate document, or part of water system plan or small water system management program).

Part 2: Status of Cross-Connection Control (CCC) Program at End of 2015

Provide information about the status of your CCC Program at the end of the reporting year.

PWS has:	**A written CCC Program Plan**[1] ◉ Yes ○ No **CCC implementation activities**[2] ◉ Yes ○ No	**Program Plan Last Updated**[3] 01/15/2015

[1] Enter "Yes" if PWS has **any** type of written CCC Program Plan, policies, or procedures. Written CCC Program Plan must be part of a Water System Plan (WSP) or Small Water System Management Program (SWSMP).
[2] Enter "Yes" if PWS implemented **any** CCC Program activities during the reporting year, such as establishing legal authority, conducting hazard evaluations, requiring installation of backflow assemblies to protect the PWS, requiring assembly testing, maintaining CCC records, or enforcing the PWS's or CCC Program requirements.
[3] PWS can update the CCC Program Plan at any time (independent of WSP or SWSMP update).

Provide information regarding PWS's specific CCC Program Elements

Program Element Number	Description of Element [See WAC 246-290-490(3)]	This Program Element is: Included in Written Program Plan	This Program Element is: Being Implemented or Is Completed
1	**Legal Authority Established**	◉ Yes ○ No	◉ Yes ○ No
2	**Hazard Evaluation Procedures and Schedules**	◉ Yes ○ No	◉ Yes ○ No
3	**Procedures/Schedules for Ensuring Installation of Backflow Preventers**	◉ Yes ○ No	◉ Yes ○ No
4	**Certified CCS Provided**	◉ Yes ○ No	◉ Yes ○ No
5	**Backflow Preventer Inspection and Testing**	◉ Yes ○ No	◉ Yes ○ No
6	**Assembly Testing Quality Assurance/Quality Control (AQ/QC) Program**	◉ Yes ○ No	◉ Yes ○ No
7	**Backflow Incident Response Procedures**	◉ Yes ○ No	◉ Yes ○ No
8	**Public Education Program**	◉ Yes ○ No	◉ Yes ○ No
9	**CCC Records**	◉ Yes ○ No	◉ Yes ○ No
10	**Reclaimed Water Permit**	○ Yes ○ No ◉ N/A	○ Yes ○ No ◉ N/A

Part 3A: PWS Characteristics at End of 2015

Enter the number of connections (new and existing) served by the PWS by type.

Type of Service Connection	Number
Residential (As defined by PWS)	2800
All Other (include dedicated fire lines, dedicated irrigation lines, and PWS-owned facilities such as water and wastewater treatment plants and pumping stations, parks, piers, and docks)	699
Total Number of Connections	3499

Part 3B: Cross-Connection Control for Severe and High-Hazard Premises and High-Hazard Dedicated Lines Served by the PWS

Answer the following questions carefully. These answers control your access to pages 2 and 3 for data entry.

1. Does your PWS serve any severe or high-hazard premises or any high-hazard dedicated fire or irrigation lines? ◉ Yes ○ No

2. Does PWS serve any high-hazard medical premises? ◉ Yes ○ No

- If you answer Yes to both questions, you must enter data in at least one row on page 2 and one row on page 3.
- If you answer Yes to Question 1 and No to Question 2, you must enter data on page 2 only.
- If you answer No to both questions, pages 2 and 3 will be grayed out to prevent data entry.

- Count only premises PWS serves water to.
- Report data as accurately as possible. **DOH currently bases CCC compliance actions on this information.**

Type of Severe or High-Hazard Premises or Dedicated Lines [WAC 246-290-490(4)(b)]	Number of Connections at end of 2015			
	A. Being Served Water by PWS[1]	B. With Premises Isolation by AG/RP[2]	C. With Column B AG Inspected or RP Tested[3]	D. Granted Exception from Premises Isolation
Agricultural (farms and dairies)				
Beverage bottling plants (including breweries)	2	1	1	0
Car washes	8	5	4	0
Chemical plants	3	0	0	0
Commercial laundries and dry cleaners	1	1	1	0
Both reclaimed water and potable water provided				
Film processing facilities	2	1	1	0
Dedicated fire lines with chemical addition or using unapproved auxiliary supplies				
Food processing plants (including canneries, slaughter houses, rendering plants)	17	13	13	0
Hospitals, medical centers, medical, dental and veterinary clinics, mortuaries, nursing homes, etc., reported on Part 3C page 3 (totals imported from page 3)	38	5	4	0
Dedicated irrigation systems using purveyor's water supply and chemical addition[4]				
Laboratories	1	0	0	0
Metal plating industries				
Petroleum processing or storage plants	2	0	0	0
Piers and docks				
Radioactive material processing plants or nuclear reactors				
Survey access denied or restricted				
Wastewater lift/pump stations (non-residential only)	1	1	1	0
Wastewater treatment plants	2	2	2	
Unapproved auxiliary water supply interconnected with potable water supply				
Totals	77	29	27	0

[1] Count multiple connections or parallel installations to the same premises as **separate** connections.

[2] Count only connections with premises isolation AGs or RPs. Don't include connections with in-premises preventers only or connections with DCVAs or DCDAs installed for premises isolation. The number in Column B can't be larger than the number in Column A in the same row.

[3] Count only connections whose premises isolation preventers were inspected (AGs) or tested (RPs) during the reporting year.

[4] For example, dedicated irrigation lines to parks, playgrounds, golf courses, cemeteries, estates, etc.

[5] Premises with hazardous materials or processes (requiring isolation by AG or RP), such as aircraft and automotive manufacturers, pulp and paper mills, metal manufacturers, military bases, and wholesale customers that pose a high hazard to the PWS. May be grouped together in categories, for example:"Other manufacturing" or "Other commercial".

Part 3C: Cross-Connection Control for High-Hazard Medical Premises Served by the PWS

- Count only medical premises PWS serves water to.
- Don't count the same premises more than once. If you serve different medical category premises through a single connection, count the connection under the medical category you consider to pose the highest hazard to PWS.
- Report data as accurately as possible. **DOH currently bases CCC compliance actions on this information**

Type of High-Hazard Medical Premises [WAC 246-290-490(4)(b)]	Number of Connections at end of 2015			
	A. Being Served Water by PWS[1]	B. With Premises Isolation by AG/RP[2]	C. With Column B AG Inspected or RP Tested[3]	D. Granted Exception from Premises Isolation
Hospitals				
Hospitals (include psychiatric hospitals and alcohol and drug treatment centers)	2	2	2	0
Facilities for Treatment and Care of Patients Not Located in Hospitals Counted Above				
Same day surgery centers				
Out-patient clinics and offices	13	0	0	0
Alternative health out-patient clinics and offices				
Psychiatric out-patient clinics and offices				
Chiropractors with water-connected X-ray equipment	4	0	0	0
Hospice care centers				
Childbirth centers				
Kidney dialysis centers	2	2	2	0
Blood centers				
Dental clinics and offices	9	0	0	0
Facilities for Housing Patients				
Nursing homes	1	0	0	0
Assisted Living Facilities (formerly Boarding Homes)	2	0	0	0
Residential treatment centers				
Other Medical-Related Facilities				
Mortuaries with embalming equipment	1	1	0	0
Morgues and autopsy facilities (not in hospitals)				
Veterinarian offices, clinics and hospitals	4	0	0	0
Totals	38	5	4	0

[1] Count multiple connections or parallel installations to the same premises as **separate** connections.

[2] Count only connections with premises isolation AGs or RPs. Don't include connections with in-premises preventers only or connections with DCVAs or DCDAs installed for premises isolation. The number in Column B can't be larger than the number in Column A in the same row.

[3] Count only connections with premises isolation AGs or RPs. Don't include connections with in-premises backflow preventers only or connections with premises isolation DCVAs or DCDAs isolation.

Part 4A: Backflow Preventer Inventory and Testing Information for 2015

- Complete all fields. Enter **zero (0)**, if no backflow preventers in a specific category.
- Count only backflow preventers relied on to protect the PWS.
- Count AVBs on *irrigation systems only*. Select No to AVB question above Table 2 if PWS doesn't track AVBs.
- Count multiple tests (or failures) for the same backflow preventer as one test (or failure) for that backflow preventer.
- For multiple service connections or parallel installations, count each assembly separately.
- Count RPDAs and DCDAs as ***single*** assemblies. Count the tests of the mainline assembly and bypass assembly as ***one test***. Count the failure of either the mainline or bypass assembly (or the failure of both) as ***one failure***. Count an entire detector assembly taken out of service as ***one assembly removed from service***.
- Count assemblies installed on dedicated fire or irrigation lines as **Premises Isolation Assemblies** in Table 1.

	Backflow Preventer Category and Inspection/Testing Information	Air Gap	RPBA	RPDA	DCVA	DCDA	PVBA	SVBA	AVB
	Table 1: Premises Isolation Preventers (include preventers isolating PWS-owned facilities)								
	Existing Premises Isolation Backflow Preventers								
1	In service at beginning of 2015	0	69	0	195	7			
2	Inspected and/or tested in 2015[1]	0	69	0	60	7			
3	Failed inspection or test in 2015	0	2	0	1	1			
	New Premises Isolation Backflow Preventers								
4	Installed in 2015[2]	0	6	0	20	0			
5	Inspected and/or tested in 2015[1]	0	6	0	20	0			
6	Failed inspection or test in 2015	0	0	0	0	0			
	Premises Isolation Backflow Preventers (existing or new)								
7	Removed from service in 2015[3]	0	0	0	0	0			
	Total Premises Isolation Preventers at End of 2015	**0**	**75**	**0**	**215**	**7**	**0**	**0**	**0**
	Does PWS track AVBs on irrigation systems? ○ Yes ◉ No								
	Table 2: In-Premises Preventers (include preventers within PWS-owned facilities)								
	Existing In-Premises Backflow Preventers								
8	In service at beginning of 2015	0	112	0	236	0	12	1	unk
9	Inspected and/or tested in 2015[1]	0	107	0	163	0	12	0	unk
10	Failed inspection or test in 2015	0	8	0	12	0	2	0	unk
	New In-Premises Backflow Preventers								
11	Installed in 2015[2]	0	13	0	8	0	0	0	unk
12	Inspected and/or tested in 2015[1]	0	13	0	8	0	0	0	unk
13	Failed inspection or test in 2015	0	0	0	0	0	0	0	unk
	In-Premises Backflow Preventers (existing or new)								
14	Removed from service in 2015[3]	0	0	0	0	0	0	0	unk
	Total In-Premises Preventers at End of 2015[4]	**0**	**125**	**0**	**244**	**0**	**12**	**1**	**0**
	Grand Totals at End of 2015	**0**	**200**	**0**	**459**	**7**	**12**	**1**	**0**

[1] Initial and/or routine annual inspection (for proper installation and approval status) and/or test (for testable assemblies only, using DOH-approved USC field test procedures).
[2] Includes preventers installed on connections where backflow prevention was not previously required and any preventers that replaced those in service at the beginning of the reporting year. Replacement preventers may be of a different type than the originals.
[3] Existing or new preventers taken out of service, whether or not they were replaced by the same or a different type of preventer.

Part 4B: Other Implementation Activities in 2015

Complete all cells. Enter zero if not applicable.

Water Use Questionnaires	
Did your PWS send any water use questionnaires to customers during 2015?	○ Yes ◉ No

On-site Hazard Surveys			
Did your CCS conduct any on-site hazard surveys during 2015?			◉ Yes ○ No Number 1
	Service Connection Type		
	New	**Existing**	**Total**
1. Number of connections surveyed for cross-connection hazards to PWS.	0	1	1
2. Number of connections requiring backflow prevention to protect PWS.[1,2]	0	1	1

New Exceptions to Premises Isolation	
Did your CCS grant any new premises isolation exceptions in 2015 to high-hazard premises?[3]	○ Yes ◉ No

CCC Enforcement Actions	
Did your PWS take any enforcement actions during 2015?[4]	○ Yes ◉ No

[1] Include services where either premises isolation or in-premises preventers were required to protect the PWS.
[2] Include existing services that need new, additional or higher level backflow prevention.
[3] Submit a completed DOH Exception Form (green) for each new exception granted in the reporting year.
[4] "Enforcement actions" means actions taken by the PWS (such as water shut-off, PWS installation or testing of backflow preventer, assessment of fines, etc.) when the customer fails to comply with the PWS's CCC requirements.

Part 5: Backflow Incidents and "Off-Normal" Events in 2015

	Backflow Incidents, Risk Factors, and Indicators during 2015	Number
Backflow Incidents during 2015		
1	Backflow incidents that contaminated the PWS[5].	0
2	Backflow incidents that contaminated the customer's drinking water system ***only***[5].	0
Risk Factors for Backflow during 2015		
3	Distribution main breaks per 100 miles of pipe.	7.00
4	Low pressure events (<20 psi in PWS distribution system).	6
5	Water outage events.	6
Indicators of Possible Backflow during 2015		
6	Total health-related complaints received by PWS.[6]	0
7	Received during BWA or PN events.[7]	0
8	Received during low pressure or water outage events.	0
9	Total aesthetic complaints (color, taste, odor, air in lines, etc.).	0
10	Received during BWA or PN events.[7]	0
11	Number of these complaints received during low pressure or water outage events.	0

[5] Purveyors must submit a Backflow Incident Report form for each backflow incident known to have contaminated the public water system. DOH is also interested in receiving incident report forms for backflow incidents that contaminated the customer's drinking water system only.
[6] Such as stomach ache, headache, vomiting, diarrhea, skin rashes, etc.
[7] **"BWA"** means **Boil Water Advisory** and **"PN"** means **Public Notification** for water quality reasons.

Part 6: Comments and Clarifications

- Enter comments to:
  - Explain or clarify information in this report.
  - Describe challenges faced or accomplishments made in this reporting year.
  - Share your goals and objectives for the coming reporting year.
- Delete comments that are no longer valid.

No Comments

Part 7: Report Certification and Contact Information

I, Kirk Weets , certify that the information in this form is true, complete and accurate to the best of my knowledge.

Last Saved	08/19/2016	**All ASR Forms Certified/Submitted**	08/19/2016

Designated CCS/CCC Program Manager[1]					
Name	Kirk D Weets	**Title**	Water System Specialist	**CCS Cert #**	010797
Email Address	kweets@sunnyside-wa.gov	**Phone**	509-837-5206	**Phone Ext**	

PWS Manager[2]					
Name	Kirk D Weets	**Title**	Water System Manager	**Operator Cert #**	010797
Email Address	kweets@sunnyside-wa.gov	**Phone**	509-837-5206	**Phone Ext**	

[1] The CCS responsible for developing and implementing the PWS's CCC program (CCC Program Manager).
[2] The person the designated CCS/CCC Program Manager reports to or other manager having direct oversight of the CCC Program.

Cross-Connection Control Program Summary (Cream)
Annual Summary Report (ASR) for 2015

PWS ID: **854003** PWS Name: **SUNNYSIDE, CITY OF** County: **YAKIMA**

Describe the characteristics of the PWS's Cross-Connection Control (CCC) Program at the end of 2015.

Part 1: CCC Program Characteristics

A. Type of Program Implemented

Type of Program	Check One
Premises isolation only.	○
Combination program: reliance on both premises isolation and in-premises prevention.	◉
In transition from a combination program to a premises isolation only program.	○

B. Coordination with Authority Having Jurisdiction (AHJ) on CCC Issues

Indicate the status of coordination with AHJs in your service area. The AHJ is the entity that enforces the Uniform Plumbing Code at the local level. The AHJ is usually your county or city building department. Don't list DOH as an AHJ.

AHJ #	Name of AHJ (City or County Building Department)[1]	PWS		AHJ Declined to Coordinate
		Coordinates with AHJ	Has Written Agreement with AHJ	
1	City of Sunnyside	Yes ◉ No ○	Yes ◉ No ○	Yes ○ No ◉

[1] Do not enter an individual's name.

C. Corrective/Enforcement Actions Available to the Purveyor

Type of Corrective Action/Enforcement Action	Indicate Whether Available	Most Often Used (Check One)
Purveyor denies or discontinues water service.	Yes ◉ No ○	◉
Purveyor installs backflow assembly and bills customer.	Yes ○ No ◉	○
Purveyor assesses fines (in addition to eliminating or controlling cross connection).	Yes ○ No ◉	○
Purveyor tests backflow assembly and bills customer.	Yes ○ No ◉	○

[1] Enter detailed description of other enforcement actions available to PWS. Don't enter "None", "Not Applicable", or "Not Available."

D. CCC Program Responsibilities
Do not include enforcement action related procedures or circumstances.

CCC Program Activity	Responsible Party (Check one per row)	
	Customer	Purveyor
Hazard Evaluation by DOH-certified CCS	○	◉
Backflow preventer (BP) ownership	◉	○
BP installation	◉	○
BP *initial* inspection (for proper installation - all BPs)	○	◉
BP *initial* test (for testable assemblies)	◉	○
BP *annual* inspection (Air Gaps and AVBs)	○	◉
BP *annual* test (for testable assemblies)	◉	○
BP maintenance and repair	◉	○

E. Backflow Prevention for Fire Protection Systems
Please remember to enter number of days allowed if you require retrofitting.

PWS coordinates with *AHJ* on CCC issues for fire sprinkler systems (FSSs)	Yes ◉ No ○ N/A ○
PWS coordinates with *local Fire Marshal* on CCC issues for FSSs.	Yes ◉ No ○ N/A ○
PWS ensures backflow prevention is installed before serving *new* connections with FSSs.	Yes ◉ No ○
PWS requires retrofits to *high*-hazard FSSs.	Yes ○ No. of days allowed: No ○ N/A ◉
PWS requires retrofits to *low*-hazard FSSs.	Yes ○ No. of days allowed: No ○ N/A ◉

F. Backflow Prevention for Irrigation Systems

Minimum level of backflow prevention required on irrigation systems *without* chemical addition.	Not Addressed ○ AVB ○ PV/SVBA ○ DCVA ◉ RPBA ○
PWS currently inspects AVBs upon *initial* installation.	Yes ○ No ○ N/A ◉
PWS currently inspects AVBs upon repair, reinstallation or relocation.	Yes ○ No ○ N/A ◉

G. Used Water

Does PWS prohibit, by ordinance, rules, policy, by-laws or agreement, the intentional return of used water (e.g. for heating or cooling) into the distribution system?	Yes ◉ No ○
If not prohibited at present, date plan to prohibit use.	N/A
Current number of service connections returning used water to distribution system.	0

H. Backflow Prevention for Unapproved Auxiliary Water Supplies[1] NOT Interconnected with PWS
Show the **minimum** backflow preventer and type of protection required for service connections having unapproved auxiliary water supplies *when they are NOT interconnected to the PWS.*

***Existing* service connections.**	None ○ DCVA ○ RPBA ○ AG ◉
Type of protection required.	N/A ○ In-premises prevention ○ Premises isolation ◉
***New* service connections.**	None ○ DCVA ○ RPBA ○ AG ◉
Type of protection required.	N/A ○ In-premises prevention ○ Premises isolation ◉

[1] An auxiliary water supply is any water supply on or available to customer's premises in addition to the purveyor's potable water supply.

I. Backflow Prevention for Tanker Trucks and Temporary Water Connections

Minimum **level of backflow prevention (installed on or associated with the truck) required for tanker trucks taking water from PWS.**	AG ◉ DCVA ○ RPBA ○ Not Specified ○ Tanker trucks not allowed ○
PWS requires tanker trucks to obtain water at designated fill sites each equipped with permanently installed backflow preventer(s).	Yes ◉ (Minimum preventer: DCVA ○ RPBA ◉) No ○ N/A ○ No sites provided ○
PWS currently accepts tanker trucks approved by other PWSs without further inspection or testing.	Yes ○ No ◉ N/A ○
Minimum **level of backflow prevention required for temporary water connections (e.g., for construction sites).**	AG ◉ DCVA ○ RPBA ○ Not specified ○ Temp. connections not allowed ○
PWS provides approved backflow preventer for temporary connections.	Yes ◉ No ○ N/A ○ (Temp. connections not allowed)
PWS requires testing each time the temporary connection backflow preventer is relocated.	Yes ◉ No ○ N/A ○ (Temp. connections not allowed)

J. Backflow Prevention for Non-Residential Connections

For each category shown, indicate whether PWS has non-residential connections of that type and the **minimum** level of ***premises isolation*** backflow prevention required (whether or not PWS currently has that type of customer).

Type of Connection	PWS has Customers of this Type	Minimum Premises Isolation Backflow Prevention Required
Commercial	Yes ◉ No ○	Not Required ○ DCVA ◉ RPBA ○
Industrial	Yes ◉ No ○	Not Required ○ DCVA ○ RPBA ◉
Institutional	Yes ◉ No ○	Not Required ○ DCVA ○ RPBA ◉

K. Backflow Prevention for Wholesale Customers

Indicate whether the PWS requires backflow prevention at interties with wholesale customers (other PWSs).

Type of Intertie	PWS has Customers of this Type	Minimum Backflow Prevention Required (if prevention is required, indicate minimum level).	
Existing	Yes ○ No ◉	Not specified / Not required ○ Always required ○ Required only if purchaser's CCC program is inadequate ◉	Minimum required (if applicable): DCVA ○ RPBA ◉
New	Yes ○ No ◉	Not specified / Not required ○ Always required ○ Required only if purchaser's CCC program is inadequate ◉	Minimum required (if applicable): DCVA ○ RPBA ◉

L. Exceptions to Mandatory Premises Isolation

PWS's written CCC Program Plan *allows* system to grant exceptions to mandatory premises isolation per WAC 246-290-490(4)(b)(iii)	Yes ◉ No ○ Doesn't Address ○
PWS currently grants new Exceptions.	Yes ○ No ◉
PWS granted Exceptions in past reporting years.	Yes ◉ No ○

Part 2: CCC Program Record-Keeping Software

Indicate the type or name of computer software the PWS uses to track CCC records.

BPMS ○	**Cross-Track (BMI)** ◉	**Tokay** ○	**XC2** ○	**Custom developed for or by PWS**[1] ○
Other non-CCC software (e.g. Excel) ○		**Other commercial CCC software (specify)** ○	**None Used** ○	

[1] Do not include commercial CCC software customized for PWS. If PWS uses customized commercial software, check the box for the appropriate commercial software name.

Part 3: Comments and Clarifications

- Enter comments to:
  - Explain or clarify information in this report.
  - Describe accomplishments made in this reporting year.
  - Identify challenges faced in this reporting year.
  - Share your goals and objectives for the coming reporting year.
- Delete comments that are no longer valid.

No Comments

Part 4: Report Certification and Contact Information

I,Kirk Weets, certify that the information in this form is true, complete and accurate to the best of my knowledge.

Last Saved	08/19/2016	**All ASR Forms Certified/Submitted**	08/19/2016

Designated CCS/CCC Program Manager[1]					
Name	Kirk D Weets	**Title**	Water System Specialist	**CCS Cert #**	010797
Email Address	kweets@sunnyside-wa.gov	**Phone**	509-837-5206	**Phone Ext**	

PWS Manager[2]					
Name	Kirk D Weets	**Title**	Water System Manager	**Operator Cert #**	010797
Email Address	kweets@sunnyside-wa.gov	**Phone**	509-837-5206	**Phone Ext**	

[1] The CCS responsible for developing and implementing the PWS's CCC program (CCC Program Manager).
[2] The person the designated CCS/CCC Program Manager reports to or other manager having direct oversight of the CCC Program.

Backflow Prevention for Severe Health Hazard Facilities (Gray)
Annual Summary Report (ASR) for 2015

PWS ID: **854003** PWS Name: **SUNNYSIDE, CITY OF** County: **YAKIMA**

Part 1: Backflow Prevention Status

- Describe the backflow prevention status at the end of the reporting year for each wastewater treatment plant and nuclear facility your system serves.
- If you serve more than one severe health hazard facility, click the "Add Facility" button to display another facility data entry box.
- If you serve more than one connection to the same facility, click the "Add Connection" button to display another connection row for that facility.
- You may add as many facilities and connections as needed.
- To update this form, you may delete facilities and connections which are no longer served.

Facility 1 of 2

Facility Name	Sunnyside WWTP
Physical Address	1338 S. 4th
City	Sunnyside
Zip	98944
NPDES Permit#	WA0020991C
Facility Type	Wastewater Treatment Plant (WWTP)
Facility Comments	

Facility 1 Connection 1 of 1

Connection Name	Sunnyside WWTP
Backflow Prevention Status	Premises Isolation RP but No In-Plant Air Gap
Connection Comments	

Facility 2 of 2

Facility Name	Sunnyside Industrial WWTP
Physical Address	747 Midvale Rd.
City	Sunnyside
Zip	98944
NPDES Permit#	
Facility Type	Wastewater Treatment Plant (WWTP)
Facility Comments	

Facility 2 Connection 1 of 1

Connection Name	Sunnyside Idustrial WWTP
Backflow Prevention Status	Premises Isolation RP but No In-Plant Air Gap
Connection Comments	

Part 2: Report Certification and Contact Information

I,Kirk Weets, certify that the information in this form is true, complete and accurate to the best of my knowledge.

Last Saved	08/19/2016	**All ASR Forms Certified/Submitted**	08/19/2016

Designated CCS/CCC Program Manager[1]

Name	Kirk D Weets	**Title**	Water System Specialist	**CCS Cert #**	010797
Email Address	kweets@sunnyside-wa.gov	**Phone**	509-837-5206	**Phone Ext**	

PWS Manager[2]

Name	Kirk D Weets	**Title**	Water System Manager	**Operator Cert #**	010797

Email Address	kweets@sunnyside-wa.gov	**Phone**	509-837-5206	**Phone Ext**	

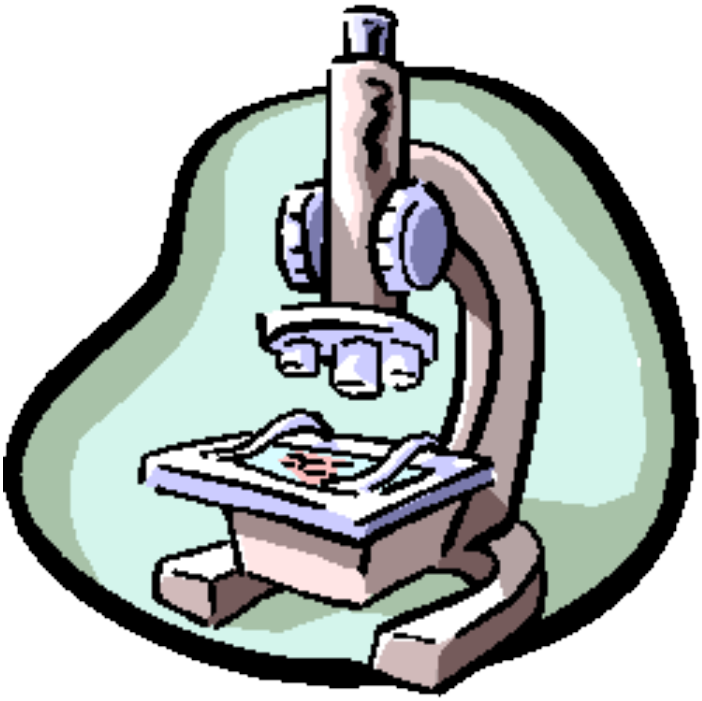
[1] The CCS responsible for developing and implementing the PWS's CCC program (CCC Program Manager).
[2] The person the designated CCS/CCC Program Manager reports to or other manager having direct oversight of the CCC Program.

Appendix 8 Water Quality Documents

A. Coliform Monitoring Plan
B. Lead and Copper Monitoring Plan
C. Disinfection By-Products Monitoring Plan
D. Water Quality Monitoring Schedule

City of Sunnyside

Coliform Monitoring Plan



City of Sunnyside
Public Works Dept.
Water Division
Revised June 11, 2002
Current as of January 2016

City of Sunnyside

Public Works Department

Water Division

Coliform Monitoring Plan

The City of Sunnyside is required to collect total coliform bacteria samples by the Federal Total Coliform Rule and chapter 246-290 WAC.

This plan is written to indicate the sampling sites and monitoring frequency. It is our intention to give a true representation of the water throughout the distribution system.

The City collects the samples from 16 sites per month, 8 on the 1st Monday of each month, including a raw sample from a well, the remaining 8 on the second Monday of the month. Laucks Testing Labs picks up the samples on Tuesdays, and takes them to Yakima for analysis.

City of Sunnyside
Public Works Department
Water Division

Coliform Monitoring Plan

Water System Name: City of Sunnyside

I.D. : #854003 **Population:** 16,280 **Services:** 5069*

SOURCES	ADDRESS	DEPTH
S06	720 So 16th St	769 Feet
S07	200 South Hill Rd	1057 Feet
S08	340 Homer St	440 Feet
S09	3318 E. Edison	919 Feet
S10	220 So 7th St	1701 Feet Emerg. Use only
S11	220 S0 7th St	435 Feet
S12	2029 Outlook Rd	397 Feet
S13	2029 Outlook Rd	431 Feet

TREATMENT: Chlorination, for disinfection at each well site

STORAGE	ADDRESS	TANK VOLUME	OPERATING CAPACITY
Reservoir #1	401 Grand Ave	750,000 Gallons	85,000 Gallons
Reservoir #2	401 Grand Ave	750,000 Gallons	85,000 Gallons
Reservoir #3	401 Grand Ave	1,000,000 Gallons	744,000 Gallons
Reservoir #4	210 Skyline Drive	1,000,000 Gallons	982,000 Gallons

*Includes residential and non-residential connections

City of Sunnyside

Public Works Department

Water Division

Coliform Monitoring Plan

ROUTINE SAMPLE SITES

Routine sampling required by regulation : 15 samples per month, however, 16 samples are taken each month to adequately cover each pressure zone, reservoir, and source distribution and 1 raw source sample is taken on a rotation basis depending on seasonal demands. Repeat sample sites are available upstream and downstream of all sample sites.

ROUTINE SAMPLING SCHEDULE

WEEK 1:

High Zone

X1 340 W. Grandview

Intermediate Zone

X3 606 San Clemente
X4 1209 Vista

Low Zone

X16 355 E Alexander Road (Dairy Fair)
X6 701 Scoon Rd. (Racquet Club)
X7 110 South Hill Rd. (Bi-Mart)
X9 2200 Yakima Valley Hwy (McDonalds)
X12 Wells 6,7,8,9,10,11,12,13 raw source on rotation, depending on demand

City of Sunnyside

Public Works Department

Water Division

Coliform Monitoring Plan

ROUTINE SAMPLING

WEEK 2:

High Zone

X2 605 Skyline

Intermediate Zone

X5 811 Dayton Drive

Low Zone

X14 818 E Edison Ave (City Hall)
X15 555 W. South Hill Road (Yakima Chief)
X13 3201 Picard Place (Burger King)
X8 809 N.W. Crescent
X10 2001 Yakima Valley Hwy (Mid Valley Mall)
X11 2580 Yakima Valley Hwy (Battery Store)

Prepared By:

Backflow Management Inc.

Re-Sampling Sites

The first 8 sites will be done on one week, the remainder on the following week.

SAMPLE SITE 1

			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-8	809 N.W. Crescent	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-81	809 N.W. Crescent	
REPEAT	R-82	813 N.W. Crescent	
REPEAT	R-83	805 N.W. Crescent	

SAMPLE SITE 2

			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-10	2001 Y.V.H.	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-101	2001 Y.V.H.	
REPEAT	R-102	2002 Morgan Road	
REPEAT	R-103	2210A E. Edison St	

SAMPLE SITE 3

			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-11	1750 Sheller	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-111	1750 Sheller	
REPEAT	R-112	605 Sheller Ct.	
REPEAT	R-113	1650 Sheller Rd.	

SAMPLE SITE 4

			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-1	340 W. Grandview Ave	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-11	340 W. Grandview Ave	
REPEAT	R-12	334 W. Grandview Ave	
REPEAT	R-13	404 W. Grandview Ave	

SAMPLE SITE 5

			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-3	606 San Clemente	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-31	606 San Clemente	
REPEAT	R-32	616 San Clemente	
REPEAT	R-33	303 N.W. Crescent	

SAMPLE SITE 6

			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-2	605 Skyline	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-21	605 Skyline	
REPEAT	R-22	603 Skyline	
REPEAT	R-23	613 Skyline	

SAMPLE SITE 7

			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-5	811 Dayton Drive	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-51	811 Dayton Drive	
REPEAT	R-52	805 Dayton Drive	
REPEAT	R-53	623 Dayton Drive	

SAMPLE SITE 8			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-14	818 E.Edison Ave	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-141	818 E.Edison Ave	
REPEAT	R-142	922 E.Edison Ave	
REPEAT	R-143	801 E.Edison Ave	

SAMPLE SITE 9			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-15	555 W. South Hill Road	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-151	555 W. South Hill Road	
REPEAT	R-152	590 W. South Hill Road	
REPEAT	R-153	1759 McBride Street	

SAMPLE SITE 10			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-13	3201 Picard Place	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-131	3201 Picard Place	
REPEAT	R-132	3209 Picard Place	
REPEAT	R-133	1850 Waneta Road	

SAMPLE SITE 11			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-4	1209 Vista	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-141	1209 Vista	
REPEAT	R-142	1203 Vista	
REPEAT	R-143	1217 Vista	

SAMPLE SITE 12			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-16	550 C Midvale	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-161	550 C Midvale	
REPEAT	R-162	511 Midvale	
REPEAT	R-163	747 Midvale	

SAMPLE SITE 13			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-6	735 Scoon Road	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-61	735 Scoon Road	
REPEAT	R-62	701 Scoon Road	
REPEAT	R-63	803 Scoon Road	

SAMPLE SITE 14			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-7	110 South Hill Road	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-71	110 South Hill Road	
REPEAT	R-72	1527 S. 1st St	
REPEAT	R-73	98 E South Hill Road	

SAMPLE SITE 15			SOURCE SAMPLE GWR & RTCR
ROUTINE	X-9	2200 Y.V.H.	Under the Ground Water Rule all wells that are on line at the time of a routine total coliform sample testing positive, a raw water sample must be collected from each well within 24 hours and tested for ecoli.
REPEAT	R-91	2200 Y.V.H.	
REPEAT	R-92	2150 Y.V.H.	
REPEAT	R-93	2330 Y.V.H.	

RTCR Level 1 Assessment Guidance Template

331-569, March 2016

Send your assessment to:

Eastern Region	16201 East Indiana Avenue, Suite 1500 Spokane Valley, WA 99216	Phone: 509.329.2100 Fax: 509.329.2104 Email: mark.steward@doh.wa.gov
Northwest Region	20425 72nd Ave. South, Suite 310 Kent, WA 98032-2358	Phone: 253.395.6750 Fax: 253.395.6760 Email: dw.nwro@doh.wa.gov
Southwest Region	PO Box 47823 Olympia, WA 98504-7823	Phone: 360-236-3030 Fax: 360-664-8058 Email: swro.coli@doh.wa.gov

Water System Name:	County:	Water System ID #:
Operator in Responsible Charge (ORC):	ORC Phone:	Water System Mailing Address:
ORC Address, City, State:		
Assessor Name:		
Assessor Address, City, State, Zip:		
Date(s) Assessment Completed:		

Your water system exceeded a treatment technique trigger for the Revised Total Coliform Rule. Assess the water system's condition and operation using this *Level 1 Assessment Template* as a guide.

Part A: Respond to each item below. Identify corrective actions taken to address the issue(s) found.
Part B: Summarize your findings and include an action plan with timetable for corrective actions not yet taken.

For parts A and B, include additional information (photos or other documentation) as needed to depict assessment findings and corrective actions that have been completed. All assessment elements listed in this template must be addressed in your assessment. Systems with multiple facilities such as wells or storage tanks may need to provide additional pages.

Within 30 days of learning of the treatment technique trigger, submit completed assessment documentation to your regional office and keep a copy in your water system files.

Part A: Assessment		**Corrective action needed?**	**Corrective action(s) taken & date taken**
1. Site and Sampling Protocol 1a. Do you have a written coliform monitoring plan & sampling procedure that ensures samples are representative of the distribution system?	☐ Yes ☐ No	☐ Yes ☐ No	
1b. Have there been any changes in sampling conditions or procedures that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
1c. Inspect the sampling sites: - Are the sampling locations free of potential sources of contamination? - Are the sampling taps in good condition? - Other: (describe) _____	 ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	

Part A: Assessment		Corrective action needed?	Corrective action(s) taken & date taken
2. Distribution 2a. Do you have procedures in place to ensure proper maintenance of the distribution system, including: - Appropriate pipe replacement and repair procedures - Replacement and repair of other distribution system components - Regular flushing program - Routine vault inspections - Fully implemented cross connection control program - Maintain positive pressure in all parts of the distribution system	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ Yes ☐ No	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
2b. Has there been any recently reported low pressure (<20 PSI) or complete loss of pressure in the distribution system?	☐ Yes ☐ No	☐ Yes ☐ No	
2c. Have there been any changes in distribution conditions or operations that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
2d. Inspect the distribution system: - Are there any visible line breaks or leaks? - Are there any observed unprotected cross connections? - Is there any evidence of vandalism or other security breaches? - Other: (describe) _____	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
3. Storage Facilities 3a. Does your water system have a water storage tank? *If no, skip to Section 4.*	☐ Yes ☐ No		
3b. Do you have procedures in place for periodic inspection and maintenance of the exterior and interior of each storage facility?	☐ Yes ☐ No	☐ Yes ☐ No	
3c. Have there been any changes in storage conditions or operations that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
3d. Inspect the storage facilities: - Does the tank have any cracks or other openings? - Is the reservoir roof free of any unprotected openings? - Is the access hatch constructed and sealed to keep contaminants out? - If there is an air vent on the storage tank, is it constructed to prevent the entry of contaminants? - Is the overflow line constructed to prevent contaminants from entering the tank? - If the overflow line discharges into a storm drain, to surface water, or directly into a sanitary sewer, is it protected by a proper air gap? - Is there any evidence of vandalism or other security breaches? - Other: (describe) _____	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	

Part A: Assessment		Corrective action needed?	Corrective action(s) taken & date taken
4. Source--Groundwater 4a. Does your water system have a well or spring? If no, skip to Section 6.	☐ Yes ☐ No		
4b. Do you comply with Sanitary Control Area requirements (WAC 246-290-135(2)?	☐ Yes ☐ No	☐ Yes ☐ No	
4c. Have there been any changes in source conditions or operations that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
4d. Inspect the source facilities: - Is the sanitary control area free of all potential sources of contamination? - Is the wellhead or spring box above grade with no potential for flooding? - Is the pressure tank water logged? - Is the well cap sealed and watertight, and the well casing free of unprotected openings? - (For springs) Is the spring box (structure, hatch, and overflow) free of any unprotected openings? - Other: (describe) _____	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
5. Treatment--Groundwater 5a. Is any source continuously treated with a disinfectant? If no, skip to Section 6.	☐ Yes ☐ No		
5b. Do you have procedures in place for proper operation and maintenance of disinfection treatment facilities?	☐ Yes ☐ No	☐ Yes ☐ No	
5c. Have there been any changes in treatment equipment or process that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
5d. Inspect the treatment facilities: - Is the treatment system operating properly? - Is there any evidence of vandalism or other security breaches? - Other: (describe) _____	 ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
6. Source—Surface Water Supply (watershed) 6a. Does your water system have a surface water supply? If no, skip to Section 8.	☐ Yes ☐ No		
6b. Do you comply with Watershed Control Program requirements (WAC 246-290-135(4)?	☐ Yes ☐ No	☐ Yes ☐ No	
6c. Have there been any changes within the watershed or in raw water conditions that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	

Part A: Assessment		Corrective action needed?	Corrective action(s) taken & date taken
6d. Inspect the surface water intake/headworks: - Is there evidence of problems at the intake? - Is there evidence of vandalism or other security breaches at the intake? - Other: (describe) _____	☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
7. Treatment—Surface Water 7a. Do you have procedures in place for proper operation and maintenance of surface water treatment facilities?	☐ Yes ☐ No	☐ Yes ☐ No	
7b. Have there been any changes in treatment equipment or process that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
7c. Inspect the treatment facilities: - Is the treatment system operating properly? - Is there any evidence of vandalism or other security breaches? - Other: (describe) _____	☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
8. Other assessment activities (describe):			

Part B. Assessment Summary and Action Plan with Timetable for corrective actions not yet taken

☐ ASSESSOR: CHECK HERE if you did not identify any issues that may have directly or indirectly caused or contributed to entry of coliform bacteria into the system.

Corrective Actions Completed: ASSESSOR: Summarize the issues found and the corrective actions that have been completed and date completed

Describe issue found	Describe corrective action taken and date completed

Corrective Actions Not Completed: ASSESSOR: Describe the issues for which corrective actions have not yet been completed. **Provide an action plan with timetable for completion.**

Describe issue found	Describe planned corrective action and timetable for completion.

Print Name of Assessor: _____ Signature of Assessor: _____ Date: _____

OFFICE OF DRINKING WATER USE ONLY

Regional Office Reviewer: _____ Date of Review: _____

Assessment sufficient? ☐ Yes ☐ No Likely cause determined? ☐ Yes ☐ No Sanitary defect(s) identified? ☐ Yes ☐ No

Corrective actions completed? ☐ Yes ☐ No Corrective action plan included? ☐ Yes ☐ No Corrective action plan approved? ☐ Yes ☐ No

Comments:

RTCR Level 2 Assessment Guidance Template

331-570, March 2016

Send your assessment to:

Eastern Region	16201 East Indiana Avenue, Suite 1500 Spokane Valley, WA 99216	Phone: 509.329.2100 Fax: 509.329.2104 Email: mark.steward@doh.wa.gov
Northwest Region	20425 72nd Ave. South, Suite 310 Kent, WA 98032-2358	Phone: 253.395.6750 Fax: 253.395.6760 Email: dw.nwro@doh.wa.gov
Southwest Region	PO Box 47823 Olympia, WA 98504-7823	Phone: 360-236-3030 Fax: 360-664-8058 Email: swro.coli@doh.wa.gov

Water System Name:	County:	Water System ID #:
Operator in Responsible Charge (ORC):	ORC Phone:	Water System Mailing Address:
ORC Address, City, State:		
Assessor Name:	Assessor is: ☐ WDM-2, 3, or 4 ☐ Engineer ☐ LHJ	
Assessor Address, City, State, Zip:		
Date(s) Assessment Completed:		

Your water system exceeded a treatment technique trigger for the Revised Total Coliform Rule. Assess the water system's condition and operation using this *Level 2 Assessment Template* as a guide.

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Within 30 days of learning of the treatment technique trigger, submit completed assessment documentation to your regional office and keep a copy in your water system files.

Part A: Assessment		**Corrective action needed?**	**Corrective action(s) taken & date taken**
1. Site and Sampling Protocol 1a. Do you have a written coliform monitoring plan & sampling procedure that ensures samples are representative of the distribution system?	☐ Yes ☐ No	☐ Yes ☐ No	
1b. Do you have a program in place that ensures that all sample collectors are trained before being allowed to collect compliance samples?	☐ Yes ☐ No	☐ Yes ☐ No	
1c. Do you regularly monitor the condition of each routine and repeat sample site to ensure that no site will contaminate the sample?	☐ Yes ☐ No	☐ Yes ☐ No	
1d. Was the sample collected by a trained, qualified person?	☐ Yes ☐ No	☐ Yes ☐ No	
1e. Did the sampler follow your monitoring plan and sampling procedure?	☐ Yes ☐ No	☐ Yes ☐ No	

Part A: Assessment		Corrective action needed?	Corrective action(s) taken & date taken
1f. Was the sample collected representative of the water in the distribution system?	☐ Yes ☐ No	☐ Yes ☐ No	
1g. Have there been any changes in sampling conditions or procedures that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
1h. Inspect the sampling sites: - Are the sampling locations free of potential sources of contamination? - Are the sampling taps in good condition? - Other: (describe) _____	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
2. Distribution 2a. Do you have procedures in place to ensure proper maintenance of the distribution system, including: - Appropriate pipe replacement and repair procedures - Replacement and repair of other distribution system components - Regular flushing program - Routine vault inspections - Fully implemented cross connection control program - Maintain positive pressure in all parts of the distribution system	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ Yes ☐ No	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
2b. Following work done on the water system and following any pressure loss event, do you collect investigative coliform samples?	☐ Yes ☐ No	☐ Yes ☐ No	
2b. Has there been any recently reported low pressure (<20 PSI) or complete loss of pressure in the distribution system?	☐ Yes ☐ No	☐ Yes ☐ No	
2c. Have there been any recent repairs or new construction in the distribution system?	☐ Yes ☐ No	☐ Yes ☐ No	
2d. Are there any known pipe leaks that have not yet been repaired?	☐ Yes ☐ No	☐ Yes ☐ No	
2e. Has there been any recent use of fire hydrants such as hydrant maintenance or utility/FD flushing?	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
2f. If there are there any air-vacuum relief valve vaults in the distribution system, are any flooded?	☐ Yes ☐ No ☐ N/A	☐ Yes ☐ No	
2g. Has there been any recent report of a cross connection incident?	☐ Yes ☐ No	☐ Yes ☐ No	
2h. Have there been any off-normal events, such as discolored water, odd taste, or smell?	☐ Yes ☐ No	☐ Yes ☐ No	
2i. Have there been any other changes in distribution conditions or operations that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	

Part A: Assessment		Corrective action needed?	Corrective action(s) taken & date taken
2j. Inspect the distribution system: - Are there any visible line breaks or leaks? - Are there any observed unprotected cross connections? - Is there any evidence of vandalism or other security breaches? - Other: (describe) _____	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
3. Storage Facilities 3a. Does your water system have a water storage tank? If no, skip to Section 4.	☐ Yes ☐ No		
3b. Do you have procedures in place for periodic inspection and cleaning of the interior of each storage facility including vent, roof hatch, and overflow?	☐ Yes ☐ No	☐ Yes ☐ No	
3c. Has there been any recent work done on a storage facility?	☐ Yes ☐ No	☐ Yes ☐ No	
3d. Are all storage facilities secured from unauthorized entry and vandalism?	☐ Yes ☐ No	☐ Yes ☐ No	
3e. Have there been any other changes in storage conditions or operations that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
3f. Inspect the storage facilities: - Does the tank have any cracks or other openings? - Is the reservoir roof free of any unprotected openings? - Is the access hatch constructed and sealed to keep contaminants out? - If there is an air vent on the storage tank, is it constructed to prevent the entry of contaminants? - Is the overflow line constructed to prevent contaminants from entering the tank? - If the overflow line discharges into a storm drain, to surface water, or directly into a sanitary sewer, is it protected by a proper air gap? - Is there any evidence of vandalism or other security breaches? - Other: (describe) _____	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
4. Source--Groundwater 4a. Does your water system have a well or spring? If no, skip to Section 6.	☐ Yes ☐ No		
4b. Do you comply with Sanitary Control Area requirements (WAC 246-290-135(2)?	☐ Yes ☐ No	☐ Yes ☐ No	
4c. Are all sources protected from fecal contamination by appropriate placement and construction?	☐ Yes ☐ No	☐ Yes ☐ No	
4d. Have any unapproved sources recently been used?	☐ Yes ☐ No	☐ Yes ☐ No	

Part A: Assessment		Corrective action needed?	Corrective action(s) taken & date taken
4e. Have there been any recent land use changes observed within a source sanitary control area, such as construction, farming, or dumping in the last month?	☐ Yes ☐ No	☐ Yes ☐ No	
4f. Has there been any standing water, heavy precipitation, or flooding around a source in the last month?	☐ Yes ☐ No	☐ Yes ☐ No	
4g. Has there been any recent work done on a well or spring box?	☐ Yes ☐ No	☐ Yes ☐ No	
4h. Has there been any recent failure of a source pump?	☐ Yes ☐ No	☐ Yes ☐ No	
4i. Has there been any recent maintenance performed on a source pump or other source component?	☐ Yes ☐ No	☐ Yes ☐ No	
4j. Are the source facilities secured from unauthorized entry and vandalism?	☐ Yes ☐ No	☐ Yes ☐ No	
4k. Have there been any other changes in source conditions or operations that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
4l. Inspect the source facilities: - Is the sanitary control area free of all potential sources of contamination? - Is the wellhead or spring box above grade with no potential for flooding? - Is the pressure tank water logged? - Is the well cap sealed and watertight, and the well casing free of unprotected openings? - (For springs) Is the spring box (structure, hatch, and overflow) free of any unprotected openings? - Is there any evidence of vandalism or other security breaches? - Other: (describe) _____	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐ N/A	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
5. Treatment--Groundwater 5a. Is any source continuously treated with a disinfectant? If no, skip to Section 6.	☐ Yes ☐ No		
5b. Do you have procedures in place for proper operation and maintenance of disinfection treatment facilities?	☐ Yes ☐ No	☐ Yes ☐ No	
5c. If a disinfection residual should be continuously maintained throughout the distribution system, was the measured free chlorine residual at the time of coliform sample collection below 0.2 mg/L?	☐ Yes ☐ No	☐ Yes ☐ No	
5d. Have there been any recent interruptions in any treatment process?	☐ Yes ☐ No	☐ Yes ☐ No	
5e. Has there been any recent maintenance performed on any treatment component?	☐ Yes ☐ No	☐ Yes ☐ No	

Part A: Assessment		Corrective action needed?	Corrective action(s) taken & date taken
5f. Have there been any other changes in treatment equipment or process that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
5g. Inspect the treatment facilities: - Is the treatment system operating properly? - Is there any evidence of vandalism or other security breaches? - Other: (describe) _____	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
6. Source—Surface Water Supply (watershed) 6a. Does your water system have a surface water supply? If no, skip to Section 8.	☐ Yes ☐ No		
6b. Do you comply with Watershed Control Program requirements (WAC 246-290-135(4)?	☐ Yes ☐ No	☐ Yes ☐ No	
6c. Has there been any recent spikes in raw water turbidity?	☐ Yes ☐ No	☐ Yes ☐ No	
6d. Have there been any land use changes within the watershed, such as logging, construction, or different farming practices in the past month?	☐ Yes ☐ No	☐ Yes ☐ No	
6e. Have there been any other changes within the watershed or in raw water conditions that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
6f. Inspect the surface water intake/headworks: - Is there evidence of problems at the intake? - Is there evidence of vandalism or other security breaches at the intake? - Other: (describe) _____	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
7. Treatment—Surface Water 7a. Do you have procedures in place for proper operation and maintenance of surface water treatment facilities?	☐ Yes ☐ No	☐ Yes ☐ No	
7b. Have there been any recent interruptions in any part of the filtration or disinfection treatment process?	☐ Yes ☐ No	☐ Yes ☐ No	
7c. Are filtration and disinfection treatment facilities properly operated and maintained?	☐ Yes ☐ No	☐ Yes ☐ No	
7d. Has there been any maintenance performed on any treatment component in the past month?	☐ Yes ☐ No	☐ Yes ☐ No	
7e. Have there been any problems with a treatment process in the past month, such as high finished water turbidity, disinfection inactivation ratio <1, or changes in coagulation practices or filtration rate?	☐ Yes ☐ No	☐ Yes ☐ No	

Part A: Assessment		Corrective action needed?	Corrective action(s) taken & date taken
7f. Have there been any other changes in treatment equipment or process that may have contributed to the treatment technique trigger? Describe:	☐ Yes ☐ No	☐ Yes ☐ No	
7g. Inspect the treatment facilities: - Is the treatment system operating properly? - Is there any evidence of vandalism or other security breaches? - Other: (describe) _____	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ N/A	 ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No	
8. Other assessment activities (describe):			

Part B. Assessment Summary and Action Plan with Timetable for corrective actions not yet taken

☐ ASSESSOR: CHECK HERE if you did not identify any issues that may have directly or indirectly caused or contributed to entry of coliform bacteria into the system.

Corrective Actions Completed: ASSESSOR: Summarize the issues found and the corrective actions that have been completed and date completed

Describe issue found	Describe corrective action taken and date completed

Corrective Actions Not Completed: ASSESSOR: Describe the issues for which corrective actions have not yet been completed. **Provide an action plan with timetable for completion.**

Describe issue found	Describe planned corrective action and timetable for completion.

Print Name of Assessor: _____ Signature of Assessor: _____ Date: _____

OFFICE OF DRINKING WATER USE ONLY

Regional Office Reviewer: _____ Date of Review: _____

Assessment sufficient? ☐ Yes ☐ No Likely cause determined? ☐ Yes ☐ No Sanitary defect(s) identified? ☐ Yes ☐ No

Corrective actions completed? ☐ Yes ☐ No Corrective action plan included? ☐ Yes ☐ No Corrective action plan approved? ☐ Yes ☐ No

Comments:

Department of Public Works
818 East Edison Avenue
Sunnyside, WA 98944
Office: 509-837-5206 • Fax: 509-837-3268

Date: _____

Dear Customer:

The City of Sunnyside is once again testing the water system for lead and copper according to the rules set forth by the Environmental Protection Agency and the Washington State Department of Health. The City would appreciate using your residence as a sampling site.

The samples can only be taken after the water in your tap has been motionless for at least 6 hours, and then drawn from your kitchen cold water tap. Therefore, we are asking you to take the sample.

SAMPLING FOR LEAD / COPPER

The sampling process is as follows:

STEP # 1: Write on the bottle the DATE and TIME the sample was collected.

STEP # 2: Fill the bottle from the COLD water tap. Remember, the water must be motionless for 6 hours and fill the bottle with the first quart that comes out of the tap. DO NOT let the water run prior to taking the sample.

STEP # 3: Place on your front porch/steps for collection or please bring the sample to City Hall.

I want to thank you for your cooperation. If you have any questions please call the Public Works office at 837-5206

Sincerely,

Kirk Weets
Sunnyside Water Division

City of Sunnyside
Public Works Department
818 E Edison Ave
Sunnyside WA 98944

Phone: 509-837-5206
Fax: 509-837-3268

CONSUMER NOTICE
Lead and Copper Water Sample Results

The CITY OF SUNNYSIDE, WA Water System, ID # 85400 3 , is providing you with the lead and copper test results on the water sample collected at your location on _____. Please share this notice with everyone who uses or drinks the water.

The following results are for «sample_location»:

Lead = «lead» mg/L **Copper =** «copper» mg/L

The maximum contaminant level goal (MCLG) is the level of a contaminant in drinking water below which there are no known or expected risks to health. MCLGs allow for a margin of safety. The action level is the concentration of a contaminant that, if exceeded, triggers treatment requirements or actions a water system must follow.

- The MCLG for lead is "0" and the action level is 15 ppb (or .015 mg/L).
- The MCLG and action level for copper is 1,300 ppb (or 1.3 mg/L).

The water system's compliance with the Lead and Copper Rule (LCR) is calculated by using sample results collected from sites in our sampling pool. Your location's lead or copper results may be higher or lower than the compliance calculation for the overall water system and does not reflect our water system's compliance with the LCR. We will notify all water users if the lead or copper results from our water system exceed the action level.

For more information, please contact:

City of Sunnyside
Public Works Department
509-837-5206
818 E Edison Ave
Sunnyside WA 98944

This notice is being sent to you on _____ .

Please turn over for important information on lead and copper.

HOW LEAD GETS INTO WATER

Lead in drinking water most often comes from water distribution lines or household plumbing rather than from the water system source. Plumbing sources can include lead pipes, lead solder, faucets, valves, and other components made of brass. Lead from other sources (such as lead-based paint and contaminated dust or soil) can increase a person's overall exposure, which adds to the effects of lead in water.

POTENTIAL HEALTH EFFECTS OF LEAD

The greatest risk of lead exposure is to infants, young children, and pregnant women. Lead can cause serious health problems if too much enters the body. Lead is stored in the bones and can be released later in life. Lead can cause damage to the brain and kidneys, interfere with production of red blood cells that carry oxygen, and may result in lowered IQ in children. During pregnancy, the child receives lead from the mother's bones, which may affect brain development. Low levels of lead can affect adults with high blood pressure or kidney problems.

HOW COPPER GETS INTO WATER

Copper is a mineral and natural component in soils. In the correct amounts, it is an essential nutrient for humans and plants. In Washington State, most copper in drinking water comes from corrosion of household plumbing. Plumbing sources can include copper pipe and brass fixtures. Copper from plumbing corrosion can accumulate overnight.

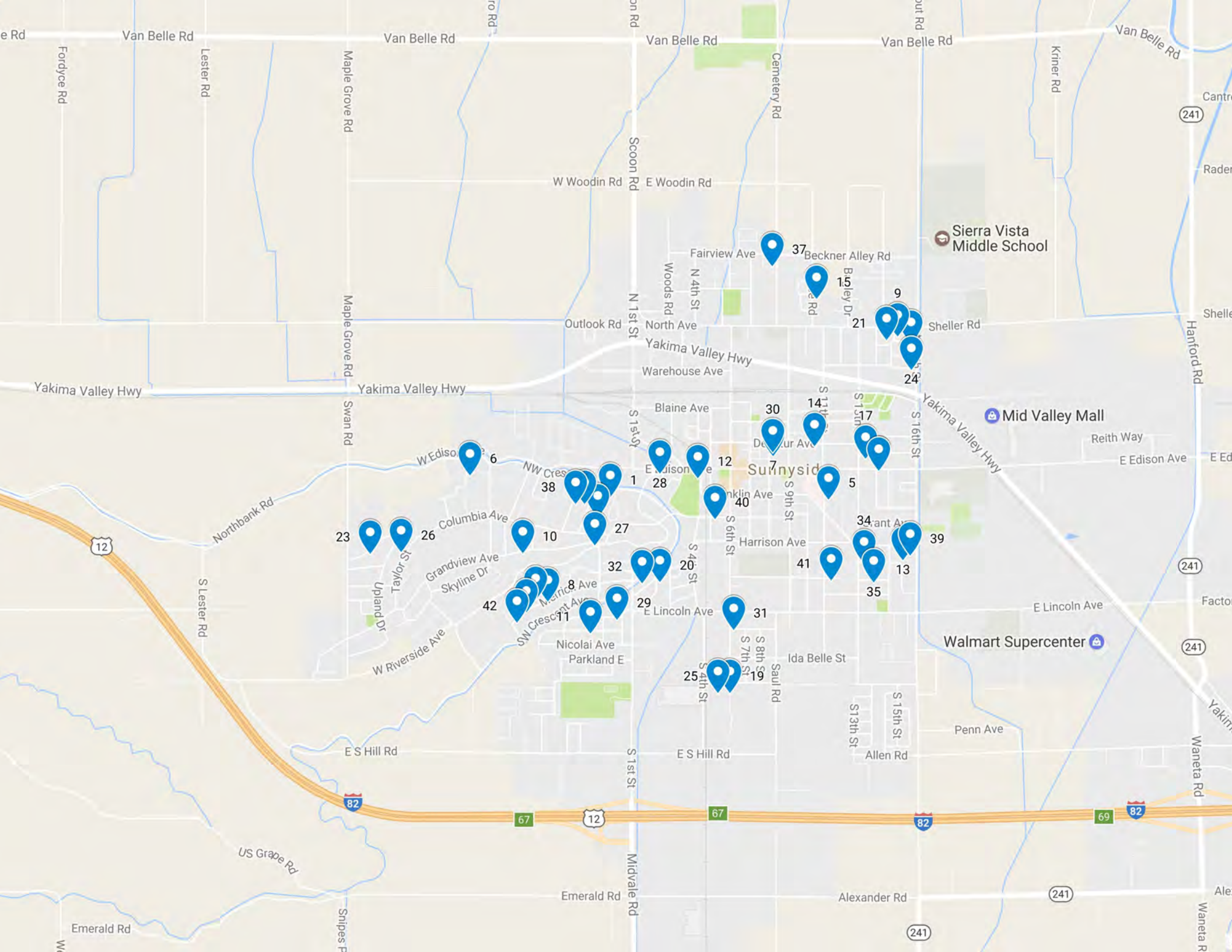
POTENTIAL HEALTH EFFECTS OF COPPER

Although copper is an essential mineral in the diet, too much copper can cause health problems. Copper is widely distributed within the tissues of the body, but accumulates primarily in the liver and kidneys. A single dose of 15 mg of copper can cause nausea, vomiting, diarrhea, and intestinal cramps. Severe cases of copper poisoning have led to anemia and to disruption of liver and kidney functions. Individuals with Wilson's or Menke's diseases are at higher risk from copper exposure.

HOW YOU CAN REDUCE EXPOSURE

- When your water has been sitting for several hours, flush the pipe by running the cold-water tap until the water is noticeably colder before using the water for drinking or cooking. **(The longer water has been sitting in the pipes, the more dissolved metals it may contain).**
- Use only cold water for drinking, cooking, and making baby formula. Hot water may contain higher levels of lead or copper.
- Frequently clean the filter screens and aerators in faucets to remove captured particles.
- If building or remodeling, only use "lead free" or low lead piping and materials. Avoid using copper piping or brass fixtures for locations where water will be consumed or used in food preparation (such as kitchen or bathroom sinks).

Sample site Number	Sample Site Location
1	686 Hamilton Dr
2	1533 Denson Ave
3	1401 E Edison Ave
4	215 Lookout Dr
5	608 S 11th St
6	522 Dayton Dr
7	416 S 8th St
8	315 Merrick Ave
9	1510 Denson Ave
10	495 Grandview Ave
11	219 Madison Ave
12	533 S 4th St
13	1516 E Irving Ave
14	1007 Decatur Ave
15	510 Rouse Rd
16	633 San Clemente Ave
17	418 S 13th St
18	406 Merrick Ave
19	1509 S 6th St
20	133 E Hemlock Ave
21	1414 Denson Ave
22	1408 Harrison Rd
23	1145 Columbia Ave
24	1531 Yakima Ave
25	1509S S 6th St
26	825 Taylor St
27	208 Riverside Dr
28	507 Flower Ave
29	119 W Lincoln Ave
30	412 S 8th St
31	607 Miller Ave
32	108 E Maple Way
33	411 Merrick Ave
34	904 S 13th St
35	1319 Jackson Ave
36	1401 E Edison Ave
37	711 Cemetery Rd
38	632 Buena Vista Ave
39	815 S 16th St
40	501 Grant Ave
41	1107 Jackson Ave
42	419 Merrick Ave



Van Belle Rd
Fordyce Rd
Lester Rd
Maple Grove Rd
Scoon Rd
Cemetery Rd
Kriner Rd
W Woodin Rd
E Woodin Rd
Sierra Vista Middle School
Fairview Ave
Beckner Alley Rd
Woods Rd
N 4th St
N 1st St
Outlook Rd
North Ave
Sheller Rd
Yakima Valley Hwy
Warehouse Ave
Hanford Rd
Swan Rd
Blaine Ave
Mid Valley Mall
Reith Way
E Edison Ave
S 16th St
S 1st St
Northbank Rd
Columbia Ave
Grandview Ave
Skyline Dr
Taylor St
Upland Dr
S Lester Rd
W Riverside Ave
Harrison Ave
S 9th St
S 6th St
S 4th St
E Lincoln Ave
Nicolai Ave
Parkland E
Ida Belle St
Walmart Supercenter
S 7th St
S 8th St
Saul Rd
S 13th St
S 15th St
Penn Ave
Allen Rd
E S Hill Rd
Waneta Rd
US Grape Rd
Emerald Rd
Midvale Rd
Alexander Rd
Snipes Rd
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City of Sunnyside
Disinfectant/Disinfection
By-Product Rule (D/DBP)
Compliance Program

FINAL
April 2004

Prepared by:

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1.0 Overview of D/DBP Regulations

Disinfection of drinking water is one of the major public health advances of the 20th century. However, disinfectants can react with naturally occurring materials in drinking water to form organic and inorganic disinfectant by-products (DBPs). A major challenge for water suppliers is to balance the risks from microbial pathogens and DBPs. It is important to provide protection from microbial pathogens while simultaneously decreasing health risks to the population from DBPs. The 1996 Safe Drinking Water Act (SDWA) Amendments require EPA to develop rules to achieve these goals.

The Disinfectant/Disinfection By-Product Rule (D/DBP Rule) was developed in two Stages. Stage I has been finalized and became effective in January 2002. A Stage II Proposed Rule was submitted in August of 2003 for review and comment. The Stage II D/DBP Final Rule is currently projected by EPA to be in place in July of 2004. Thus, an overview of the Stage II Rule is provided for reference, but the majority of this D/DBP Rule Compliance Program focuses on Stage I requirements applicable to the City of Sunnyside (City). Each water system required to monitor under the D/DBP Rule must develop and implement a monitoring plan. The monitoring plan developed by the City is contained in this D/DBP Rule Compliance Program. The City must maintain the plan and make it available for inspection by the Washington State Department of Health (DOH) and the general public by January 1, 2004.

Stage I was promulgated in December 1998 and replaced the former Trihalomethane Rule. The Stage I D/DBP Rule applies to all community water systems and nontransient-noncommunity water systems using a chemical disinfectant for either primary or secondary disinfection. The D/DBP Rule sets Maximum Contaminant Levels (MCLs) for chlorite and bromate, and the sum of four trihalomethanes (TTHMs) and the sum of five haloacetic acids (HAA5), as follows:

Trihalomethanes:
- Trichloromethane (Chloroform)
- Bromodichloromethane
- Dibromochloromethane
- Tribromomethane (Bromoform)

Haloacetic Acids:
- Monochloracetic Acid (Chloroacetic Acid)
- Dichloroacetic Acid
- Trichloroacetic Acid
- Monobromoacetic Acid
- Dibromoacetic Acid (Bromoacetic Acid)

The Stage I Rule also set Maximum Residual Disinfectant Levels (MRDLs) for disinfectants added to drinking water including chlorine, chloramine, and chlorine dioxide. An MRDL is defined as the level of a disinfectant added for water treatment that may not be exceeded without an unacceptable possibility of adverse health effects. However, the USEPA specifically allows

short-term exceedence of MRDLs to control microbiological contamination problems. Stage I MCLs and MRDLs are summarized in Table 1.

Table 1
Summary of Stage I D/DBP Rule MCLs and MRDLs

Parameter	MCL (mg/L)	MRDL (mg/L)
Disinfection By-Product		
TTHMs	0.080	
HAA5	0.060	
Chlorite*	1.0	
Bromate*	0.010	
Disinfectant		
Chlorine (as Cl_2)		4.0
Chloramine (as Cl_2)		4.0
Chlorine Dioxide*		0.8

*Note: The City is not required to monitor for chlorite, bromate, or chlorine dioxide since neither chlorine dioxide nor ozone are used in the treatment process.

Compliance with Stage I MCLs and MRDLs will be based on a running annual average of samples collected at specified locations at specified frequencies, as required by the Stage I Rule. Monitoring requirements, compliance calculations, and compliance scheduling for the Stage I Rule are provided in the following sections.

2.0 Routine Monitoring Requirements

This section describes the number of samples, sample locations, and sampling frequency applicable to the City for disinfection by-products (TTHMs and HAA5), and disinfectant residuals (chlorine). Monitoring requirements are described for normal operating conditions.

Groundwater is the sole source of domestic water supply to the City. Two of the City's wells are operated year-round (Wells No. 8 and 9). A third well is typically operated for three (3) quarters out of each year (Well No. 7), and a fourth well is typically operated only during the third quarter of each year (Well No. 6). The wells operated during only a portion of the year assist in meeting the additional demands put on the system for irrigation purposes. Well No. 5 is used for emergency purposes only. If Well No. 5 or any other well is operated for a majority of the quarter that they do not typically run, the City should add one (1) additional sample per additional well per quarter.

2.1 Disinfection By-Products

Number of Samples. The City is required to monitor for TTHMs and HAA5 at one sampling site per operating plant per quarter within the distribution system. A single plant is considered a well or well field. Each sample location must represent the maximum hydraulic detention time under normal operating conditions. These sample locations should be distributed throughout the system.

Sample Locations. Sample locations were selected based on detention time evaluations, number of persons served, the availability of historical data, whether or not booster disinfection is practiced, and ease of access to the sample location. Table 2 lists the City-chosen sample locations for Stage I DBP monitoring under routine operating conditions. Exhibit 1 illustrates these locations on a city-wide map.

Table 2
City of Sunnyside Stage I Disinfection By-Product Monitoring Locations

Sample Number	Location	Parameters	Sampling Quarter
DP-1	1606 San Clemente	TTHM and HAA5	1,2,3,4
DP-2	1209 Vista	TTHM and HAA5	1,2,3,4
DP-3	355 E. Alexander Road	TTHM and HAA5	2,3,4
DP-4	3201 Picard Place	TTHM and HAA5	3

Sampling Frequency. Samples must be collected from each sampling location on a quarterly basis for each operating well, resulting in a total of 12 samples per year. Samples must be collected on the same day (i.e., within a 24-hour period). The anticipated sampling schedule is

quarterly on the first Monday of the month. Sampling will be done in February, May, August and November.

2.2 Disinfectants

The City is required to monitor for chloramines at the same location and frequency as coliform monitoring under the Total Coliform Rule. Sample sites and sampling frequency used by the City for Total Coliform Rule compliance are summarized in Table 3. According to the schedule in Table 3, 16 locations are sampled each month. Eight (8) samples are taken on the first Monday of each month, including a raw sample from a well, and the remaining eight (8) are taken on the second Monday of the month. Exhibit 1 illustrates these locations on a city-wide map.

Table 3
City of Sunnyside Stage I Disinfectants Monitoring Locations

Sample Number	Location	Sampling Date
D-1	340 W. Grandview	1st Monday
D-2	605 Skyline	2nd Monday
D-3	606 San Clemente	1st Monday
D-4	1209 Vista	1st Monday
D-5	811 Dayton Drive	2nd Monday
D-6	701 Scoon Road	1st Monday
D-7	110 South Hill Rd. (Bi-Mart)	1st Monday
D-8	809 N.W. Crescent	2nd Monday
D-9	2200 Yakima Valley Hwy. (McDonalds)	1st Monday
D-10	2001 Yakima Valley Hwy. (Mid Valley Mall)	2nd Monday
D-11	2550 Yakima Valley Hwy. (Taco Bell)	2nd Monday
D-12	Wells 5-10 Raw Source - on rotation, depending on demand.	1st Monday
D-13	3201 Picard Pl. (Burger King)	2nd Monday
D-14	818 E. Edison Ave. (City Hall)	2nd Monday
D-15	555 W. South Hill Road (Yakima Chief)	2nd Monday
D-16	355 E. Alexander Road (Dairy Fair)	1st Monday

3.0 Reduced Monitoring Requirements

3.1 Disinfection By-Products

Reduced monitoring for TTHMs and HAA5 may be allowed if after one year of monitoring the annual average of TTHMs is less than 0.040 mg/L and the annual average of HAA5 is less than 0.030 mg/L. Additionally, Total Organic Carbon (TOC) levels must be less than 4.0 mg/L in the source water. Sampling requirements can be reduced to one sample per quarter at a location representing maximum detention time.

Systems may remain on a reduced monitoring schedule as long as the average of all samples taken in the year is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. If these levels are not met, the routine monitoring program at a minimum of four locations must resume in the quarter immediately following the quarter in which the 0.060 mg/L or 0.045 mg/L levels are exceeded.

3.2 Disinfectants

There are no reduced monitoring provisions for disinfectants.

4.0 Compliance Determination Calculations

4.1 Disinfection By-Products

Compliance with the TTHM and HAA5 MCLs is based on the running annual arithmetic average of samples collected on a quarterly basis. If the running annual average of any consecutive 4-quarter period exceeds an MCL, the system is in violation and must notify the public and the State. An example compliance calculation for TTHMs is provided in Table 4.

Table 4
Example TTHM Running Annual Average Compliance Calculation

Quarter	Results (mg/L)	Quarterly Avg. (mg/L)		Running Annual Avg. (mg/L)	Quarters
1	0.024	0.031		0.059	1 through 4
(Months 1 through 3)	0.036			0.066	2 through 5
	0.028			0.069	3 through 6
	0.037				
2	0.055	0.049			
(Months 4 through 6)	0.024				
	0.062				
	0.055				
3	0.088	0.086			
(Months 7 through 9)	0.085				
	0.092				
	0.077				
4	0.072	0.068			
(Months 10 through 12)	0.045				
	0.089				
	0.067				
5	0.055	0.062			
(Months 13 through 15)	0.068				
	0.057				
	0.066				
6	0.048	0.060			
(Months 16 through 14)	0.055				
	0.072				
	0.064				

The example data in Table 4 show that the system is in compliance with the 0.080 mg/L TTHM MCL based on a running annual average, even though the results for the third quarter exceeded 0.080 mg/L.

Significant figures are important when determining compliance with the D/DBP Rule MCLs. The MCL (whether reported in mg/L or μg/L) is set with two significant figures. Thus, 0.080

mg/L equals 80 µg/L. A result of 80.4 µg/L (or 0.0804 mg/L) is still in compliance with the TTHM MCL since the reported result would be rounded down to 80 µg/L.

4.2 Disinfectants

Compliance with the chlorine disinfectant MRDL of 4.0 mg/L is based on the running annual average, computed quarterly, of monthly averages of all samples. An example compliance calculation for chloramine residual is provided in Table 5.

Table 5
Example Chlorine Running Annual Average Compliance Calculation

Quarter	Month	No. Samples	Monthly Avg. (mg/L as Cl2)	Quarterly Avg. (mg/L as Cl2)	Running Annual Avg. (mg/L as Cl2)	Quarters
1	1	410	1.2	1.4	2.0	1 through 4
	2	409	1.8		2.2	2 through 5
	3	400	1.1		2.1	3 through 6
2	4	398	2.0	2.2		
	5	411	2.2			
	6	401	2.5			
3	7	404	1.8	1.8		
	8	412	1.5			
	9	395	2.0			
4	10	388	2.7	2.6		
	11	387	2.9			
	12	395	2.2			
5	13	407	1.9	2.2		
	14	411	2.4			
	15	409	2.2			
6	16	392	1.7	1.7		
	17	387	1.5			
	18	400	1.9			

Significant figures are important when determining compliance with the disinfectant MRDLs. Compliance with the 4.0 mg/L MRDL is based on two significant figures. Therefore, a running annual average result of 4.04 mg/L is in compliance, but a running annual average result of 4.06 mg/L is in violation of the MRDL.

If the City switches to some other form of disinfectant, the monitoring plan should be updated to reflect the additional byproducts that may result.

5.0 Analytical Requirements

Analyses must be conducted using EPA Methods in accordance with the analytical requirements set forth in 40 CFR 141. Samples analyzed for the purposes of the D/DBP Rule must be collected after the water has been allowed to flow from the sample tap for a sufficient length of time to assure that the collected sample is representative of water in the distribution system. Chlorine measurements can be made in the field by properly trained personnel. TTHMs and HAA5 must be analyzed by a certified laboratory. Approved analytical methods are listed in Table 6.

Table 6
Summary of Approved Analytical Methods for Disinfection By-Products and Disinfectants

Analyte	EPA Method	Standard Method
TTHM	502.2 524.2 551.1	
HAA5	552.1	6251 B
Chlorine (total)		4500-Cl D 4500-Cl F 4500-Cl G* 4500-Cl E 4500-Cl I

*Hach Method 8167 is equivalent to Standard Method 4500-Cl G

6.0 Reporting Requirements

Results for both disinfection by-product and disinfectant monitoring must be reported to the State within 10 days of the end of each calendar quarter. If an MCL or MRDL is exceeded, the State shall be notified within 24 hours or by the next business day after the results are reported to the City.

6.1 Disinfection By-Products

When monitoring on a quarterly basis for TTHM and HAA5, the following information should be included with each report to the State:

- Number of samples collected during the quarter
- Location, date, and result
- Arithmetic average of quarter's samples
- Annual arithmetic average of quarterly averages
- Whether an MCL was exceeded.

DOH is currently developing a standard reporting form but it is not yet available for distribution.

6.2 Disinfectants

For disinfectants, the following information should be included with each report to the State:

- Number of samples collected each month during the quarter
- Average of each of the past 12 months
- Average of monthly averages over the past year
- Whether the MRDL was exceeded.

7.0 Public Notification Requirements

Public notification requirements are similar for both disinfection by-products and disinfectants. If an MCL or MRDL is violated, newspaper notification will be required within 14 days, and direct mail delivery will be required within 45 days of the violation.

Failure to perform monitoring, reporting, or to comply with the correct testing procedures **would require notice** of the violation by publication in a daily newspaper of general circulation in the area served by the City within three months.

Additionally, a copy of any public notice must be provided to all new billing units or new hookups prior to or at the time service begins.

Each notice must provide a clear and readily understandable explanation of the violation, any potential adverse health effects, the population at risk, the steps that the public water system is taking to correct the violation, the necessity for seeking alternative water supplies, if any, and any preventative measures the consumer should take until the violation is corrected.

8.0 Overview of Stage II D/DBP Proposed Rule

The requirements of the Stage II D/DBP Rule will apply to the same water systems as Stage I. The Stage II Rule is designed to reduce DBP occurrence peaks in the distribution system. Compliance monitoring will be preceded by an initial distribution system evaluation (IDSE) to select site-specific optimal sample locations for capturing peaks. As of August 2003, Stage II Proposed Rule has been under review and a Final Rule is not anticipated until July of 2004.

8.1 Phases of Stage II Rule

Systems will comply with the Stage II Rule in two phases:

Phase 1

- Effective 3 years after rule promulgation (with additional 2 year extension available for systems requiring capital improvements)
- All systems must comply with a 120/100 μg/L (for TTHM and HAA5, respectively) locational running annual average (LRAA)
- Based on Stage 1 monitoring sites
- Must continue to comply with Stage I 80/60 μg/L running annual average (RAA)
- Initial Distribution System Evaluation (IDSE) must be submitted to DOH within 2 years of promulgation (see section 8.2).

Phase 2

- Effective 6 years after rule promulgation (with additional 2 year extension available for systems requiring capital improvements)
- Large and medium systems must comply with 80/60 LRAA
- Based on new sampling sites identified under Initial Distribution System Evaluation (IDSE) as described below

8.2 Initial Distribution System Evaluation

IDSEs are intended to select new compliance monitoring sites that more accurately reflect areas with high TTHM and HAA5 levels. As a result of the ISDE study, the City will recommend new monitoring sites to the State. ISDE results will not be used for compliance purposes.

Monitoring Requirements for Ground Water Systems Serving ≥ 10,000 are summarized as follows:

- Two (2) sites per plant, approximately every 90 days for one year, in addition to Stage I compliance sites
- One set taken during the peak historical month for DBP levels or water temperature

- Sites should be prior to last fire hydrant on system
- Sites should not be on a dead-end line with no customers
- Collect paired samples (i.e., TTHM and HAA5) at each site.

For systems using chlorine, the sampling sites must be distributed as follows:

- 1 near distribution system point of entry per plant
- 1 at point of highest TTHM and HAA5 concentrations per plant

The results of IDSE monitoring must be reported to the State within 2 years of Rule promulgation. Thus, if EPA adopts a Stage II D/DBP Final Rule in July of 2004, as is currently projected, the City should be prepared to conduct an IDSE and report the results to DOH by July of 2006.

8.3 Long Term Compliance Monitoring (Phase 2)

Ground water systems serving ≥ 10,000 people must monitor on a quarterly basis, approximately 90 days apart. Appropriate distribution system sites must be identified. At least one quarterly sample must be taken during the peak historical month for DBP levels. Two sample sets per quarter per plant will be required.

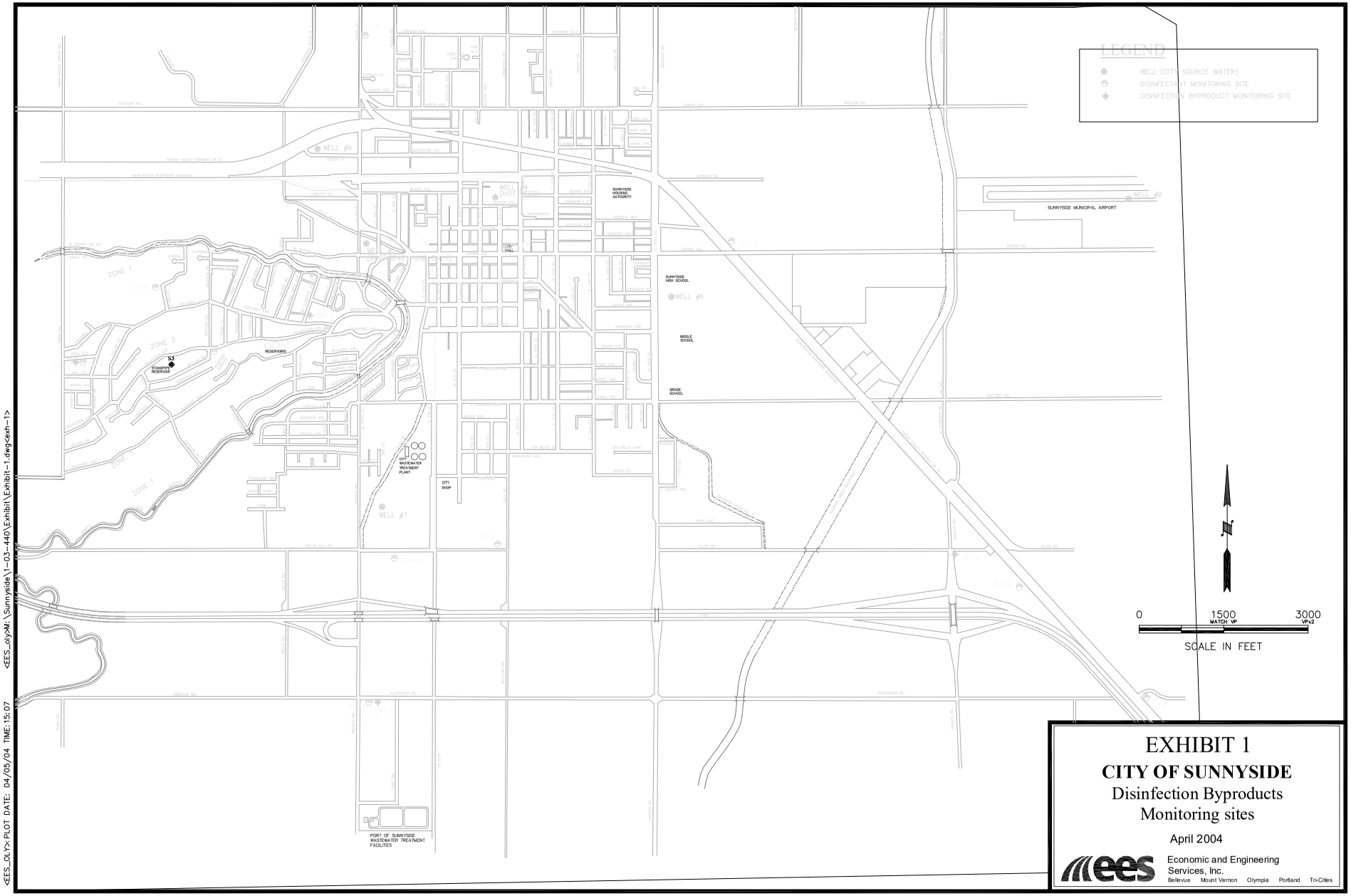


EXHIBIT 1

CITY OF SUNNYSIDE

Disinfection Byproducts
Monitoring sites

April 2004

Economic and Engineering Services, Inc.
Bellevue Mount Vernon Olympia Portland Tri-Cities

<EES_OLY>:PLOT DATE: 04/05/04 TIME:15:07 <EES_oly>M:\Sunnyside\1-03-440\Exhibit\Exhibit-1.dwg<exh-1>

Water Quality Monitoring Schedule

System: SUNNYSIDE, CITY OF
Contact: Kirk D Weets

PWS ID: 85400 3
Group: A - Comm

Region: EASTERN
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

	May 2017	Jun 2017	Jul 2017	Aug 2017	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018
Coliform Monitoring Population	16280	16280	16280	16280	16280	16280	16280	16280	16280	16280	16280	16280
Number of Routine Samples Required	15	15	15	15	15	15	15	15	15	15	15	15

- 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 2017 - Dec 2019	standard - 3 year	09/23/2016	Sep 2019	
Asbestos	1	Jan 2011 - Dec 2019	standard - 9 year	04/07/2010	Apr 2019	
Total Trihalomethane (THM)	2	Jan 2017 - Dec 2017	reduced - 1 year	07/19/2016	***Jul 2017***	
Halo-Acetic Acids (HAA5)	2	Jan 2017 - Dec 2017	reduced - 1 year	07/19/2016	***Jul 2017***	

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 S06 *Well #6 - AFL811* *Well* *Use - Permanent* *Susceptility - Moderate*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year	10/11/2016	***Oct 2017***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	07/06/2016	
Arsenic	1	Jan 2017 - Dec 2019	standard - 3 year	07/06/2016	Aug 2019
Iron	1	Jan 2017 - Dec 2019	standard - 3 year	07/06/2016	Aug 2019
Manganese	1	Jan 2017 - Dec 2019	standard - 3 year	07/06/2016	Jul 2019
Volatile Organics (VOC)	1	Jan 2017 - Dec 2022	waiver - 6 year	03/23/2015	Mar 2021
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/13/2009	May 2018
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/13/2009	May 2018
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year	08/06/2001	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	05/11/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	05/11/2015	

Source S07 *Well #7* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year	09/07/2016	***Sep 2017***

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 S07 *Well #7* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	10/07/2014	
Arsenic	1	Jan 2017 - Dec 2019	standard - 3 year	10/07/2014	Sep 2019
Manganese	1	Jan 2017 - Dec 2019	standard - 3 year	10/07/2014	Aug 2019
Volatile Organics (VOC)	1	Jan 2017 - Dec 2019	standard - 3 year	07/06/2016	Jul 2019
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/11/2009	May 2018
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/11/2009	May 2018
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year	08/06/2001	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	05/11/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	05/11/2015	

Source S08 *Well #8 - AFL812* *Well* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year	06/07/2016	***Jun 2017***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	06/07/2016	
Arsenic	1	Jan 2017 - Dec 2019	standard - 3 year	06/07/2016	Sep 2019
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	10/10/2012	Oct 2018
Herbicides	1	Jan 2017 - Dec 2019	R&C - 3 year	05/07/2014	***Apr 2017***
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/11/2009	
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year	08/20/1998	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	05/11/2015	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	05/11/2015	

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 S09 *Well #9 - AFK905* *Well* *Use - Permanent* *Susceptility - Low*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year	10/11/2016	***Oct 2017***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	04/07/2016	
Arsenic	1	Jan 2017 - Dec 2019	standard - 3 year	04/07/2016	May 2019
Manganese	1	Jan 2017 - Dec 2019	standard - 3 year	04/07/2016	Oct 2019
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	05/11/2015	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/14/2013	May 2022
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/08/2013	May 2022
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year	08/20/1998	
Gross Alpha	1	Jan 2017 - Dec 2019	standard - 3 year	05/11/2015	May 2018
Radium 228	1	Jan 2017 - Dec 2019	standard - 3 year	05/11/2015	May 2018

Source S11 *Well #11 - AKN517* *Well* *Use - Permanent* *Susceptility - Moderate*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year	09/07/2016	***Sep 2017***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	09/12/2012	
Arsenic	1	Jan 2017 - Dec 2019	standard - 3 year	09/05/2013	Oct 2019
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	05/11/2015	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/07/2016	
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/07/2016	
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year		
Radium 226 + 228	1	Jan 2014 - Dec 2022	Baseline - 9 year	11/03/2016	
Gross Alpha	1	Jan 2017 - Dec 2019	standard - 6 year	04/07/2016	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 S14 *Wellfield / S12, S13* *Well Field* *Use - Permanent* *Susceptility - Low*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year	08/01/2016	***Aug 2017***
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	08/01/2016	
Arsenic	1	Jan 2017 - Dec 2019	standard - 3 year	08/01/2016	Sep 2019
Volatile Organics (VOC)	1	Jan 2017 - Dec 2019	standard - 3 year	06/07/2016	Jun 2019
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/10/2016	
Pesticides	1	Jan 2014 - Dec 2022	waiver - 9 year	05/10/2016	
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year		
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year		***Oct 2017***
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year		***Oct 2017***

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):	07/01/2017
Submit CCR certification form to ODW (Community systems only):	10/01/2017
Submit Water Use Efficiency report online to ODW and to customers (Community and other municipal water systems only):	07/01/2017
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

None

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.

Appendix 9 Sanitary Surveys

A. Checklist
B. DOH Letter
C. Sunnyside Response

WASHINGTON STATE DEPARTMENT OF HEALTH
Third-Party Sanitary Survey Checklist

System Name:	**Sunnyside, City of**			Survey Date:	**June 18, 2015**
PWS ID#:	**85400 3**	County:	**Yakima**	System Type:	**A-COMM**
Persons Attending Inspection:		**Kirk Weets**			
Inspector's Name:		**Andres R. Cervantes**			

PART A: SUMMARY OF SIGNIFICANT DEFICIENCIES AND SIGNIFICANT FINDINGS

The following is a completed sanitary survey checklist and summary of inspection findings. This completed sanitary survey checklist is the basis for the cover letter you receive from your local health jurisdiction or from the WA Dept. of Health (DOH). The cover letter documents any significant deficiencies or significant findings that must be corrected. The cover letter may also summarize observations concerning compliance with certain rules, and offer recommendations you can use to make improvements to the operation and management of your water system. Contact your DOH regional office with any questions you have about this survey.

Bolded and highlighted checklist items represent significant deficiencies that, if left uncorrected, create a significant public health risk. Highlighted checklist items represent significant findings that, if left uncorrected, create a significant risk to the physical safety, security, or reliability of the public drinking water supply. You will be required to take some sort of corrective action for each checklist answer that is **bolded and highlighted**, or highlighted.

Significant deficiencies **[SD]**; and significant findings **[SF]**; identified during this sanitary survey:

Reservoir: Grandview Reservoirs – Buried cement tanks.

[SD] See Photo-11-16: Replace or repair hatch cover. Worn gasket. Holes in lid.

SOURCES: General Practice - Stop overfilling fuel tank, oil / hydraulic reservoirs.

S09: **[SD] See Photo-3-4**:

Repair or seal conduit at collar below well cap.

S07: **[SF] See Photo-1-2**:

Install a screen or spring loaded flap-valve (Duck bill) on the end of the discharge to waste pipes for the pump control valves.

S13: **[SF] See Photos-5-10**:

Stop practice of parking leaking equipment within the Sanitary Control Area (SCA). The SCA is a circular area around the well defined by a 100-ft radius.

Significant deficiencies or significant findings identified in the previous sanitary survey that remain unaddressed:

Observations and recommendations identified during this survey

Discussion Items

Groundwater Rule: General information on rule and requirements triggered when a coliform sample tests positive for coliform.

LCR Monitoring: **Lead and Copper Rule**, General information on the public notification requirement for your sample sites selected. PN can be provided at the lunch areas and other common meeting rooms. Etc.

PART B: GENERAL WATER SYSTEM DESCRIPTION

Provide a general description of the water system including changes, updates, connections, source(s), storage, number of pressure zones, treatment, and control system(s) and alarm(s). Make corrections and updates to the purveyor's water facilities inventory form (WFI).

System consists:

9 Sources (Groundwater) – 8-Permanent), 1-Emergency, 1-wellfield (2-sources)

4-Reservoirs (Gravity feed) – 3.5 MG (1-MG Standpipe, 2.5MG (1-above ground, 2-buried cement tanks)

3 pressure zones – At present.

PART C: OPERATIONS and MANAGEMENT	YES	NO	Remarks
1. Community (≤1,000 connections): Has the water system taken the online Capacity Assessment Survey?	☐	☐	**NA**
2. Were water system records available for your review?	☒	☐	
3. Has the purveyor developed / implemented a Small Water System Management Program or a Water System Plan?	☒	☐	**Under Rev**
a. If no, are the following planning documents complete and up to date:	☒	☐	
* Service Area and Facility Map	☒	☐	
* Cross-Connection Control Program	☒	☐	
* Source Water Protection Program	☒	☐	
* Emergency Response Plan	☒	☐	
* Operation and Maintenance Program	☒	☐	
* Coliform Monitoring Plan	☒	☐	
* Component Inventory and Assessment	☒	☐	
* Asset Replacement and Other System Improvements	☒	☐	
* Budget	☒	☐	
4. Does the purveyor plan to make capital improvements in the next 1-3 years? *If yes, describe below*	☒	☐	
5. Is there a backup operator available if the regular one is not available? *If yes, provide contact info below*	☒	☐	
6. Were the water system's current and future water quality monitoring requirements reviewed?	☒	☐	
7. Were water quality sample results and trends reviewed with the purveyor?	☒	☐	
8. Does the system have emergency power?	☒	☐	
9. Does the system experience frequent power outages (>2 per year)? *If yes, explain below*	☐	☒	
10. Does the system experience frequent water outages (>2 per year)? *If yes, explain below*	☐	☒	
11. Does there appear to be adequate reliability provided for this system? *If no, explain below*	☒	☐	

Describe the general level of planning and management documents developed by this water system and any recommendations for additional development, including updates, system management practices and processes, water rates, etc.

Recent plan update being reviewed

New changes to coliform monitoring (Groundwater Rule, Total Coliform Rule).

PART D: SOURCES	S06 (Well #6) and S07 (Well #7)					
12. Did you observe a source connected to the water system that is NOT listed on the WFI and in active use?			☐Yes	☒No	☐Yes	☒No
a. If so, has the source received written DOH approval? (confirm with DOH post-survey)			☐Yes	☐No	☐Yes	☐No
13. DOH Source Number:			**S0#**	**S06**	**S0#**	**S07**
14. Source Name from the WFI: (For example, North Well; Well #2; ABC334.)			**Well #6**		**Well #7**	
15. Dept of Ecology Well Tag Number: (Use Well tag ID#, None or Not readable)			**AFL 811**			
16. Source Use:	P - Permanent	S - Seasonal	E - Emergency	**P**		**P**

WELL (if there is no well, skip questions 18 through 34)	**YES** ☒	**NO** ☐	**NA** ☐	**YES** ☒	**NO** ☐	**NA** ☐
17. If this is an emergency source, should it be disconnected?	☐	☒	☐	☒	☐	☐
18. Is the source a potential GWI source?	☐	☒	☐	☐	☒	☐
19. Is the Sanitary Control Area (SCA) free of unmitigated potential sources of contamination?	☒	☐	☐	☒	☐	☐
20. Is the wellhead located in a pit or vault?	☐	☒	☐	☐	☒	☐
21. Is the wellhead at risk of submergence?	☐	☒	☐	☐	☒	☐
22. Is the well cap sealed, watertight, and free of unprotected openings?	☒	☐	☐	☒	☐	☐
23. Is the well casing free of any unprotected openings?	☒	☐	☐	☒	☐	☐
24. Is there a vent on the well?	☒	☐	☐	☒	☐	☐
a. If yes, is the vent protected? (24 non-corrodible mesh screen or slots)	☒	☐	☐	☒	☐	☐
25. Are conduits and junction boxes sealed to prevent contaminant entry?	☐	☐	☒	☐	☐	☒
26. Is the well unreasonably at risk to physical damage?	☐	☒	☐	☐	☒	☐
27. Is there a raw water source sample tap?	☒	☐	☐	☒	☐	☐
28. Is the source metered?	☒	☐	☐	☒	☐	☐
a. If yes, is the source meter read at least monthly?	☒	☐	☐	☒	☐	☐
b. If yes, are the water production records maintained?	☒	☐	☐	☒	☐	☐
29. Is the wellhouse properly constructed and maintained? If no, explain below	☒	☐	☐	☒	☐	☐
30. Is there evidence of rodent infestation?	☐	☒	☐	☐	☒	☐
31. Is the wellhouse adequately protected from unauthorized access?	☒	☐	☐	☒	☐	☐
32. Is there a pump control valve or vacuum relief valve without an air gap on the valve discharge pipe?	☐	☒	☐	☐	☒	☐
33. Are the source pump and pump controls operational and adequate to prevent chronic water outages or premature pump failure? ***If no explain below***	☒	☐	☐	☒	☐	☐
SPRING (if there is no spring, skip to question 41)	☐	☒	☐	☐	☒	☐

Photo-1: S07
Control Valves
Discharge waste
→ No screens visible

Required:
→ Repair or replace Screens

Photo-2: S07
Control Valves
Air gap - Good
Discharge waste
→ No screens visible

Required:
→ Repair or replace Screens

PART D: SOURCES	S08 (Well #8) and S09 (Well #9)					
12. Did you observe a source connected to the water system that is NOT listed on the WFI and in active use?			☐Yes	☒No	☐Yes	☒No
a. If so, has the source received written DOH approval? (confirm with DOH post-survey)			☐Yes	☐No	☐Yes	☐No
13. DOH Source Number:			S0#	S08	S0#	S09
14. Source Name from the WFI: (For example, North Well; Well #2; ABC334.)			Well #8		Well #9	
15. Dept of Ecology Well Tag Number: (Use Well tag ID#, None or Not readable)			AFL 812		AFK 905	
16. Source Use:	P - Permanent	S - Seasonal	E - Emergency	P		P

WELL (if there is no well, skip questions 18 through 34)	YES	NO	NA	YES	NO	NA
	☒	☐	☐	☒	☐	☐
17. If this is an emergency source, should it be disconnected?	☐	☒	☐	☒	☐	☐
18. Is the source a potential GWI source?	☐	☒	☐	☐	☒	☐
19. Is the Sanitary Control Area (SCA) free of unmitigated potential sources of contamination?	☒	☐	☐	☒	☐	☐
20. Is the wellhead located in a pit or vault?	☐	☒	☐	☐	☒	☐
21. Is the wellhead at risk of submergence?	☐	☒	☐	☐	☒	☐
22. Is the well cap sealed, watertight, and free of unprotected openings?	☒	☐	☐	☐	☒	☐
23. Is the well casing free of any unprotected openings?	☒	☐	☐	☒	☐	☐
24. Is there a vent on the well?	☒	☐	☐	☒	☐	☐
a. If yes, is the vent protected? (24 non-corrodible mesh screen or slots)	☒	☐	☐	☒	☐	☐
25. Are conduits and junction boxes sealed to prevent contaminant entry?	☐	☐	☒	☐	☐	☒
26. Is the well unreasonably at risk to physical damage?	☐	☒	☐	☐	☒	☐
27. Is there a raw water source sample tap?	☒	☐	☐	☒	☐	☐
28. Is the source metered?	☒	☐	☐	☒	☐	☐
a. If yes, is the source meter read at least monthly?	☒	☐	☐	☒	☐	☐
b. If yes, are the water production records maintained?	☒	☐	☐	☒	☐	☐
29. Is the wellhouse properly constructed and maintained? If no, explain below	☒	☐	☐	☒	☐	☐
30. Is there evidence of rodent infestation?	☐	☒	☐	☐	☒	☐
31. Is the wellhouse adequately protected from unauthorized access?	☒	☐	☐	☒	☐	☐
32. Is there a pump control valve or vacuum relief valve without an air gap on the valve discharge pipe?	☐	☒	☐	☐	☒	☐
33. Are the source pump and pump controls operational and adequate to prevent chronic water outages or premature pump failure? ***If no explain below***	☒	☐	☐	☒	☐	☐
SPRING (if there is no spring, skip to question 41)	☐	☒	☐	☐	☒	☐

Photo-3: S09
Wellhead
Screened Air Vent
→ Good condition

SCA
→ Graveled Area

Photo-4: S09
Wellhead
Wiring Harness conduit
→ Broken or unseated

Required:
→ Repair or replace collar

PART D: SOURCES	S14 Wellfield with S12 (Well #12) and S13 (Well #13)			
12. Did you observe a source connected to the water system that is NOT listed on the WFI and in active use?	☐Yes	☒No	☐Yes	☒No
a. If so, has the source received written DOH approval? (confirm with DOH post-survey)	☐Yes	☐No	☐Yes	☐No
13. DOH Source Number:	**S0#**	**S12**	**S0#**	**S13**
14. Source Name from the WFI: (For example, North Well; Well #2; ABC334.)	**Well #12**		**Well #13**	
15. Dept of Ecology Well Tag Number: (Use Well tag ID#, None or Not readable)	**ALM 337**		**BAL 875**	
16. Source Use: P - Permanent / S - Seasonal / E – Emergency	**P**		**P**	

WELL (if there is no well, skip questions 18 through 34)	YES	NO	NA	YES	NO	NA
	☒	☐	☐	☒	☐	☐
17. If this is an emergency source, should it be disconnected?	☐	☒	☐	☒	☐	☐
18. Is the source a potential GWI source?	☐	☒	☐	☐	☒	☐
19. Is the Sanitary Control Area (SCA) free of unmitigated potential sources of contamination?	☒	☐	☐	☒	☐	☐
20. Is the wellhead located in a pit or vault?	☐	☒	☐	☐	☒	☐
21. Is the wellhead at risk of submergence?	☐	☒	☐	☐	☒	☐
22. Is the well cap sealed, watertight, and free of unprotected openings?	☒	☐	☐	☒	☐	☐
23. Is the well casing free of any unprotected openings?	☒	☐	☐	☒	☐	☐
24. Is there a vent on the well?	☒	☐	☐	☒	☐	☐
a. If yes, is the vent protected? (24 non-corrodible mesh screen or slots)	☒	☐	☐	☒	☐	☐
25. Are conduits and junction boxes sealed to prevent contaminant entry?	☐	☐	☒	☐	☐	☒
26. Is the well unreasonably at risk to physical damage?	☐	☒	☐	☐	☒	☐
27. Is there a raw water source sample tap?	☒	☐	☐	☒	☐	☐
28. Is the source metered?	☒	☐	☐	☒	☐	☐
a. If yes, is the source meter read at least monthly?	☒	☐	☐	☒	☐	☐
b. If yes, are the water production records maintained?	☒	☐	☐	☒	☐	☐
29. Is the wellhouse properly constructed and maintained? If no, explain below	☒	☐	☐	☒	☐	☐
30. Is there evidence of rodent infestation?	☐	☒	☐	☐	☒	☐
31. Is the wellhouse adequately protected from unauthorized access?	☒	☐	☐	☒	☐	☐
32. Is there a pump control valve or vacuum relief valve without an air gap on the valve discharge pipe?	☐	☒	☐	☐	☒	☐
33. Are the source pump and pump controls operational and adequate to prevent chronic water outages or premature pump failure? *If no explain below*	☒	☐	☐	☒	☐	☐
SPRING (if there is no spring, skip to question 41)	☐	☒	☐	☐	☒	☐

Wellfield

PART D: SOURCES S14 – Wellfield – S13 SCA

Photo-5: Sanitary Control Area

Looking South of East – Primarily vacant area

→ Graveled

Photo-6: Sanitary Control Area

Looking South – Primarily vacant area

→ Graveled – Parking area for mower, some spots

Photo-7: Sanitary Control Area

Owner

→ Equipment

Photo-8: Sanitary Control Area

Graveled area – Drippings

Required: Remove tainted soil, park equipment elsewhere

Photo-9: Sanitary Control Area

Graveled area – Drippings

Required: Remove tainted soil, park equipment elsewhere

Photo-10: Sanitary Control Area

Graveled area – Drippings

Required:

- Remove tainted soil
- Park equipment elsewhere

PART F: TREATMENT	YES	NO	NA
41. Does the operator batch chlorinate the source, the distribution system, or the reservoir just before collecting routine or repeat coliform samples? If yes, provide details below.	☐	☒	☐
42. Did you observe disinfection treatment connected to the water system in active use that is NOT listed on the WFI? *If yes, explain below*	☐	☒	☐
43. Is ultraviolet light (UV) used for disinfecting a drinking water source? *If no, skip to question 46.*	☐	☒	☐
46. Is there continuous chlorination? *If no, skip to Part F*	☒	☐	☐

46a. If yes, please measure the free chlorine residual from a representative location in the distribution system.

Location description:_____ Free chlorine residual:_____

47. **Is there a water supply line plumbed directly into a chlorine solution tank without a reduced pressure backflow assembly on the supply line?**	☐Yes	☒No
48. Is there a post-treatment sample tap?	☒Yes	☐No
49. Does the chlorine compound meet NSF/ANSI Standard 60? – *household bleach exempted*	☒Yes	☐No
50. Is a backup chemical feed pump or spare parts for the operating chemical feed pump available	☒Yes	☐No
51. According to the operator, is there a DOH requirement for Chlorine Contact Time? *If no, skip to*	☐Yes	☒No
53. Is there any treatment other than chlorination or UV in use? *If no, skip Part F.*	☐Yes	☒No
54. Did you observe a treatment process connected to the water system in active use that is NOT listed on the WFI? *If yes, describe below.*	☐Yes	☒No

Each source treated with chlorine. Use:

Gas chlorine,

On-site generators, and

Simple injection of sodium hypo-chlorite.

PART G: BOOSTER PUMPING FACILITIES and CONTROLS	Yes	No	NA
59. Are there any booster pumps in use? *If no, skip Part G*	☒	☐	☐
60. Are the booster pumps in good working condition? *If no, explain below*	☐	☐	☒
61. Are pump and pump controls operational and adequate to prevent chronic water outages or premature pump failure? *If no explain below*	☐	☐	☒
62. If there is a booster pump house/pump station, is it secure against unauthorized entry? *If no, explain*	☒	☐	☐
63. Is the booster pump house/pump station properly constructed and maintained? *If no, explain below*	☐	☐	☒

Describe and evaluate the pump facilities and controls including maintenance, operations, sanitary and security observations:

3-pumps. Inoperable until new VFD (quivalent control) installed. Not necessary until services in upper section ready for use.

PART I: FINISHED WATER STORAGE: Skyline Stand Pipe			
69. Is there a finished water storage tank in use? *If no, skip Part I*	☒Yes	☐No	
Reservoir Name and Capacity	**Welded Steel 1.0-MG Each**		
70. If unable to physically inspect the storage tank hatch, vent, roof, or overflow outlet, select the method you discussed with the purveyor to document their condition:	**Yes**	**No**	**Comments**
a Reviewed and discussed maintenance records and recent photos	☒	☐	
b Photos will be taken and mailed by purveyor; additional follow-up required by DOH	☒	☐	
c Purveyor unable or unwilling to document; additional follow-up required by DOH	☐	☐	
71. Is the storage tank protected from unauthorized entry or vandalism? *	☒	☐	
72. Is the reservoir roof free of any unprotected openings?*	☐	☐	UNK
73. Is the access hatch constructed and sealed to prevent the entry of contaminants? *	☐	☐	UNK
74. If able to open hatch, is the stored water free of visible contaminants?*	☐	☐	
75. Is there a dedicated air vent on the storage tank?	☒	☐	
a. If yes, is the air vent constructed to prevent the entry of contaminants? *	☐	☐	UNK
76. Is the overflow line constructed to prevent contaminants from entering the tank?*	☒	☐	
77. Does the overflow line discharge near ground level?	☒	☐	
78. Is the overflow line discharge area protected from potential erosion?	☒	☐	
79. Does the overflow line discharge into a storm drain or surface water?	☐	☒	
a. If yes, is there an air gap at the discharge of the overflow OR does the overflow drop at least 34' vertical, between where the overflow enters the reservoir and the receiving water body?	☐	☐	NA
80. Does the overflow line discharge directly into a sanitary sewer without an air gap?	☐	☐	NA
81. Can the reservoir be isolated from the rest of the water system and be drained through a dedicated drain line?	☒	☐	
82. When was the tank inspected last?*	**Unk**		
83. What is the tank cleaning frequency?*	**As needed**		
84. Does the tank size, operation, and internal piping configuration provide adequate water turnover (i.e. separate inlet/outlet, baffling or mixing to reduce stagnant water)? *If no, explain below*	☒	☐	
85. Does the tank show signs of excessive leakage, significant structural cracking, or advanced concrete spalling?	☐	☒	

Describe and evaluate the finished water storage facilities including volume, operational drawdown, configuration of the inlet/outlet piping, any concerns about operations and maintenance, and sanitary and security observations: (*** - Explain No answers Here**).

Use this checklist and enclosed fact sheets when completing inspection.

Reservoir inspections. Please note the following (**See enclosed Fact Sheet**)

* The hatch is lockable, framed from the roof, with a cover that overlaps the framed portion, and with a gasket in good condition.
* No other potential holes or gaps around control wires, vents, etc.

PART I: FINISHED WATER STORAGE: Grandview Storage Tanks			
69. Is there a finished water storage tank in use? *If no, skip Part I*	☒Yes	☐No	
Reservoir Name and Capacity	**Cement Tank 2.50-MG**		
70. If unable to physically inspect the storage tank hatch, vent, roof, or overflow outlet, select the method you discussed with the purveyor to document their condition:	**Yes**	**No**	**Comments**
a Reviewed and discussed maintenance records and recent photos	☒	☐	NA
b Photos will be taken and mailed by purveyor; additional follow-up required by DOH	☐	☐	
c Purveyor unable or unwilling to document; additional follow-up required by DOH	☐	☐	
71. Is the storage tank protected from unauthorized entry or vandalism? *	☒	☐	
72. Is the reservoir roof free of any unprotected openings?*	☒	☐	
73. Is the access hatch constructed and sealed to prevent the entry of contaminants? *	☐	☒	
74. If able to open hatch, is the stored water free of visible contaminants?*	☐	☐	UNK
75. Is there a dedicated air vent on the storage tank?	☒	☐	
a. If yes, is the air vent constructed to prevent the entry of contaminants? *	☒	☐	
76. Is the overflow line constructed to prevent contaminants from entering the tank?*	☒	☐	
77. Does the overflow line discharge near ground level?	☒	☐	
78. Is the overflow line discharge area protected from potential erosion?	☒	☐	
79. Does the overflow line discharge into a storm drain or surface water?	☐	☒	
a. If yes, is there an air gap at the discharge of the overflow OR does the overflow drop at least 34' vertical, between where the overflow enters the reservoir and the receiving water body?	☐	☐	NA
80. Does the overflow line discharge directly into a sanitary sewer without an air gap?	☐	☒	NA
81. Can the reservoir be isolated from the rest of the water system and be drained through a dedicated drain line?	☒	☐	
82. When was the tank inspected last?*	**Unk**		
83. What is the tank cleaning frequency?*	**As needed**		
84. Does the tank size, operation, and internal piping configuration provide adequate water turnover (i.e. separate inlet/outlet, baffling or mixing to reduce stagnant water)? *If no, explain below*	☒	☐	
85. Does the tank show signs of excessive leakage, significant structural cracking, or advanced concrete spalling?	☐	☒	

Describe and evaluate the finished water storage facilities including volume, operational drawdown, configuration of the inlet/outlet piping, any concerns about operations and maintenance, and sanitary and security observations: **(* - Explain No answers Here).**

Roof inspection showed a single significant deficiency.

Hatches are in poor shape and need to be repaired or replaced.

Gaskets are worn and need to be replaced.

Bolts / Screws used to secure gaskets missing in places

Reservoir inspections. Please note the following **(See enclosed Fact Sheet)**

* The hatch is lockable, framed from the roof, with a cover that overlaps the framed portion, and with a gasket in good condition.
* No other potential holes or gaps around control wires, vents, etc.

PART I: FINISHED WATER STORAGE Grandview Reservoirs 2.5-MG Capacity

Photo-11: Reservoir – Buried tanks and Booster Station
Circular exposed structure – Booster Station
Grassy Area – Cover over buried reservoirs

Photo-12: Reservoir – Buried tanks and Booster Station
Grassy Area – Cover over buried reservoirs
→ Vents and Manhole / Access Hatches (left of picture)

Photo-13: Reservoir
Inside Hatch
→ Corroded, seats poorly
Required: Repair or replace / Seal watertight

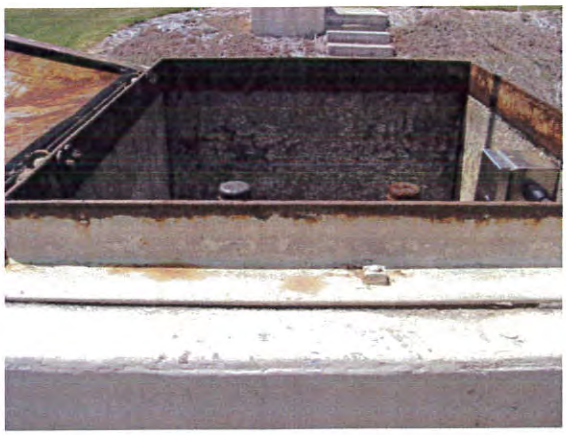


Photo-14: Reservoir
Opened
Access Ladder
→ Corroded

Potable water
→ No visible scum layer (deposits, sediment, etc)
→ Clear

Photo-15: Reservoir
Under side of Hatch
→ Corroded, gasket poor shape
Required: Repair or replace / Seal watertight

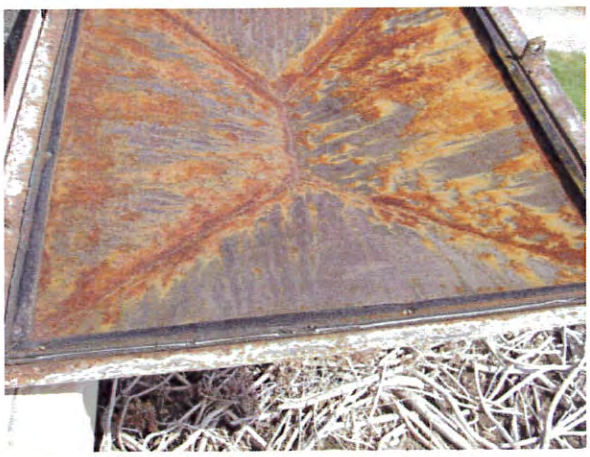


Photo-16: Reservoir
Top side of Hatch
→ Open holes – Appears bolts screws that secure gasket missing.
Required: Repair or replace / Seal watertight

PART J: DISTRIBUTION SYSTEM	YES	NO
86. Is a complete, up to date and accurate map of the distribution system maintained?	☒	☐
87. Does the system provide adequate pressure throughout the distribution system? If no, explain below	☒	☐
88. Are proper procedures followed for disinfection of new construction or repairs?	☒	☐
89. Are there blow-offs to flush the system?	☒	☐
90. Does the purveyor seasonally or annually flush the distribution system? *If yes, describe below*	☐	☒
91. Does the purveyor exercise its distribution system valves? *If yes, describe below*	☐	☒

Describe and evaluate the distribution system including maintenance, operational, sanitary and security observations:

As needed basis will flush lines.

PART K: CROSS CONNECTION CONTROL (CCC)	YES	NO	NA
92. Does the water system serve a single connection? *If yes, refer the purveyor to the Uniform Plumbing Code*	☐	☒	☐
93. Is the water system known to serve one or more high health hazard premises, such as those listed in Table 9 in WAC 246-290-490? *If yes, describe the premise(s) below.*	☒	☐	☐
94. Has the purveyor established the legal authority to implement a CCC program (i.e., formally adopted an ordinance, resolution, by-laws, or other document defining the purveyor's CCC program requirements, and empowering the purveyor to enforce them)?	☒	☐	☐
95. Has the purveyor designated a CCC Specialist (CCS) to be in responsible charge of the CCC program?	☒	☐	☐
a. If yes, has the CCS conducted a hazard evaluation to identify high health hazard premises?	☒	☐	☐
b. If yes, has the purveyor completed installation of a backflow prevention assembly on the service line to each identified high health hazard premise?	☒	☐	☐
96. Has each testable backflow prevention assembly installed for premises isolation been tested by a DOH certified backflow assembly tester (BAT) within the past 12 months?	☒	☐	☐
97. Did you observe the end of a hose connected to the potable water system submerged in a pool, hot tub, watering trough, or other non-potable body of water observed during the survey?	☐	☒	☐
98. <u>This question only applies to a facility operating a sewage dump station:</u> Is there a sewage dump station without a reduced pressure backflow assembly on the water supply at the dump station?	☐	☐	☒

Additional cross connection control program comments:

Discussed and provided general information

PART L: OPERATOR	YES	NO	NR
99. Is the operator of the water system certified?	☒	☐	☐

Additional operator comments:

PART M: FIELD NOTES AND OTHER

Descriptions of any water quality tests, physical measurements, or simple repairs completed during the inspection:
Tested the chlorine residual down at volunteer fire station. Lower than normal residual.

PART N: SUPPLEMENTAL NOTES AND SAFETY CONCERNS

Supplemental comments from other parts of the checklist, and documentation of field safety concerns:

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
EASTERN DRINKING WATER REGIONAL OPERATIONS
16201 E Indiana Avenue, Suite 1500, Spokane Valley, Washington 99216-2830
TDD Relay 1-800-833-638

December 23, 2015

Kirk D. Weets, Water Div Asst Supervisor
City of Sunnyside
8148 E Edison Ave
Sunnyside, WA 98944

Subject: Sunnyside, City of; PWS ID #85400; Yakima County
Routine Sanitary Survey – June 18, 2015

Dear Mr. Weets:

I would like to thank you and your staff, for your time and help with the Department of Health (DOH) Routine Sanitary Survey, on June 18, 2015. I documented our discussion and observations during the survey, in the enclosed report.

Significant Deficiencies

It is a pleasure to visit and inspect a water system that is well managed, maintained, and operated. We inspected the sources (S06, S07, S08, S09, S10, S12, and S13), as well as, the Grandview Reservoirs and booster station, and the base of the Skyline standpipe.

In our subsequent communications since the survey and about the Water System Plan, I do not remember outlining the specific Significant Deficiencies and Findings, which must be fixed at the wells and the Grandview Reservoirs. I listed them below.

Please note, provide photographs that document and if necessary an explanation, how you corrected the deficiency, within **45 days** of the date of this letter. We must receive your responses no later than **February 12, 2016**.

1. **S09** – Seal the wellhead watertight. Recently the conduit pipe for the electrical wiring harness was not reconnected or had broken away at the collar. This is typical when repair work is completed on a source with a cap. It is an entry point for debris, insects, rodents, etc. to enter the well casing. The most common problem detected is Total Coliform (bacteria).

2. **Grandview Reservoirs (Buried Cement Tanks)** – Repair or replace the hatch covers on the reservoirs. There appeared to be holes rusted through the covers, as well as, gaskets that needed to be replaced. Some holes appeared to be missing bolts used to secure the gasket to the underside of the cover.

The state's drinking water program state has made it a high priority to make sure all water systems correct each Significant Deficiency discovered during a survey. Send your photographs to Danielle Russell, at our address (on our letterhead) or email at danielle.russell@doh.wa.gov. We have logged the completion date and deficiency into our survey database. If necessary, our office will take enforcement action if we do not receive your letter by the deadline listed above.

Survey Fee

Our office will schedule a water system's survey once every three to five years. WAC 246-290-990 (3)(c), authorizes a schedule of fees to be implemented to help recover the cost of conducting a sanitary survey. The Department of Health's (DOH) total cost to complete this sanitary survey is $1,270.88. The Office of Drinking Water has used state and federal funds to pay $709.88 of this amount. An invoice showing the remaining amount due of $561.00 is enclosed.

Significant Findings

These findings are considered a threat to the system or source, but not an eminent threat. However, you must provide photographs that document and if necessary an explanation, how you corrected the deficiency, within **45 days** of the date of this letter. We must receive your responses no later than **February 12, 2016**.

3. S07 – Install a screen or spring loaded flap-valve (Duck bill) on the end of the discharge to waste pipes for the pump control valves.

4. S09 – Stop the practice of overfilling the oil (hydraulic fluid), fuel, and so on, at the generators. This will prevent any future contamination of the wells from a lifetime of small spills, which could be compounded by possible cleaning up with industrial cleaners.

5. S13 – Stop the practice of parking leaking equipment within the Sanitary Control Area (SCA). The SCA is a circular area around the well defined by a 100-foot radius. Stopping this practice will prevent any future contamination of the wells from a lifetime of small spills, which could be compounded by possible cleaning up with industrial cleaners.

Discussion Items

I enclosed information on the topics listed below, which identify some changes since the last survey. These are a few of the topics we had discussed during the survey.

A. **Groundwater Rule**: General information on the rule and additional requirements triggered when a coliform sample tests positive for coliform. These triggered samples may indicate additional sampling or a more robust treatment of the source will be necessary.

   * An update for the coliform monitoring plan will be reviewed in the Water System Plan.

B. **Lead and copper monitoring**: General information on the changes and the forms required to be submitted to our office. Changes to the public notification requirement for your sample sites selected, included:

* Requirement to notify these residents about lead and copper sample results and general information / language about the contaminants.

* Certification form to report / document the public notice provided to residents.

Do not hesitate to call me at (509) 329-2120,if you require additional information or assistance.

Sincerely,

Andres R. Cervantes, PE
Regional Engineer
Office of Drinking Water
Division of Environmental Public Health

Enclosures: Invoice
Sanitary Survey Report
Fact Sheets

cc: **Yakima** County Health District
Danielle Russell, Survey Coordinator

City of Sunnyside.854003.3.29.16

Yakima Co.

March 29, 2016

Danielle Russell

Department of Health

16201 East Indiana Ave Suite 1500

Spokane Valley, Washington 99216

Subject: Sanitary Survey Deficiencies

Dear Mrs. Russell

This letter is in response to the sanitary survey deficiencies that where discovered during the survey conducted by Andres Cervantes on June 18, 2015.

1. We have corrected the following findings.

a. The seal on Well #9 Conduits has been sealed. (See attached photo)

b. The Grandview and Skyline Reservoirs hatch covers. (See attached photo)

Other Findings:

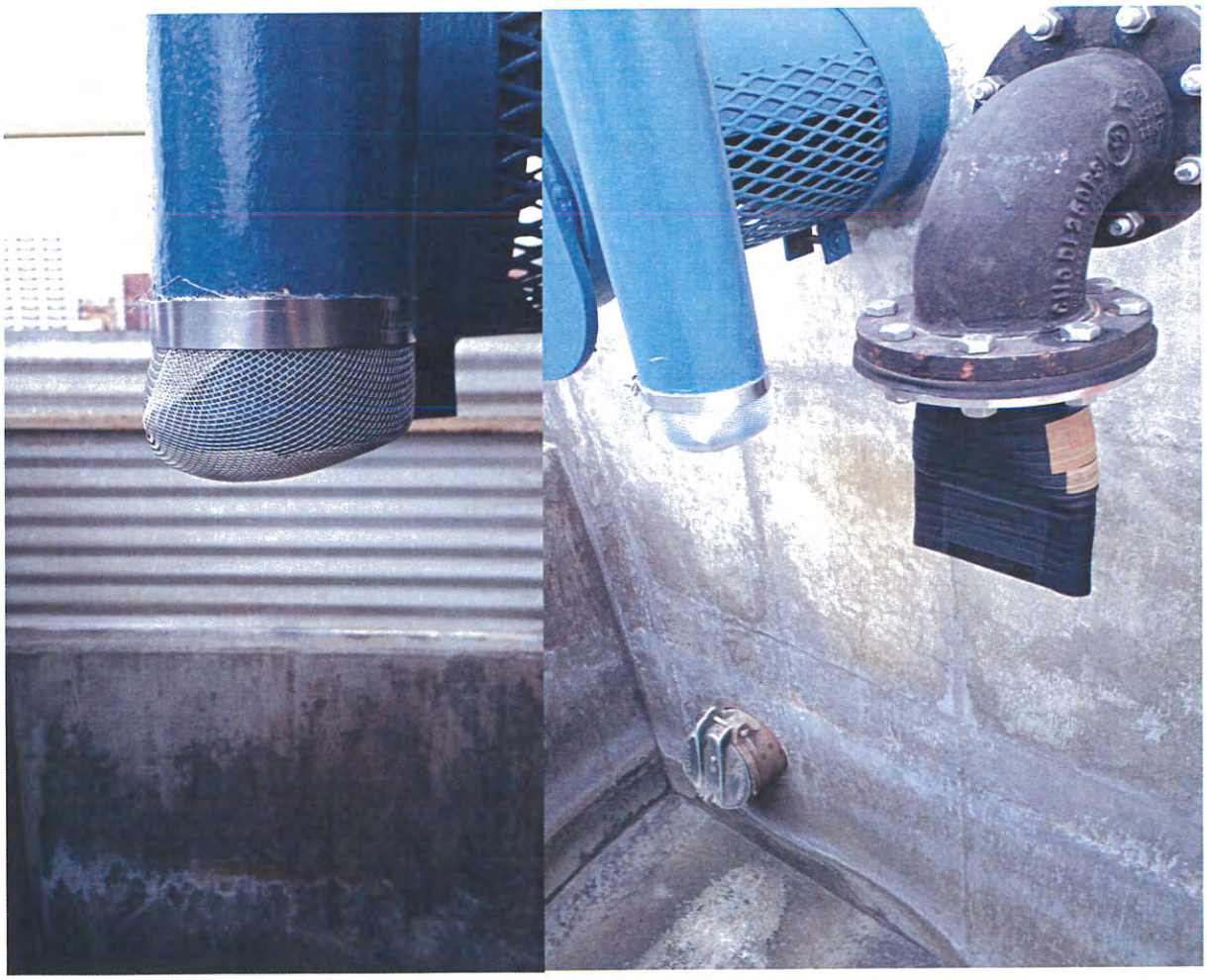
Well # 7 we have installed a duck bill on the discharge line and a screen over the surge pipe. (See attached photo)

Well# 9 and # 13 All practices of parking equipment on SCA has been halted and practice of spillage from oil changes on the gen-sets has been addressed and cleaned up.

Thank You,

Kirk Weets

City of Sunnyside.854003.3.29.16



City of Sunnyside.854003.3.29.16

City of Sunnyside.854003.3.29.16

Appendix 10 Standard Specifications

City of Sunnyside
Standard Specifications

Section 1 General Provisions

Section 1 Roadway

Section 2 Sanitary Sewer

Section 4 Storm Water

Section 5 Water

Standard Details

Water Specifications and Standard Details are re-printed here

Section 4 Index

Water

4-1 Water Pipe
4-2 Rock Excavation
4-3 Water Services
4-4 Trench Backfill
4-5 Fire Hydrant Assemblies
4-6 Blow-Off Assembly
4-7 Air Vacuum Release Assembly
4-8 Valves, Valve Boxes and Fittings
4-9 Transmission Line Blow-Off Assembly
4-10 Adjust Existing and New Casting to Grade
4-11 Salvage
4-12 Scheduled Water Line Shut Down
4-13 Valve Open / Close Policy
4-14 Tie-In to Existing Water Lines
4-15 Couplings and Flange Coupling Adapters
4-16 Dig and Verify
4-17 Additional / alternate Fittings
4-18 Pressure Caps
4-19 Side Sewer Location and Repair
4-20 Abandoned Conduits
4-21 Abandoned Fire Hydrant Removal
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SECTION 4

CITY OF SUNNYSIDE

STANDARD SPECIFICATIONS

WATER

4-1 WATER PIPE

4-1.01 GENERAL

The work covered in this section shall include the furnishing, installation, and testing of the water piping, valves, tees, fittings, and other appurtenances and incidental work required to construct the water facility as shown on the plans and in accordance with SWSS Section 7-09 through 7-15, as herein modified.

4-1.02 APPROVED PIPE AND FITTINGS

The water pipe shall be one of the types as indicated below unless a specific type and class of pipe is otherwise called out in the contract special provisions.

A. DUCTILE IRON PIPE shall be Class 52. Ductile iron pipe shall conform to all requirements of ANSI A21.51 (AWWA C151). Pipe shall be cement-mortar lined and seal coated, conforming to ANSI A21.4 (AWWA C104). Pipe joints shall be push-on joint or as specified in the special provisions or shown on the plans. Gaskets suitable for the designated pipe joint, pipe size, and pressures shall be furnished with the pipe and conform to ANSI A21.11 (AWWA C111).

B. POLYVINYL CHLORIDE (PVC) PIPE shall be Class 150, DR18. Pipe shall be push-on joint or coupled joint conforming to ASTM D1784 Class 12454-A or 12454-B. Pipe shall meet all the material, performance, and test requirements of AWWA C900.

C. PIPE FITTINGS shall be Class 250, unless specified otherwise. Fitting joints shall be compatible with adjacent pipe.

<u>All fittings shown on the plans adjacent to a valve shall be flange connected to the valve and shall incorporate grip rings.</u>

1. <u>Fittings for Ductile Iron and PVC Pipe</u>
   Fittings shall be Class 250, cement-mortar lined cast or ductile iron and shall conform to ANSI A21.1 (AWWA C110), ASTM 377 and ASTM 536. Mortar lining for fittings shall be the same thickness specified for cast and/or ductile iron pipe and shall conform to ANSI 21.4 (AWWA C104). Rubber gasket joints shall conform to ANSI A21.11 (AWWA C111).

D. NUTS AND BOLTS shall be of sizes, material and quantities recommended in ANSI 21.11 (AWWA C111) and AWWA C207. Nuts and bolts shall be Stainless Steel alloy 304, Grade B. Nuts and bolts for flanges shall conform to ANSI B16.1.

E. JOINT LUBRICANT shall be furnished with the pipe, in the amount and type recommended by the pipe manufacturer. The lubricant shall be a water-soluble, non-toxic, vegetable soap compound conforming to United States Pharmacopoeia No. P39.

4-1.03 INSTALLATION

Pipe shall be installed in accordance with the manufacturer's specifications for the type of pipe used. The Contractor shall construct the pipeline in accordance with Standard Drawings Section 4 and the requirements of SWSS Section 7-09 as herein modified.

Prior to beginning excavation and where directed by the Engineer, storm drainage catch basins shall be protected per Section 2-27 of these specifications.

4-1.04 TRENCH EXCAVATION AND BACKFILL

Trench excavation for water line construction shall be in accordance with SWSS Section 7-09.3(7) except as herein modified. Trench excavation shall provide for a minimum of 36 inches of cover material over the top of the finished pipe grade. Trench backfill material shall be per Standard Detail 4-7 and compacted by means approved by the Engineer, as required to preclude future settlement and to achieve a minimum of 95 percent maximum density when tested in accordance with SWSS Section 7-09.3(11). In addition, the contractor is directed to Section 1-13 of these specifications.

Delete SWSS Section 7-09.3(7) B. Trench excavation shall be unclassified unless rock excavation is listed as a separate pay item.

As a minimum, all trenches shall be water settled and compacted with a hoe-mounted or double drum vibratory mechanical compactor. Hand operated jumping jacks or shoe-type mechanical tampers will not be approved.

The Contractor is advised that all existing water main lines have thrust blocks typically located as shown on Standard Drawing 4-6. These thrust blocks have been found to be constructed of rocks, blocks, concrete or other materials. The Contractor shall take such precautions, shoring, etc. as required to protect and not disturb the existing thrust blocks.

4-1.05 PIPE LOCATOR RIBBON

The Contractor shall, after backfilling and compacting the trench to within 12 inches of the top of the finished ground grade, install a continuous two-inch (2") minimum width blue plastic coated aluminum pipe locator ribbon over the top of the pipeline, which shall be clearly marked "CAUTION BURIED WATER LINE" continuously along the length of the ribbon.

4-1.06 TRACER WIRE

The Contractor shall install a tracer wire, in addition to the location ribbon, over all water mains and non-metallic service lines. The tracer wire shall be 12 gauge copper wire with blue coded UF insulation. The tracer wire shall be installed as shown on the City of Sunnyside Standard Drawing 4-9. Bare wire contact points shall be provided at valve boxes, air release and blow off installations.

4-1.07 DISINFECTION AND FLUSHING

The Contractor shall flush water lines scheduled for testing per the provisions of Section 4-13 of these specifications. The disinfection of new water lines, including all connections and appurtenances, shall be in accordance with SWSS Section 7-09.3(24) as herein modified. Water health test points shall be provided at typical intervals of 500 to a maximum of 800 feet, or as approved by the Engineer. The Contractor will be required to notify the inspector up to 48 hours prior to the need for health testing. The Contractor shall then obtain health samples according to the procedure outlined in Section 4-22 of these specifications. Samples may be taken at fire hydrants and temporary blow-offs when available. When test points within the specified interval are not available, a saddle and corp stop shall be supplied and installed by the Contractor. Where applicable, the corporation stop shall be installed at the nearest service location.

Following acceptance of the health test, the water line shall be thoroughly flushed. City crews will operate all valves during the flushing procedure per the provisions of Section 4-13 of these specifications. The Contractor may operate valves which are installed by the Contractor and control the supply to the water mains being installed by the Contractor, for the purpose of filling installed water lines, pressurizing to line pressure prior to pressure tests and for final flushing prior to obtaining health samples. Prior to operating any valve, including valves installed by the Contractor, the City Public Works inspector must be on site and approval by the inspector must be obtained for the Contractor's proposed operation. The above specified valves, and herein specified procedures, constitutes the only approved operation of main line valves by personnel other than the City Water Department personnel. Non-conformance with the provisions of this standard specification and identified policy shall be treated as "tampering" and enforcement will be in conformance with the provisions of the City of Sunnyside Municipal Ordinances.

The Contractor shall provide temporary or permanent blow off access points where fire hydrants are not available. During flushing, the Contractor shall provide piping, ditches, ponds or other measures as required to control or discharge flushed water in a safe manner. The Contractor shall be fully responsible for damage resulting from flushing water.

4-1.08 PRESSURE TESTING

4-1.08.01 WATER MAIN LINES

With the exception of building fire system lines, the pressure testing of new water lines, including all connections and appurtenances, shall be in accordance with SWSS Section 7-09.3(23) as herein modified. The hydrostatic test pressure for all types of pipe shall be 150 PSI for a length of one hour. The Contractor shall provide and install saddles and corporation stops as required to provide test points.

When the contractor is required to connect to an existing water main stub, or extend an existing water main, the City does not warrant that the existing valve or pipe will meet pressure test requirements. The Contractor shall have the option of installing a valve at the point of connection or the Contractor may attempt to pressure test, utilizing the existing installations at his sole risk and expense. Where water services are presently connected to the existing water main, the Contractor shall install a mainline valve at the point of connection.

4-1.08.02 BUILDING FIRE LINE TEST PROCEDURES

The City Fire Chief must be present during the following:

1. PRESSURE TEST - Test for 2 hours at 200 P.S.I.

If a loss, refer to allowable leakage description on Contractor's Material and Test Certificate for underground piping form as required by the latest edition of the NFPA Standard.

2. FLUSH - After the underground fire line passes the pressure test the flushing of the pipe from the main to the flange can be scheduled.

All debris that is in the underground pipe must be flushed clear (1-1/2 Minutes Min.), a burlap bag will be required to collect debris from the pipe.

3. FLOW TEST - When all debris has been flushed and the pipe is flowing clear, flow test must be taken to assure the pipe is flowing the minimum gallons per minute.

   4" Pipe - - 390 G.P.M.
   6" Pipe - - 880 G.P.M.
   8" Pipe - - 1560 G.P.M.

Flow from the flange must be directed in a safe manner as not to flood the surrounding area. The Contractor will conduct the flow test with a City representative present. The Contractor shall supply a pedo gauge and measure the flow.

If the flushing can be completed without reducing the pipe size and the P.I. valve opened completely, then gauging the flow for gallons per minute will not be required.

4. HEALTH SAMPLE - The Contractor shall obtain a health sample per the requirements of City Standard Specifications, Section 4-22.

5. SOFT SEAT CHECK VALVE - If a soft seat check valve is required, contact the City's Cross Connection Specialist to inspect the valve prior to installation.

4-1.09 TRENCH SAFETY SYSTEMS

All trench excavations shall have adequate safety systems for the trench excavation that meet the requirements of the Washington Industrial Safety and Health Act, Chapter 49.17 RCW. The Contractor shall be fully responsible for providing the necessary back sloping, cribbing, trench boxes, etc., as required to meet the specified safety requirements for the trench. When City crews will be making the main line tap, as provided by Section 4-8.02(C), the Contractor shall provide all trench safety measures, prior to City personnel entering the trench.

4-1.10 MEASUREMENT AND PAYMENT

Measurement and payment will be made per the provisions of SWSS 7.09.4 and 7-09.5 and as modified by these specifications. The unit contract price for each size of "Water Line", per linear foot, when measured continuously along the pipe centerline, including the distances through structures, valves, and fittings, shall be full compensation for furnishing all labor, equipment, and materials, to trench, dewater, compact and backfill, lay and joint the pipe, make connections to existing stub lines, specified or required salvage, test, disinfect, flush, provide and install corporation stop test points, and all other incidentals required to perform the work in accordance with the plans and specifications or as directed by the Engineer. Where temporary 2-inch blow off assemblies are required for installation and testing, measurement and payment will be made per section 4-6.03 of these specifications.

"Trench Safety Systems", per linear foot, shall be measured along the main line trench length through valves and vaults. The unit contract price, per linear foot, shall be full compensation for furnishing all labor, equipment, materials and all other incidentals necessary to meet the requirements of the Washington Industrial Safety and Health Act, Chapter 49.17 RCW. All costs for trench safety systems for water service trenches shall be incidental to the water system main line measurement and payment.

4-2 ROCK EXCAVATION

4-2.01 GENERAL

When provided for in the bid proposal, a separate measurement and payment will be made for rock excavation. Rock excavation shall include solid rock formations requiring systematic drilling and blasting with explosives and any boulders or broken rock larger than one-half cubic yard in volume. Hardpan or cemented gravel, even though it may be advantageous to use explosives in its removal, shall not be classified as solid rock excavation. The bottom of the trench shall be brought up to grade by backfilling with selected backfill material and be compacted to the satisfaction of the Engineer.

The Contractor shall notify the Engineer at least 24 hours prior to any blasting. All blasting shall be done in accordance with local, county, and state regulations governing this class of work. Any damage to persons or property resulting from blasting operations shall be the sole responsibility of the Contractor and his surety.

4-2.02 MEASUREMENT

The measurement for "Rock Excavation" shall be made as follows:

A. LENGTH

Length will be the entire horizontal distance where rock is encountered, measured on a linear foot basis along centerline of trench.

All water line structures; i.e., valve pits, transmission line blow-offs, pressure reducing stations, etc., will be excluded and will be measured separately. Measurement will commence at the first location where rock is encountered and continue to the point where rock terminates.

B. WIDTH

The trench width for payment of rock excavation shall be as follows:

Size of Pipe	Pay Width of Trench
4" - 15"	2.5 feet
18" - 36"	Outside pipe diameter plus 12"
42" & larger	Outside pipe diameter plus 24"

C. DEPTH

Measurement for depth will be the vertical distance from six inches (6") below the pipe invert to the top of the solid rock strata. Depth will be measured at intervals of 25 feet along centerline of trench, beginning at the first location that solid rock is encountered, and the average depth between measuring points will be the depth used for computing depth of rock.

D. ROCK EXCAVATION FOR STRUCTURES

Rock excavation quantities for water line structures; i.e., valve pits, transmission line blow-offs, pressure reducing stations, etc., shall be computed on a cubic yard basis from the actual profile depth as noted above, multiplied by the area within a line parallel to and one foot (1') outside of the actual dimensions of the structure base.

4-2.03 PAYMENT

The unit contract price for "Rock Excavation," per cubic yard, shall be paid in addition to the payment for "Water Line Pipe," per linear foot. Payment for rock excavation shall be full compensation for all work necessary to excavate and dispose of the rock material. No payment will be made for rock excavated below required grade or outside the widths mentioned above.

4-3 WATER SERVICES

4-3.01 GENERAL

Where shown on the plans or indicated in the proposal, the Contractor shall provide the materials, trench excavation, necessary bedding, and backfill for the water service line from the main to the property line and the Contractor shall install the water service per Standard Drawings 4-26 through 4-31, including the required service taps to existing water main lines. Where existing water mains with existing services are replaced, the Contractor shall relocate the water meter and reconnect the private service as construction requires for new developments. Water services will not be located on the same property lines as the other utilities.

When a property is developed that has an existing water service(s), or mainline stubbed and the development will not utilize the existing service or stub, the developer's contractor shall expose the water main and remove the abandoned corporation stop and install a plug, or remove the abandoned valve and install a blind flange.

The Contractor shall provide extra width trench at the mainline as required to install the saddle a minimum two feet from all hubs, bells or joints.

The construction plans typically do not show the existing improvements behind the curb and walk. The Contractor shall make himself aware of the general conditions and any special conditions that may exist. All fence, lawn, irrigation systems, rock and gravel areas and all miscellaneous landscaping, shall be restored in accordance with industry standards and shall be of equal or better quality than the existing improvements. The Contractor shall take necessary measures to limit the impact to the existing improvements as much as possible, including tunneling or missiling under major tree roots, curbs, walks, fences, and similar obstructions.

Trench compaction and rock excavation shall be completed in accordance with Section 4-1.04 and 4-2 of these specifications. Pipe bedding material shall meet the requirements of Section 4-4.02 and 4-4.03 of these specifications.

Following installation of new concrete curb and gutter which crosses over a newly installed water service line, the Contractor shall mark the face of the concrete curb with a "W" in accordance with the requirements of Section 2-10.01 of these specifications.

4-3.02 INSTALLATION

When the new waterlines have been approved for service, the Contractor shall install water services per the City Standard Drawings No's. 4-13 through 4-30. Where new services are being installed to existing homes, the Contractor shall reinstall the existing meter box and meter and complete connections to the existing homes as required to restore the water service as specified. The existing meter box and meter shall be removed undamaged by the Contractor. Where an existing meter box is substandard or damaged due to no fault of the Contractor, the Contractor shall supply and install a new meter box at the contract unit price. On City contracts, the meter box grade will be staked by the City, prior to installation; however, each box

will require adjustment to the final slope, yard or wall grade after completion of the street work. Meter boxes shall be installed per Standard drawing 4-13 & 4-30. Boxes which require adjustment to grade shall be excavated, removed and reset to grade. Adjustments between box sections shall not be made with bricks, boards, cement grout or other measures. All 1 ½" & 2" meter boxes must be stacked vertically with (2) meter boxes. If a 1" meter is set more than 14" below finished grade, the meter box must be stacked to achieve proper clearance. Properly installed manufacturer supplied extension rings may be utilized when extra deep installations require and when approved by the Engineer.

When replaced, the replacement shall include a complete box assembling, including lid. All connections to existing homeowners' galvanized pipe shall be made by an approved method per the Uniform Plumbing code.

Where existing customer water services are galvanized, the Contractor shall thread the service and install a dielectric union between the copper and galvanized connection. Where the existing service to the home is found to be deteriorated, the owner shall be notified in writing by the Contractor of the condition of the existing service and the limits of responsibilities as noted herein. The water service pipe shall be left exposed until the owner is shown the condition of the pipe. The Contractor shall then carefully bed and backfill the connection. The Contractor shall be fully responsible for all leaks in the existing owner service within five feet of his work connection for a period of one year and within 20 feet for a period of five days. Other leaks shall be the responsibility of the homeowner.

1-1/2-inch, 3-inch and other odd size water service taps will not be allowed. 1-1/2 inch services shall be served from the mainline by a 2-inch corporation stop and a 2-inch service line. Three-inch services shall be served from the mainline by a 4-inch flanged tee or flanged tapping saddle, a 4-inch flanged gate valve and 4-inch service line.

Polyethylene tubing shall be cut with square ends, beveled with beveling tool, and cleaned. Insert stainless steel insert without scarring or damaging tubing or insert. Hot water may be used for making tubing flexible. Tubing shall not be exposed to direct radiant heat or a flame. Make connection up tightly. All service lines using polyethylene tubing shall be tracer wired from the corp to the meter.

Copper and polyethylene service pipe shall be laid without kinking or buckling on short radius bends. Tubing shall be laid as a continuous piece from service saddle or corporation stop to the A.M.S. Splices shall not be allowed unless approved by the Engineer. Tubing that shows signs of damage, out of round, or laid with kinks or buckling shall be rejected.

Taps into the water main to provide for 1 inch, 1-1/2 inch, and 2 inch water services shall be made as herein specified.

1. Prior to the water main being installed in the trench, the main may be tapped using a hole saw. After the tap is completed, all debris left from making the tap must be cleaned from the pipe.

2. When tapping a new main that has been loaded with water, or an existing main, a live tapping machine must be used.

3. When tapping C-900 (plastic pipe) the boring tool must be a shell cutter designed specifically for tapping plastic pipe. The coupon must be retained in the shell cutter eliminating the possibility of it being left inside the water main.
4. All other main types (AC, Steel, Ductile iron, etc.) may be tapped using a drill bit made for the type of pipe being tapped.

4-3.03 MATERIALS

In addition to the materials listed, the Contractor shall provide and install miscellaneous fittings and connections as required to provide a complete replacement water service. Only listed materials are approved. All materials shall meet the approval of the City Water Department representative. The Contractor shall replace all corporation stops, ball angle meter valves, angle meter couplings etc. with new replacement parts. Only the meter and meter box shall be reused. All removed corporation stops, angle meter valves and copper fittings shall be delivered to the Water Department representative and shall remain the property of the City.

4-3.04 PIPE

The following pipe materials are approved for water services:

3/4 inch thru 2 inch - U.S. Made Type K Soft Copper or PEX-A tubing (CTS)

2 1/2-inch and larger- C-900 PVC. PEX-A tubing may be used if approved by the City Engineer
See tapping requirements in Section 10-3.02.

4 inch and larger: Class 50 cement lined ductile iron pipe with Meg-a-lug lug or equal restraint joints and thrust blocks.

4-3.05 SADDLES - Romac 202N stainless steel double strap, 1" have CC thread and 2" have iron pipe thread.

4-3.06 CORPORATION STOPS - CC thread, grip tight, 360 degree ball valve.

Mueller: 3/4”& 1 ½”: Mueller 300 #110 Compression Connection #B25008
2”: B25008 CC THD x 110 Compression Connection

4-3.07 BALL ANGLE METER VALVE - Grip tight, 90 degree rotation with lock wings.

Mueller: 300 Ball angle meter valve
B24258 3/4" & 1" 110 Compression Connection (CTS)
B-24276 for 1 ½” & 2” X 110 Compression Connection (CTS)

4-3.08 ANGLE METER COUPLINGS

4-3.09 COPPER TO COPPER - Grip tight couplings

Mueller: 110 Compression Connection
H15403 3/4" & 1" w/ SS liner for CTS tubing
For 2": Mueller Brass "110 Comp. Conn." w/ SS liner for CTS

4-3.10 BRASS SERVICE TEES - 3/4" x 3/4" x 1" Grip tight

Mueller: H15381 W/110 Conductive
Compression Connectors

4-3.11 BRASS SERVICE Y's - 3/4" x 3/4" x 1" Grip tight

Mueller: H15343 110 Compression Connection

4-3.12 DIELECTRIC PIPE FITTINGS/UNIONS

250 psi rated Watts dielectric unions Anst B1634
Series 3003 Female iron pipe thread to female brass pipe or approved equal.

4-3.13 METER BOX

<u>For 3/4 inch and 1 inch meters</u>

Mid States Plastics, Inc.- BCF-173018B
Lid – Ductile Iron w/ Hinge Access Door

<u>For 1-1/2" and 2" Meters</u>

Carson Super Jumbo- model 1730-18
Lid – Ductile Iron w/ Hinge Access Door

<u>Traffic Area Meter Box</u>

Brooks- model 66 w/ cast iron lid(road rated)

4-3.14 MEASUREMENT AND PAYMENT

When provided for in the bid proposal, measurement and payment will be made for:

Reconnect existing water service – per each
¾-inch street service assembly – per each

1-inch double street service assembly – per each
2-inch street service assembly – per each
¾-inch house service assembly – per each
1-inch house service assembly – per each
2-inch house service assembly – per each
Under house connection – per each
¾-inch water service line – per linear foot
1-inch water service line – per linear foot
2-inch water service line - -per linear foot
Connect to existing meter – per each
New meter box – per each
Site restoration – per each
Landscape restoration – lump sum
Missiling or tunneling – per linear foot

Measurement and payment for the individual items as listed above shall be per each and shall be full compensation for furnishing all labor, materials, equipment, and all other incidentals required to install the item or perform the task, complete and in place, in accordance with the plans and specifications.

4-3.14.01 RECONNECT EXISTING WATER SERVICE

Where the existing water service is copper and is in good condition, the Contractor shall make the connection to the existing copper pipe or approved PEX piping and complete the connection to the new water main. The measurement and payment for "Reconnect existing water service" per each shall be full compensation for all costs for labor, equipment and materials as required to make the reconnection, including but not limited to, yard restoration, trench excavation, bedding, backfill, corporation saddle, corporation stop, copper pipe and fittings. A separate measurement and payment will be made for pavement restoration.

4-3.14.02 STREET SERVICE ASSEMBLY

The street service assembly shall include the service saddle, corporation stop, angle meter stop, electronic marker at stub locations and all adapters necessary for the installation of the new service line from the new water main in the street, to the meter location.

Payment for, “Street Service Assembly” and “2-inch Street Service Assembly”, per each, shall be full compensation for all labor, equipment, materials and all incidentals required for the street service assembly as specified. A separate measurement and payment will be made for the service pipe, pavement restoration and removal and replacement of concrete sidewalk where applicable and as provided in the bid proposal.

4-3.14.03 HOUSE SERVICE ASSEMBLY

The House Service Assembly shall include the dielectric union (UL-approved) for the new ¾-inch or 1-inch copper service connection to the existing house service, or 2-inch connection as applicable, the meter tail piece per City Standard Drawing 4-30, all pipe couplings, adapters or reducers necessary for the

installation of the new service line from the meter to the house service connection, cap and abandonment of the existing service line where applicable, removal of the existing meter and reinstallation in the angle meter stop, at the new location, including vertical adjustment if required, except that if it is determined by the City Water Department representative, that the existing meter should be replaced, the Contractor shall remove the old meter and install the new city supplied meter when a meter box is to be relocated. Work shall also include removal and salvage of the existing meter box, or crushing of the top section of the existing substandard or damaged meter box to a minimum six inches below finished grade, backfill the old meter box and prepare the vicinity for site restoration. Also salvaged meter box materials and replaced meters, shall be delivered to the City Shop located at 1509 S. 6th Street. Broken and unusable components shall be disposed of at a Contractor provided waste site.

At each location, the Contractor shall reinstall the salvaged City standard meter box, or supply and install a complete new meter box assembly per City Standard Specification 4-3.14 and Standard Drawing 4-30.

Measurement and Payment for "House Service Assembly", per each, shall be full compensation for all labor, equipment and materials as required for the House Service Assembly as specified. When a new meter box assembly is required, a separate measurement and payment will be made for "New Meter Box", per each, and shall be full compensation for all labor, equipment and materials as required to supply and install a new meter box assembly at each meter location. A separate measurement and payment will be made for the service line pipe per linear foot.

4-3.14.04 THIS SECTION LEFT INTENTIONALLY BLANK

4-3.14.05 SERVICE LINE

Service pipe shall be supplied and installed per City of Sunnyside Standard Specification Section 4-3. The 1-inch service line shall be "Type K" copper or approved PEX piping U.S. made. Two-inch service pipe shall be ridged copper pipe. Fittings shall be per City of Sunnyside Standard Specifications Section 4-3.

Measurement and payment for "Water Service Line" per linear foot, shall be full compensation for all labor, equipment, materials and all incidentals required to provide a complete service line installation, including trench excavation, bedding, backfill, compression couplings and all miscellaneous items necessary to complete the installation as shown on the plans and as directed by the Engineer. Measurement shall be the actual linear foot of water service pipe of each size used at each location.

4-3.14.06 CONNECT TO EXISTING METER

Where a new service is provided to an existing meter location, measurement and payment shall be made for " ___ inch street service assembly" per each and " ___ inch water service line" per linear foot and when applicable, "new meter box", per each. The assembly shall be installed per Standard Drawing 4-30, with the tail piece set at a depth of 36-inches. After the water main is placed into service, the existing AMS shall be removed, the existing meter shall be installed in the new AMS and the connection completed to the existing house service. The bid item for "connect to existing meter" per each, shall be full compensation for all labor, equipment and materials as required for the tail piece pipe, pipe as required to adjust to the

existing service depth, the dielectric union (UP approved) and all fittings and service pipe as required to complete the connection to the existing house service on the house side of the meter.

4-3.14.07 NEW METER BOX

Where the existing meter box is damaged during removal, at no fault of the contractor, as determined by the Engineer, and where the existing meter box is substandard, the Contractor shall install a complete new replacement meter box top and bottom section and lid.

Measurement and payment for "New Meter Box", per each shall be full compensation for all costs for labor, equipment and materials as required to supply and install a complete replacement meter box assembly.

4-3.14.08 SITE RESTORATION/LANDSCAPTE RESTORATION

Measurement and payment will be made for the bid items as provided in the bid proposal. Measurement and payment for "Landscape Restoration" per lump sum, shall include all costs for labor, equipment and materials for all disturbed site restoration, unless a separate bid item is provided for "Site Restoration" per each site.

When included in the bid proposal, measurement and payment for "Site Restoration", per each site, shall include all labor, equipment and materials necessary for the restoration of all disturbed site improvements, not covered by other bid items, at the per each site price shown in the bid proposal for "Site Restoration". Each site is defined as each property address, where a new service is installed. Separate measurements and payment will be made for concrete and asphalt pavement removal and replacement and missiling when provided for in the bid proposal.

4-3.14.09 MISSILING OR TUNNELING

Measurement and payment for "Missiling or Tunneling", per linear foot, shall be full compensation for all labor, equipment and materials as required to bore under existing improvements such as asphalt or concrete pavements, walls, tree root areas, sensitive landscaping, and similar obstructions. The missiling bid item shall be in addition to the other bid items contained in the bid proposal. For instance, 20 foot of 1-inch service missiled under a concrete slab, would be paid for as 20 LF of "1-inch Water Service", plus 20 LF for "Missiling or Tunneling". Where fences, curbs and similar narrow objects are crossed under, the minimum pay length at each location will be 5 LF, except where the contract contains a site field notes special provision, then measurement will be made as provided in the contract special provisions.

4-4 TRENCH BACKFILL

4-4.01 GENERAL

It is the intent of this contract to use imported granular crushed aggregate for all backfill around the water main pipe.

4-4.02 NATIVE BEDDING MATERIALS

Select native material may be used upon the approval of the Engineer for bedding flexible and rigid pipe. It shall be free of wood waste, organic material and other extraneous or objectionable material and shall have a maximum aggregate dimension of one-inch (1”) for flexible pipe and a maximum dimension of 2-inches (2”) for rigid pipe. The trench typical section shall be per City Standard Drawing 4-7.

4-4.03 IMPORTED BACKFILL MATERIALS

All waterline trench excavation, including that portion of the side service trench, located within the public right of way shall be backfilled with 1 ¼” minus crushed aggregate material per SWSS Section 9-03.9(3), above the pipe zone bedding to within three (3) inches of the finish asphalt grade. The material shall be placed and compacted to achieve a minimum of 95 percent maximum density when tested in accordance with SWSS Section 2-03.3(14)D. Side service trenches located outside and extending beyond the right of way may be backfilled with select native material.

4-4.04 COMPACTION

The bedding material shall be placed and compacted in lifts not to exceed six inches (6"). The pipe bedding shall be compacted to not less than 95 percent of maximum density. Compaction shall be done in such a manner as to preclude future settlement.

4-4.05 MEASUREMENT

Measurement for payment shall be by the Cubic Yard for imported backfill material incorporated in the project.

4-4.06 PAYMENT

The unit contract price for "Imported Backfill," per Cubic Yard, shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to supply, haul and place and compact the imported bedding material in accordance with the plans and specifications or as directed by the Engineer.

Select native materials, which do not require truck haul and which are acceptable as bedding and utilized as bedding, shall be considered as incidental to the pipe installation and no additional payment will be made for its use as imported pipe bedding.

4-5 FIRE HYDRANT ASSEMBLIES

4-5.01 GENERAL

Installation of fire hydrants shall conform to the requirements of City of Sunnyside Standard Drawing 4-4, 4-4A and SWSS Section 7-14 as herein modified. Hydrants in all areas of the City shall be three (3) port fire hydrants, as described in Section 4-5.02 of these specifications.

4-5.02 MATERIALS

Fire hydrants shall be one of the following types: Clow Medallion, M&H Model 929, Mueller Centurion. The fire hydrant model that is selected by the Contractor for installation will be used exclusively within the project limits unless otherwise directed by the Engineer. The 6-inch and 12-inch flange vertical adjustment shall be manufactured specifically for the hydrant used. When not protected by a curb, hydrants shall be protected by guard posts per Drawing 4-4A.

Fire hydrants shall be painted OSHA Safety Yellow above ground line. Hydrant paint shall be Quickset Enamel No. 3472 Hydrant Yellow as manufactured by Farwest Paint Manufacturing Company, 4522 South 133nd, Tukwila, WA 98168, or equal. The main valve opening shall be five and one-quarter inches (5-1/4") with two 2-1/2 inch hose nozzles with four (4) NST per inch and one 4-1/2 inch Steamer Port with four (4) NST per inch. The hydrant waste orifice at the base of the hydrant shall be bronze and connected to the hydrant by means of a bronze on bronze fitting to prevent rust and normal soil corrosion from plugging or interfering with its operation. Hydrants shall be of standard manufacture and of a pattern approved by the Owner. The name or mark of the manufacture, size of the valve opening, and year made shall be plainly cast in raised letters and so placed on the hydrant barrel as to be visible after the hydrant has been installed. Hydrants shall be a standard 4'-0" bury or deeper where conditions or conflicts require.

The hydrant shall be fitted with a permanent hydrant adapter, designed with metal sealing surfaces for permanent mounting. The adapter shall be a 5-inch Storz x 4-1/2-inch NH, equipped with cap and connector cable. The permanent hydrant adapter shall be Harrington, Inc.,HPHA 50-45 NH or approved equal

The 6-inch and 12-inch vertical adjustment assemblies shall be complete, including the flanged riser, stem and all required components to provide a complete adjustment kit.
All associated valves, valve boxes, fittings and thrust blocks installed under the "Fire Hydrant Assembly" shall be in conformance with Section 4-8 of these specifications.

4-5.03 INSTALLATION

Fire hydrants shall be installed according to SWSS Section 7-14 as herein modified, and the City of Sunnyside Standard Drawing 4-4 and 4-4A. Fire hydrants shall be located as shown on the plans. Where conflicts or conditions require deeper than standard bury, the Contractor shall provide an extra deep hydrant or add an adjustment to the standard hydrant. The following requirements shall prevail for the installation of the fire hydrant:

A. The hydrant shall be set at a standard height per Standard Drawing 4-4.

B. Hydrants are to be free of vegetation and barriers for a three-foot (3') radius circle measured from the operating nut.

C. Fire hydrants are to be hooded until operable and accepted.

D. Valves on mains to hydrants shall be bolted directly to the tee serving the hydrant.

E. Valves servicing fire hydrants on any fire line shall be installed as per City of Sunnyside Standard Drawing 4-4.

F. Guard post shall be installed as per Drawing 4-4A.

G. Salvage shall be completed per Section 1-35 of these specifications.

H. A standard bury hydrant shall be 4'-0". Where design or conditions at the time of installation requires a hydrant with a bury greater than 4'-0", the Contractor shall install a hydrant with a deeper bury when directed by the Engineer.

4-5.04 MEASUREMENT

Measurement for fire hydrant assembly shall be per each assembly. An assembly shall include: the hydrant with Storz Adapter, main line tee with flanged coupling adapters (when required), blocking for tee and hydrant, six-inch (6") gate valve and valve box, six-inch (6") connecting pipe, shackles, tie rods, grip rings, pier blocks, coarse gravel, painting, stainless steel nuts and bolts, and any other items that are required for the complete installation of the hydrant as specified.

Where a hydrant is installed with a bury greater than 4'-0" as required per Section 4-5.03 H above, a separate measurement and payment will be made for ”Extra Depth Hydrant” per vertical foot, for the depth greater than 4’0”.

A separate measurement and payment will be made for add-on hydrant vertical adjustment assemblies, per each, only when design or grade revisions require that a hydrant, which was initially installed per Standard Specification Section 4-5.03 H is adjusted with the installation of an add-on vertical adjustment assembly.
A separate measurement will be made for “Storz Adapter” per each, only when an existing hydrant is retrofitted with a Storz Adapter. Payment shall include contractor removal and disposal of the existing nozzle chain and cap.

4-5.05 PAYMENT

The unit contract price for "Extra Depth Hydrant", per vertical foot, "6-inch or 12-inch Hydrant Vertical Adjustment Assembly," per each, "Fire Hydrant Guard Post", per each, "Fire Hydrant Assembly," per each, and "Storz Adapter" per each shall be full compensation for all necessary labor, materials, tools, and equipment as required to complete the specified installation.

4-6 BLOW-OFF ASSEMBLY

4-6.01 GENERAL

This specification covers the construction and installation of a two-inch (2") blow-off assembly to allow for the controlled flushing of water from the water distribution system.

4-6.02 MATERIALS AND CONSTRUCTION

With the exception of temporary installations, all materials used shall be new and assembled in accordance to the requirements of the City of Sunnyside Standard Drawings 4-1, 4-2, and the following requirements:

A. Pipe shall be Polyethylene Tubing (PE) Phillips driscopipe 5100 ultra-high molecular weight, 200 psi, or equal.

B. Fittings shall be as called for on Standard Drawing 4-1.

C. Gate valve shall be flanged with a non-rising two-inch square operating nut, counter-clockwise opening, similar or equal to the M & H Style 67-02.

D. Valve boxes shall be as specified in Section 4-8.02E of the City of Sunnyside Standard Specifications.

E. Tapping saddle shall be a double strap saddle similar and equal to the Rockwell Model 313.

4-6.03 MEASUREMENT AND PAYMENT

The unit contract price for "Two-Inch Blow-Off Assembly", or "Temporary Two-Inch Blow-Off Assembly", per each, shall be full compensation for furnishing all labor, materials, equipment, trenching and backfill, valves, fittings, thrust blocks, adjusting the valve boxes to finished grade, all other incidentals required to install the complete blow-off assembly in place, including tapping into the water main and removal of the temporary installations.

4-7 THIS SECTION INTENTIONALLY LEFT BLANK

4-8 VALVES, VALVE BOXES AND FITTINGS

4-8.01 GENERAL

This specification covers all valves, valve boxes, and water line fittings (tees, elbows, crosses, blocks, etc.) necessary as indicated on the plan. All valves shall be bolted to tees and fittings unless otherwise specified.

<u>The Contractor shall replace all valve bonnets nuts and bolt with approved stainless steel nuts and bolts per these specifications prior to installation.</u>

4-8.02 MATERIALS

A. BUTTERFLY VALVES

Valves ten inches (10") and larger shall be butterfly valves.

All butterfly valves shall be Mueller Lineseal III, Class 150B, or "Pratt Groundhog", as distributed by Mueller Company, or the Mueller stamped “casting” utilizing the Pratt Groundhog valve design, or approved equal and conform to the AWWA Standard for "Rubber Seated Butterfly Valves", (AWWA C504) and at a minimum shall meet the following requirements:

1. Valves shall be Class 150-B and shall open counter-clockwise with a standard two-inch (2") square non-rising operator nut.

2. Flanged valves shall be furnished with flanges faced and drilled to 150 pound American Standard dimensions and, unless otherwise specified or shown on the drawings, may be either short-bodied or long-bodied.

3. Shaft seals shall be designed for use with standard split V type packing.

4. Valve discs shall be manufactured from material listed in 7.2 of the above referenced AWWA Standard.

Prior to the installation of all rubber-seated valves, the Contractor shall lubricate the seat with Molykote Valve Seal, Catalog No. 98750-56, as manufactured by Dow-Corning, or approved equal.

B. RESILIENT SEATED GATE VALVES

All valves eight inches (8") and smaller shall be resilient seated gate valves.

The resilient seated gate valves shall conform to the requirements of AWWA C509. The valve shall open counter-clockwise with a two-inch (2") square non-rising operator nut. The ductile iron gate valve wedge or gate member shall be fully encapsulated in synthetic rubber. All seating surfaces within the valve body shall be inclined to the vertical, the valve stem shall be sealed by a minimum of two (2) O-rings and all stem seals shall be replaceable with the valve wide open and subjected to full rated pressure.

The valve body and bonnet shall be epoxy coated inside and out.

The waterway shall be smooth and shall have no depressions or cavities in the gate seating area.

Resilient seated gate valves shall meet the above specifications and shall be Clow R/W, Waterous Series 500, Kennedy Ken-Seal, Mueller, Dresser M & H Style 3067, unless otherwise specified in the contract Special Provisions.

C. TAPPING

The Contractor shall be required to install resilient seated gate valves and tapping sleeves when making 4-inch to 12-inch live taps on mains. The resilient seated gate valves shall be in accordance with the requirements of Section 4-8.02B of these specifications and shall be installed in accordance with the City of Sunnyside Standard Drawing 4-5 and Sections 4-12, 13, and 14 of these specifications.

The City will allow the Contractor to make taps only under the Water Department's supervision. Notify the City Inspector to schedule the Water Department crews. Up to three work days notice may be required, prior to the scheduled tap date. The contractor will be required to provide safety measures per the requirements of Section 4-1.09, prior to City personnel entering the trench.

D. VALVE BOXES

Cast iron sliding type adjustable valve boxes with covers shall be provided for all buried valves. Valve boxes shall consist of top and bottom section with slide type extensions and large bottom base where specified. Drop type cover shall be marked "WATER." In unpaved areas, valve boxes shall be provided with a six-inch (6") thick concrete collar, 30 inches square at the ground surface. Valve boxes and covers shall be "Tyler No. 6855" series. The cover shall have a skirt length of 1-1/2 inches minimum, a total lid depth of 3-1/2 inches minimum, and a lid weight of minimum 13 pounds. Valve boxes shall be installed as shown on City of Sunnyside Standard Drawing 3-4.

E. FITTINGS

Fittings for ductile iron and PVC pipe shall be cast or ductile iron. Cast iron fittings shall conform to the quality and wall thickness specified in the American Standard for "Gray Iron and Ductile Iron Fittings, 3-inch through 48-inch for Water and Other Liquid" (AWWA C110), for "Fluid-Tite" joints specified in Section 1. All cast iron fittings, twelve inches (12") in diameter or larger, shall be lined with cement mortar in accordance with the requirements of the American Standard for "Cement Mortar Lining for Cast Iron and Ductile Iron Pipe and Fittings for Water" (AWWA C104).

Ductile iron fittings shall be compact or standard bell and spigot, mechanical joint, or flanged as required on the plans. Standard fittings shall be in accordance with AWWA C110,"Gray Iron and Ductile Iron Fittings, 3-inch through 48-inch for Water and Other Liquids." Ductile iron compact fittings may be used in sizes through 12-inches. The fittings shall conform to all requirements of AWWA Standard C153 for ductile iron compact fittings 3-inch through 12-inch. The bell and spigot joints shall be rubber gasket sealed joints in accordance with AWWA C111. Ductile iron fittings, twelve inches (12") inside diameter or greater, shall be mortar lined in accordance with AWWA C104.

Cut-in tees and live tap tapping sleeves shall be in accordance with the requirements of the City of Sunnyside Standard Drawing 4-5 unless otherwise directed by the Engineer.

F. THRUST BLOCKING

Concrete blocking shall be installed in accordance with City of Sunnyside Standard Drawing 4-6 and shall bear against solid undisturbed earth at the sides and bottom of the trench excavation and shall be shaped so as not to obstruct access to the joints of pipe or fitting. An 8-mil polyethylene sheet, or two layers of 4 mil, shall be placed between the fitting and the thrust block prior to loading or pressurizing a water main. The concrete thrust blocking shall be allowed to cure as required to eliminate deformation of the block or blow-off of the fitting.

4-8.03 INSTALLATION

Installation of valves, boxes, and fittings shall be in accordance with City Standard Drawings 4–5 through 4–9 and SWSS Section 7-09 except as herein modified.

A. All valves are to be bolted directly to the tees or crosses as indicated in the plan. The flanges on valves and tee (or crosses) shall be plain faced. Flanges shall be faced and drilled to 150 pound American Standard dimensions.

B. All other connections between pipe and fittings, or pipe and valve shall be flexible coupling, "Ring-Tite," "Fluid-Tite," or approved equal, except as noted on City of Sunnyside Standard Drawing 4-5 for installation of a cut-in tee where flanged coupling adapters shall be used to connect the tee to the existing main.

C. Valve extensions are required per City Standard Drawing 4-9, when the depth to the valve nut exceeds five (5) feet.

4-8.04 MEASUREMENT

Valves and associated valve boxes, including their adjustment to finished grade, shall be considered as one item and shall be measured per each according to size of valve. All fittings shall be measured per each according to size and type. All valves, thrust blocks and fittings which are included in the unit items for "Fire Hydrant Assembly," "Blow-off Assembly," etc., shall be measured and paid as incidental to those unit items and no additional payment will be made for them. Valve extensions, when required, will be measured per each.

4-8.05 PAYMENT

The unit contract price for each size of "Valve", per each, and each type and size of "Fitting" or “Valve Extension”, per each, shall be full compensation for furnishing all necessary labor, equipment, materials, concrete thrust blocks, and all other incidentals required to install all valves and fittings in place in accordance with the plans and specifications or as directed by the Engineer.

When constructed in conjunction with a paving project, a separate measurement and payment will be made for adjusting to grade, after completion of paving, as per Special Provision 10-10.

4-9 TRANSMISSION LINE BLOW-OFF ASSEMBLY

4-9.01 GENERAL

This specification covers the construction and installation of a transmission line blow-off assembly to allow for the manual release of sediments from a water transmission line.

4-9.02 MATERIALS AND CONSTRUCTION

All materials used shall be new and assembled in accordance with the requirements of the City of Sunnyside Standard Drawing 4-3.

A. The exact location of the assembly shall be field located as necessary to assure that the assembly is placed at the low point of the water line being installed.

B. Pipe shall be ductile iron as specified in Section 4-1.02.

C. Valves, valve boxes, and fittings shall be in accordance with Section 4-8.

4-9.03 MEASUREMENT AND PAYMENT

The unit contract price for "Transmission Line Blow-Off Assembly", per each, shall be full compensation for furnishing all labor, materials, equipment, trenching and backfill, valves, fittings, and all other incidentals required to install the transmission line blow-off assembly complete and in place, including the flanged outlet tee connection to the transmission line and adjusting the cast iron casing to the finished grade in accordance with the plans and specifications, or as directed by the Engineer.

4-10 ADJUST EXISTING AND NEW CASTING TO GRADE

4-10.01 GENERAL

When constructed in conjunction with a street construction project or pavement overlay, existing and new water valve boxes, air release and blow-off assembly castings, which are required to be adjusted to finished grade, shall be adjusted in accordance with the requirements of Section 2-18 of the City of Sunnyside Standard Specifications for Roadway and Standard Drawing 3-4 to which the Contractor's attention is hereby directed.

On water line projects which do not include new street construction or pavement overlays, the existing and new valve boxes and utility boxes within the pavement restoration limits shall be adjusted prior to pavement restoration. Where the new water valve boxes fall outside of the pavement restoration limits and in unpaved areas, the box shall be adjusted to conform to the adjoining grade and set in a 30" x 30" x 8"-thick concrete collar.

4-10.02 MEASUREMENT AND PAYMENT

When constructed in conjunction with a street construction of pavement or overlay project, measurement and payment shall be made in accordance with the requirements of Section 2-18 of the City of Sunnyside Standard Specifications.

On installations which do not include new street construction or pavement overlays, a separate measurement and payment will not be made for the specified water valve box and utility adjustments, unless the Contractor is directed to replace an existing substandard valve box. All costs for the specified adjustments shall be considered incidental to the water line installation pay items provided in the bid proposal. When the Contractor is directed to replace an existing substandard valve box, measurement and payment will be made as specified in Section 2-19.03 of these specifications.

4-11 SALVAGE

4-11.01 GENERAL

All existing tees, valves and miscellaneous fittings removed during construction and all abandoned valve boxes and fire hydrants, shall be removed by the Contractor and delivered to the City Shop on South Sixth Street for City salvage. Prior to removal from the trench, all AC pipe shall be removed from the salvaged component and left in the trench.

4-11.02 MEASUREMENT AND PAYMENT

Salvage of existing water line appurtenances shall be considered incidental to the unit contract price for "Water Line" and no additional compensation shall be allowed.

4-12 SCHEDULED WATER LINE SHUT DOWN

4-12.01 GENERAL

The Contractor shall give the City a minimum three (3) work days notice of required water line shut down. Additional notice may be required for shut downs which will put a large number of residents out of service and in some commercial areas. Water line shut downs shall be scheduled for morning hours, except for special circumstances which must be pre-approved by the Utility Supervisor and except for emergencies. The City Inspector shall verify that all required fittings necessary for connection are secured and on the job site prior to scheduling shut downs. The Contractor shall be billed for canceled shut downs, unless circumstances beyond the Contractor's control (as determined by the Engineer), have caused the Contractor to cancel the shutdown.

4-13 VALVE OPEN/CLOSE POLICY

4-13.01 GENERAL

Once a water main has been placed into service, only the City of Sunnyside Water Department shall open/close the water line valves, except that the Contractor may open/close a valve that controls a water main stub, which will be extended by the Contractor, provided that no water services are connected to the stub.

4-13.02 VALVE OPEN CLOSE PROCEDURE

The Contractor shall operate valves in strict conformance with this policy. A no-tolerance position will be taken if any valve is operated without an inspector on site and prior to specific approval and direction by the City Engineering Department Inspector. Nonconformance with this provision shall be considered as tampering and subject to enforcement in accordance with City Ordinance (SMC 13.20.070).

4-13.02.01 FILLING NEW WATER MAIN

1. The City inspector must be on site prior to beginning of line filling. The Contractor's proposed procedure must be reviewed and approved by the inspector, prior to operation of any valves.

2. The Contractor shall check all valves on the new system, to verify that they are open, including in line valves, fire hydrant valves, etc.

3. Open fire hydrant or blow-off at the opposite end of the new main to be loaded and have personnel stand by at the air release location.

4. The Contractor shall then open the supply valve no more than three (3) turns and monitor while the line is filled. The line must be loaded slow to prevent flushing of chlorine to one end, to allow release of air and to prevent high velocities in the City main.
5. The Contractor shall close the main line feeder valve as soon as water begins to come out of the blow-off or fire hydrant.

6. The Contractor shall then cap the blow-off or fire hydrant and let the system sit for a <u>minimum</u> of 24 hours.

4-13.02.02 PRESSURIZING MAIN PRIOR TO PRESSURE TEST

At the Contractor's option, the new main may be brought to City line pressure, prior to beginning pressure testing as required by Section 4-1.08.

1. The procedure specified for Section 4-13.02.01 shall be strictly followed, except that the blow-off or fire hydrant shall be opened only enough to allow the release of air and the main line valve shall be opened approximately one turn and closed as soon as water begins flowing a constant stream.

4-13.02.03 FLUSHING OF NEW MAINS

After acceptance of the pressure test(s), and after a minimum 24-hour waiting period, all new water mains shall be flushed until clear of the sanitized chlorine, water per the requirements of Section 4-1.07 of these specifications.

1. The City inspector must be on site prior to beginning of flushing of new mains. The Contractor's proposed procedure must be reviewed and approved by the inspector, prior to operation of any valves.

2. The Contractor shall provide all discharge hoses, holding ponds, dechlorination devices, and channel to his ditches for compaction, or other methods as required to control flushed water. The Contractor shall be fully responsible for any damages resulting from failure to control water during the flushing operation.

3. The Contractor shall open a fire hydrant or blow off at the end of the line to be flushed and then slowly open the control valve to provide a full 2 inch stream. The line shall be flushed until no odor of chlorine is present. The Contractor shall then test the chlorine level to assure that the chlorine residual is not more than the adjoining City water system.

4. When satisfied that the line is flushed, the main line valve shall be slowly closed and then the fire hydrant or blow off valve shall be slowly closed.

5. The contractor shall take health samples per the procedure specified in Section 4-22 of these specifications.

Sample location points shall be provided by the contractor at the specified 500 to 800 foot interval.

4-14 TIE-IN TO EXISTING WATER LINES

4-14.01 GENERAL

Tie-in to the existing water lines and the installation of the required fittings and water line shall be under the direct supervision of the Water Department and the Engineer. Extreme care shall be taken by the Contractor to keep the existing water lines and new fittings and water line clean and free from contaminates. The inside surfaces of the valve, pipe and fittings shall be thoroughly swabbed with, or filled with, a 75-parts per million chlorine solution 24 hours prior to the installation of all fittings. The fittings and water line shall be kept in a clean environment and delivered to the site within a protective covering. If a shutdown has been scheduled and the Contractor has not chlorinated and bagged valves and fittings 24 hours prior to the shut down, the Inspector will notify the City Water Department and City crews will chlorinate and bag the fittings and valves and bill the Contractor. The fittings and water line shall be swabbed again with the 75-parts per million chlorine solution just prior to their installation.

4-14.02 MEASUREMENT AND PAYMENT

All necessary labor, tools, dewatering, chlorine swabbing and incidentals as required to cut into existing water mains or remove existing fittings and valves as called for on the plans, shall be considered incidental to the unit contract price for water line, per linear foot, or fittings as allowed in the bid proposal.

4-15 COUPLINGS AND FLANGE COUPLING ADAPTERS

4-15.01 GENERAL

Couplings and flange coupling adapters shall be manufactured from cast iron and rated at a minimum 150 PSI. The minimum middle ring length shall be five (5) inches. Bolts shall be stainless steel as specified in these specifications.

4-16 DIG AND VERIFY

4-16.01 GENERAL

At the connection with existing water lines where shown and directed on the plans and as otherwise directed by the Engineer, the Contractor shall expose and verify the exact pipe location, type, size and fittings required prior to ordering the fittings. The Contractor is advised that all existing water mains have thrust blocks typically located as shown on Standard Drawing 4-6. These thrust blocks have been found to be constructed of rocks, blocks, concrete or other materials. The Contractor shall stay an adequate distance away from all thrust blocks and shall take such precautions as required to not disturb the existing block(s). After digging and verifying, the Contractor shall backfill, compact and temporarily cold patch the surfacing where applicable. Work and materials shall be in accordance with Section 2 and Section 7 of the City of Sunnyside Standard Specifications.

4-16.02 MEASUREMENT AND PAYMENT

The unit contract price for "Digging and Verifying", per each, shall be full compensation for all labor, materials, equipment and incidentals necessary to dig, verify, backfill, compact, provide traffic control and cold patch in accordance with the plans and specifications or as directed by the Engineer.

4-17 ADDITIONAL/ALTERNATE FITTINGS

4-17.01 GENERAL

Where a standard or specified fitting cannot be obtained or is not readily available, and the Contractor is required to add an MJ adapter or reducer to the fitting, the MJ adapter or reducer shall be separately paid for under the bid items for "Flange Coupling Adapter" or “ __x __ reducer” per each. The reducer or adapter shall be flange connected to the tee or fitting as applicable.

Bends where noted on the plan sheet are indicated to the degree of bend that appears to fit best. The Contractor shall have the same diameter bends of various degrees available for installation. If actual field conditions dictate that a degree of bend other than the one noted should be installed, the Contractor shall install the required fitting. Measurement and payment for "**-inch Bend", per each, shall be full compensation for the actual degree of bend installed as specified.

If fittings specified for an installation are not readily available, and involve revisions other than the addition of an MJ adapter, the Contractor may, when approved by the Engineer, install alternate fittings that complete the installation in the same manner. Alternate fittings, if used, will be measured and paid for by the unit bid price for the fittings that were specified for the installation.

All flanged fittings shall be cast with the fitting. Bolt on or threaded type flanges are not acceptable.

4-17.02 TEMPORARY AND MECHANICAL FITTING RESTRAINT

At all connections to active City main water lines and in other situations where the Engineer determines that pressure must be returned to a mechanical joint or slip joint fitting, prior to a 24 hour cure time on a thrust block, the Contractor may, at his option, install suitable temporary braces or utilize mechanical restraint devices as herein specified. The restraint device for PVC pipe shall be uni-flange block buster series 1300 or approved equal. The restraint device for ductile iron pipe shall be cast iron EBA Iron Inc., Megalug or approved equal.

A thrust block shall be used in conjunction with all mechanical restraint connections. All costs for labor, equipment and materials as required to provide temporary restraint shall be incorporated into the unit bid price for the fittings as provided in the bid proposal, and a separate measurement and payment will not be made for the required temporary restraint.

4-18 PRESSURE CAPS

4-18.01 GENERAL

Where specified on the construction plans or where directed by the Engineer as required by construction, the Contractor shall pressure cap and thrust block existing water lines. All work and materials shall be in accordance with Section 4 of the City of Sunnyside Standard Specifications and Drawings.

4-18.02 MEASUREMENT AND PAYMENT

The unit contract price for "1-Inch to 4-Inch Pressure Cap", or "6-Inch to 8-Inch Pressure Cap", or "10-Inch to 16-Inch Pressure Cap", per each, shall be full compensation for all labor, equipment, materials and incidentals necessary to complete the pressure cap in accordance with the plans and specifications or as directed by the Engineer.

4-19 SIDE SEWER LOCATION AND REPAIR

4-19.01 GENERAL

Although every effort has been made to show potential conflict with sewer services, the exact depth and location of sewer services are not known. The Contractor shall make every effort to prevent damage to sewer services. The services in the City of Sunnyside are owned and maintained by the property owner and they will not be located by the City by a standard call for utility locates.

Prior to excavating in the vicinity of homes connected to existing sewer systems on all projects under contract to the City, the Contractor shall locate the sewer service. Location shall be made by inserting a locatable cable or signal transmitting cable into the sewer service either at a clean out or point of entry in the home. The Contractor is fully responsible for contacting the owner and making arrangements as necessary to complete the service locate. After the service is located, the Contractor shall reference the location as required to allow relocation of the service during all phased excavation work. On all private contracts the Contractor may locate each sewer service at his option; however, damaged services shall be repaired by the Contractor in all cases, at no additional cost to the City.

When sewer services are inadvertently broken or damaged, the Contractor shall repair the side sewer by installing a section of D3034 sewer pipe. The repair section of pipe shall be placed a minimum of one foot into the trench walls to provide a solid foundation for the crossing of the new trench. The pipe ends shall be connected using repair coupling. Repair coupling shall be PVC rubber gasket fitting. The area under the side service connection shall be bedded with compacted 5/8-inch minus top course rock. When directed by the Engineer or where rocky soils, unstable soils, or other conditions exist, where it may be difficult to detect a damaged side service, water shall be run from the home toilet or other source, to insure that all of the side services are undamaged, prior to beginning backfill operations.

4-19.02 MEASUREMENT AND PAYMENT

When provided for in the bid proposal, a separate measurement and payment will be made for "side sewer locates" per each at the unit price as provided in the bid proposal. If the Contractor determines that actual unit cost for locates is greater than that provided, all additional costs for labor, equipment and materials as required to complete the locates, which exceeds the allowable unit price shall be incorporated into other bid items as provided in the bid proposal. If a separate bid item is not provided, the Contractor shall incorporate all costs for the required side sewer locates into the bid items provided.

If the Contractor damages sewer services during construction, no additional compensation will be made for damages resulting from the service damage or for the cost of labor, equipment and materials as required to complete the sewer service repair as specified.

4-20 ABANDONED CONDUITS

All pipes, conduits and other openings determined to be abandoned, which are cut or opened during the water line installation, shall be capped or concrete plugged prior to backfilling of the trench. Measurement and payment for required pipe cuts, labor, equipment, work and materials required to complete the specified plug shall be incidental to the pipe installation pay items.

4-21 ABANDONED FIRE HYDRANT REMOVAL

All fire hydrants connected to water mains scheduled for abandonment shall be removed by the Contractor and delivered to the City storage yard for City salvage. Fire hydrants shall be removed intact, including the shoe and all AC pipe shall be removed and left in the trench. When a fire hydrant is abandoned and the water main will remain in service, the valve shall be removed at the main line and a blind flange installed. Unless provided for in the special provisions, a separate measurement and payment will not be made for fire hydrant removal and all costs for removal and delivery shall be incidental to other bid items provided for in the bid proposal.

4-22 BACTERIA SAMPLING PROCEDURE POLICY

(Note: Effective on all contracts and permits issued after July 1, 1995) The following is the policy for bacterial sampling of new water mains by contractors. Samples shall be taken by the contractor at 500 to 800 foot intervals. One sample will be required for lines less than 500 feet and will be taken at the end of the new line. A City inspector is required to be on site prior to the Contractor operating any valves and to witness the test.

1. Prior to sampling the following shall be completed in the order they appear.

    A. New water main loaded

    B. Pressure test completed

    C. Water main shall sit with appropriate chlorine solution for a period of not less than 24 hours.

    D. New water main flushed until chlorine level is equal to the existing water main feeding new line.

2. Run water for a short period. Reduce flow to a small stream.

3. Test chlorine level with a DPD test kit and record residual on bacteria sample report form. Test kits must be capable of measuring chlorine residuals in minimum 0.1 increments from 0 to 2.0.

4. Turn off water flow and sterilize area where sample is being taken with heat or disinfectant spray similar or equal to BacDown Detergent Disinfectant.

5. Turn on water for one minute, slowly reducing water flow as time progresses.

6. Remove the sample container's top very carefully.

   A. Do not touch underside of cap with fingers or wave cap in the air.

   B. Do not rinse bottle out and refill, it contains thiosulphate (a dechlorination agent) that must be present.

   C. Do not overfill bottle (the bottle neck is sufficient).

   D. Put cap back on bottle very carefully to avoid any possible contamination.

   E. Label the sample with the project name & location sample was taken.

   F. The cap shall be sealed by the City Inspector immediately after sample is taken.

7. Turn off the sample water flow.

8. Shut off main valve feeding new water main. The new main shall be left off until bacteria sample results have been reported by the Health Department to Utility Supervisor or Water Department Crewleader.

9. The Contractor shall deliver the sample to AG Health located at 445 Barnard Blvd., Sunnyside, WA 98944 or another Washington State Department of Health certified testing laboratory.

10. Complete filling out paper work for sample. The following information will be needed.

    A. Type of system: Public

    B. System ID# 854003

    C. Circle Group "A"

    D. Name of system: City of Sunnyside

    E. Record specific location:

    F. Telephone Number: (509) 837-5206

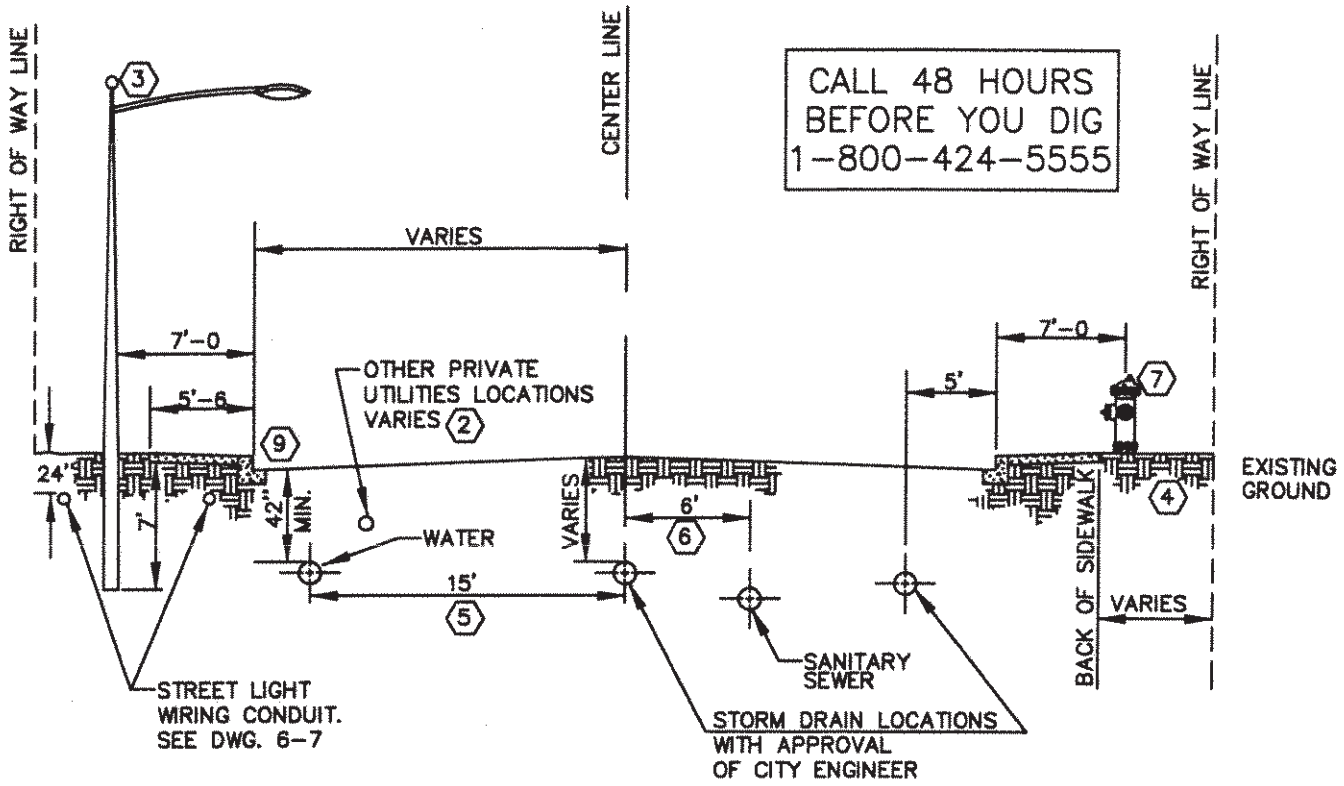
    G. System owner/Manager: Water System Supervisor

    H. Source type: "well or well field",

    I. Send report to: City of Sunnyside, Water System Supervisor
    1509 S. 6th Street
    Sunnyside, WA 98944

J. Type of sample: Mark “New construction”

K. Check box “Chlorinated” and record residual



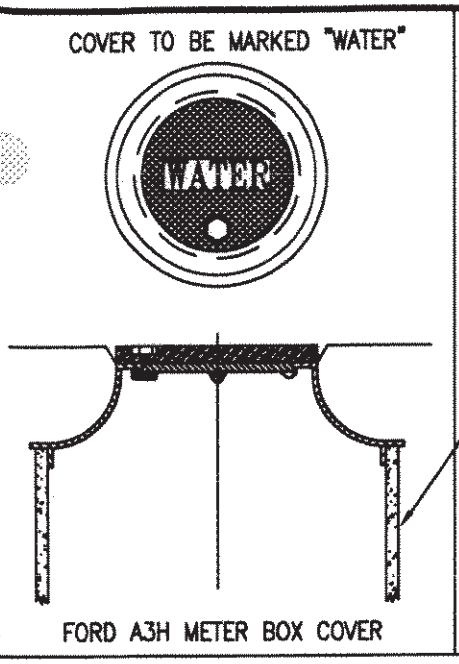
NOTES:

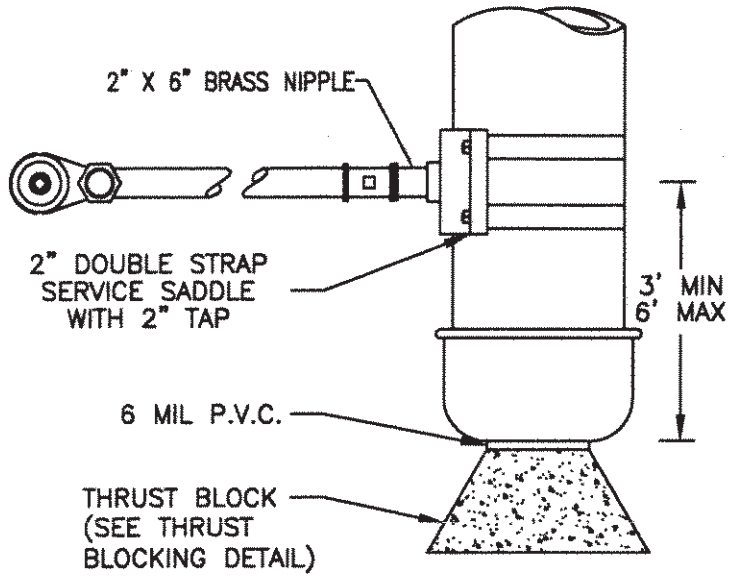
1. Developer or Contractor is required to call 1-800-424-5555 a minimum of 48 hours prior to digging within the limits of City right-of-way for the location marking of all underground utilities.
2. Typical locations for other proposed or existing public utilities shall be verified by the Developer or Contractor. A minimum horizontal separation of 3 foot shall be maintained from city water mains and a minimum 5 foot horizontal separation shall be maintained from City sewer and storm sewer mains.
3. Street light poles typically will be installed on alternating sides of the street and spaced as indicated above.
4. Water meter boxes will be installed at the back of new or existing sidewalks.
5. Potable water lines typically shall be installed 15 feet from and parallel to the centerline of the right-of-way on the north or west side.
6. Sanitary sewer line typically shall be installed 6 feet from and parallel to the centerline of the right-of-way on the south or east side.
7. Fire hydrants typically will be installed on alternating sides of the street on 400 foot max. spacing in industrial and commercial areas and on 600 foot max. spacing in residential areas.
8. Gas, power, telephone and other utilities shall maintain a minimum 3 foot horizontal clearance from City water lines, and 5 foot horizontal clearance from City sewer lines.
9. If conflicts require alternate water or sewer main locations, approval shall be obtained from the City Engineer for the location. A minimum 3 foot separation from the face of curb is required.
10. Contact Sunnyside Valley Irrigation District for information as to the location of irrigation waterlines.

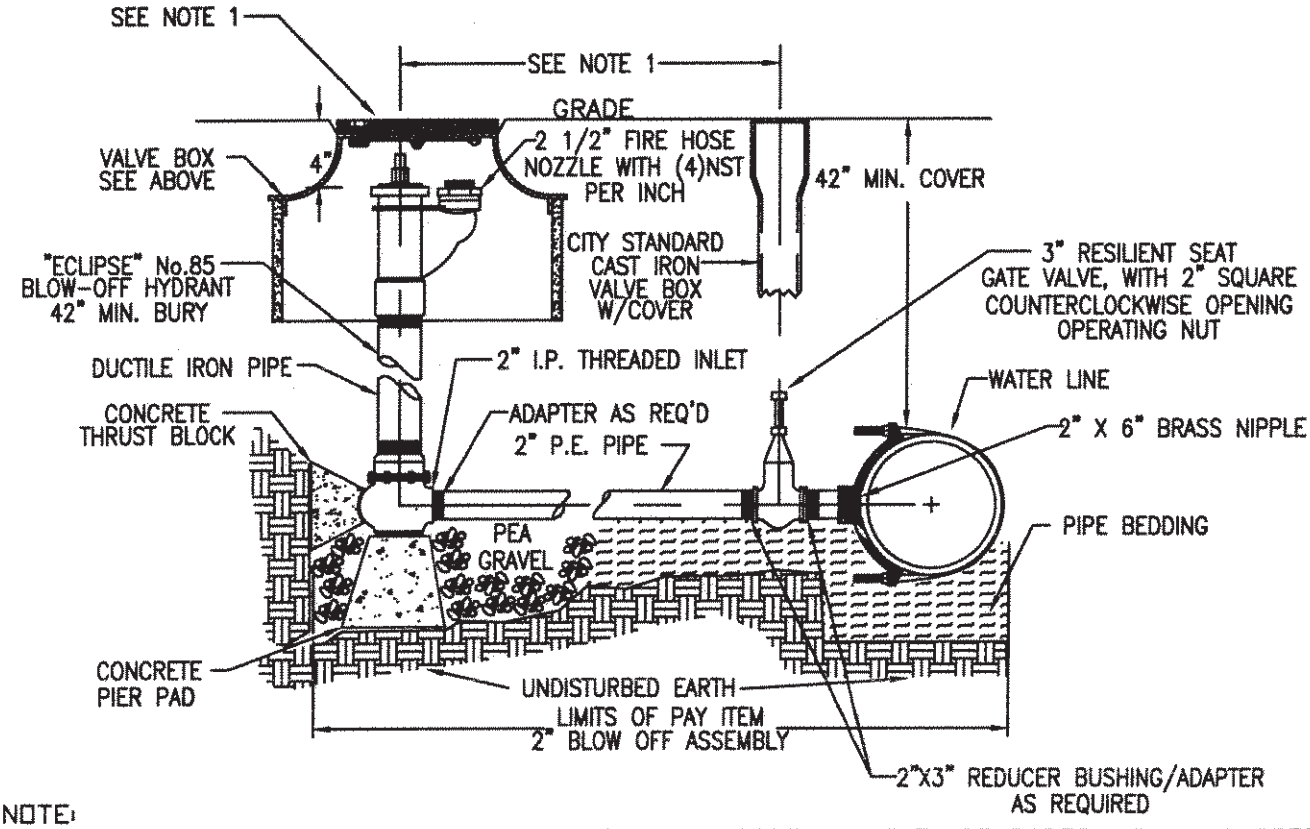
TYPICAL CITY UTILITY LOCATION

CITY OF SUNNYSIDE
PUBLIC WORKS DEPARTMENT

DATE	5/05	DWG. NO.
DWN	SRF	
REV		
CHK	JLB	1-6
SCALE	NTS	



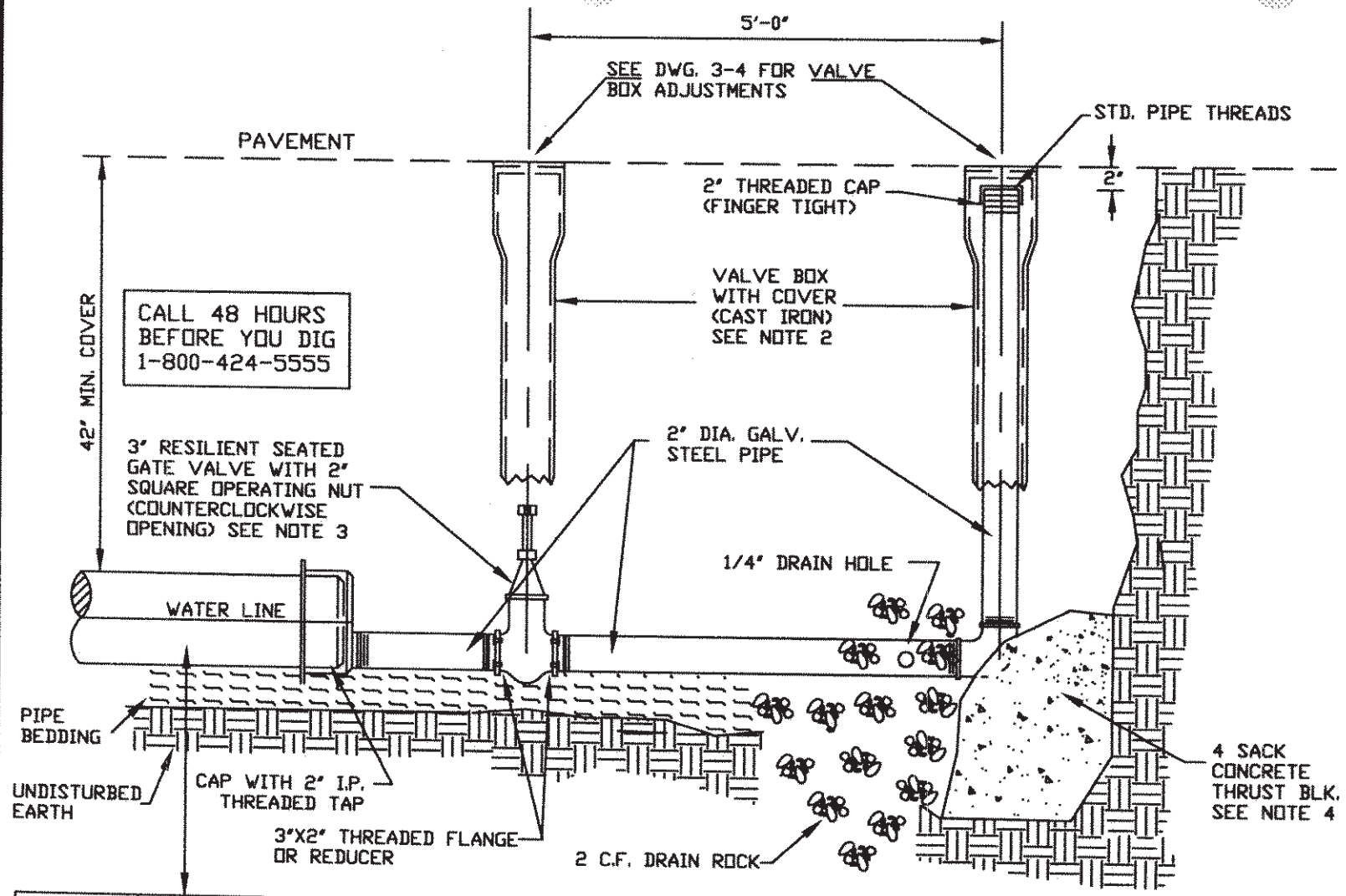




NOTE:

1) IN CUL-DE-SACS, LOCATE THE BLOWOFF ON A PROPERTY LINE, CENTERED AT 1 1/2 FEET BACK OF SIDEWALK. PROVIDE ADJUSTMENT, OR CONCRETE PAD AS REQUIRED BY STANDARD DRAWING 3-4. ON STREETS THE BLOW OFF IS TO BE LOCATED AT BACK OF EXISTING, OR FUTURE SIDEWALK.

2" BLOW-OFF ASSEMBLY PERMANENT (OVER 10 DAYS)	DATE 5/05 DWN SRF REV CHK JLB SCALE NTS	DWG. NO.
CITY OF SUNNYSIDE PUBLIC WORKS DEPARTMENT		4-1



WATER LINE SIZE	THRUST * BLK. SIZE
6"	1.9 S.F.
8"	3.3 S.F.
10"	5.4 S.F.
12"	7.7 S.F.

* BEARING AREA AGAINST THE TRENCH WALL

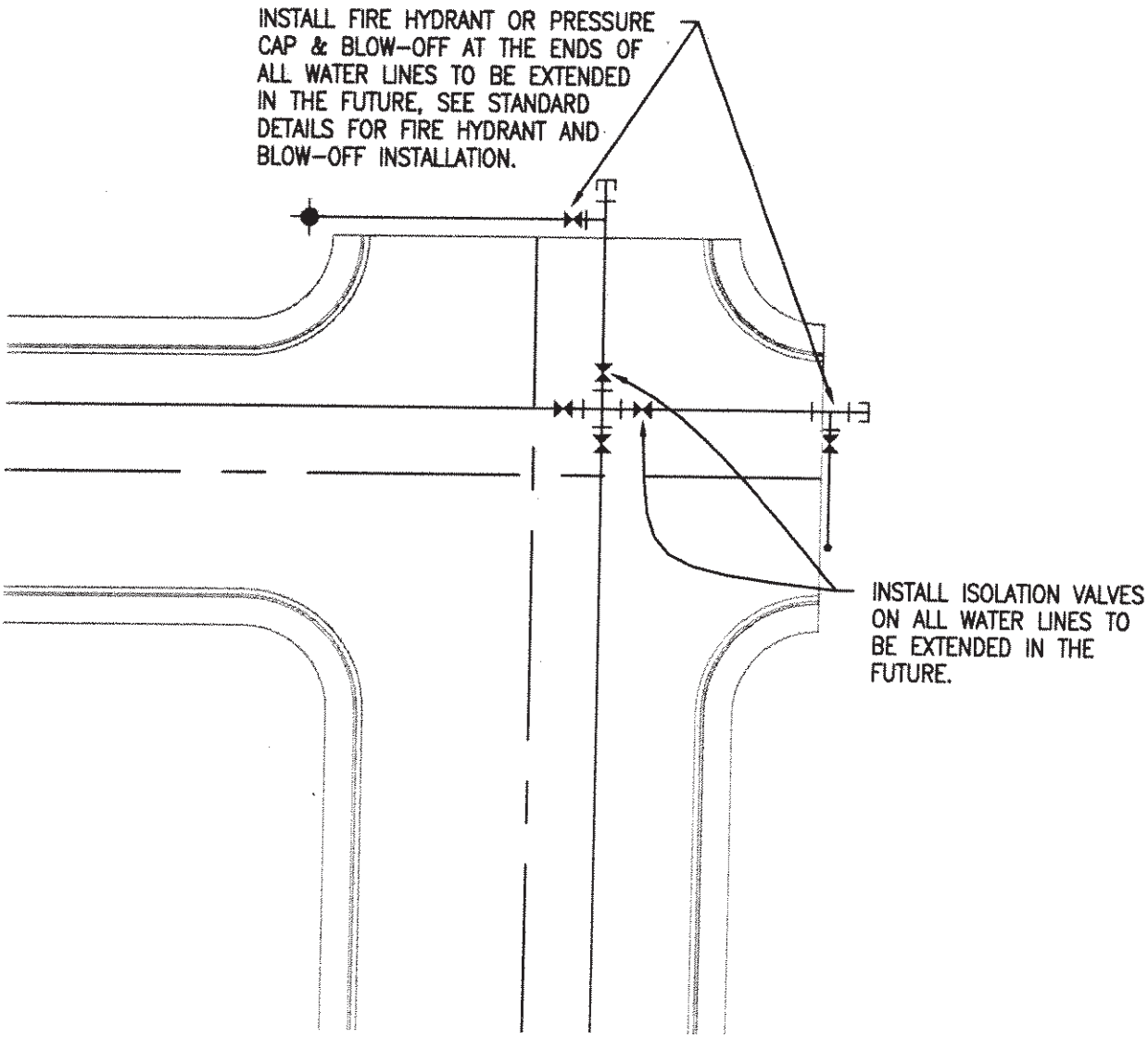
1) TO BE USED FOR INSTALLATIONS WHERE THE BLOW OFF WILL REMAIN IN PLACE FOR LESS THAN 10 DAYS AND AT THE ENDS OF LATERAL STUBS ONLY. FOR LATERALS, THE BLOW OFF MUST BE LOCATED OUT OF THE PAVEMENT. FOR MAINLINE BLOWOFFS THAT WILL BE IN PLACE FOR LONGER THAN 10 DAYS, SEE DWG 4-1 OR 4-3.
2) ON LATERAL STUBS, THE VALVE BOX & COVER SHALL BE PER SECTION 10-8 OF THESE SPECIFICATIONS.
3) FOR LATERALS PROVIDE A CONCRETE THRUST BLOCK. ALL VALVES SHALL BE IN ACCORDANCE WITH CITY OF SUNNYSIDE STD. WATERMAIN SPECIFICATIONS.
4) THE THRUST BLOCK SHALL BE SIZED TO PROVIDE THRUST FOR THE LATERAL WATER LINE. ALL NOTES SHOWN ON DRAWING 4-6 SHALL APPLY.

TEMPORARY 2" BLOW-OFF ASSEMBLY

CITY OF SUNNYSIDE
PUBLIC WORKS DEPARTMENT

DATE 5/05
DWN SRF
REV
CHK JLB
SCALE NTS

DWG. NO. 4-2



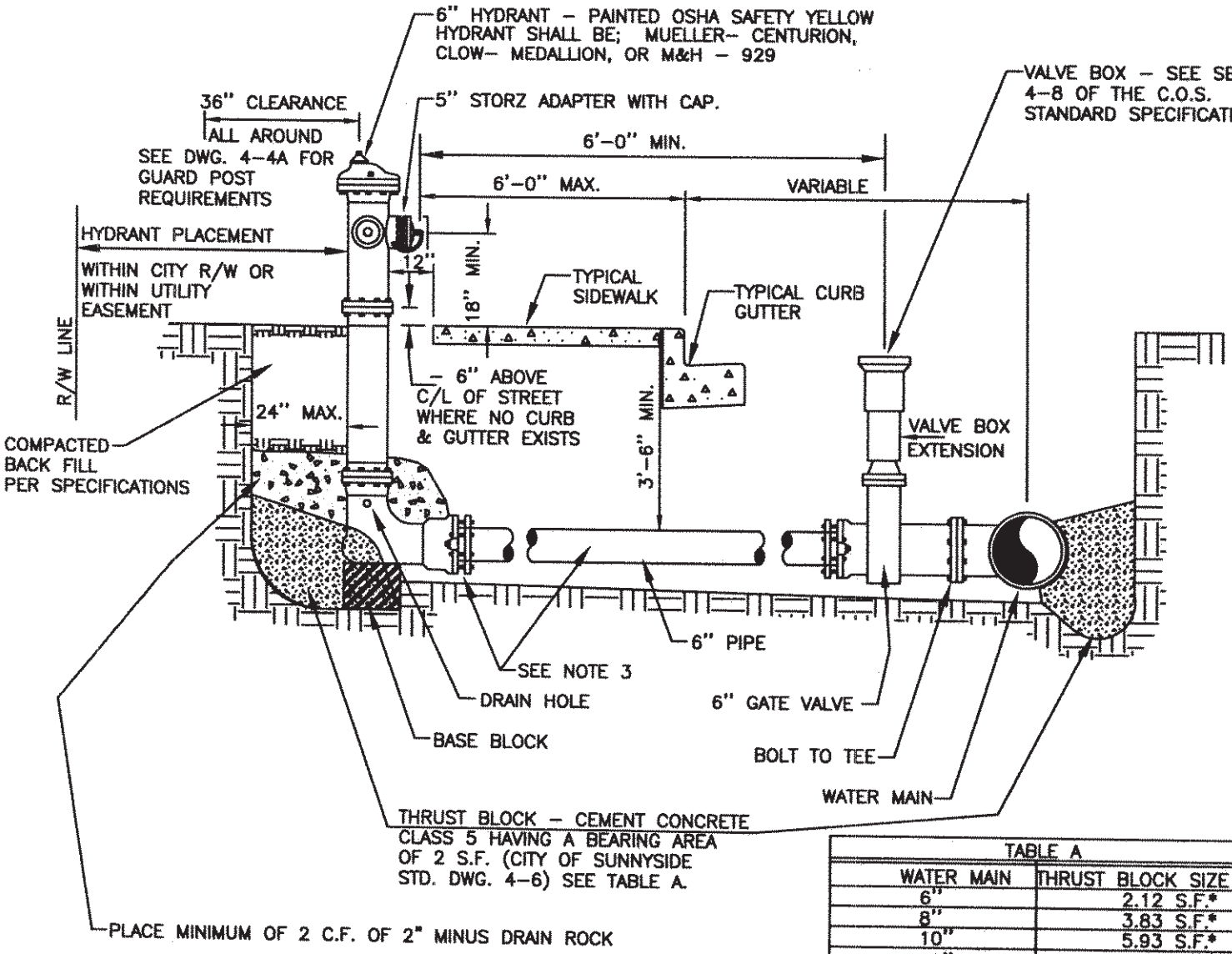
CITY OF SUNNYSIDE PUBLIC WORKS DEPARTMENT	DATE 5/05 DWN SRF REV CHK JLB SCALE NTS	DWG. NO. 4-3

TYPICAL FIRE HYDRANT INSTALLATION

CALL 48 HOURS
BEFORE YOU DIG
1-800-424-5555

NOTES:

1) HYDRANTS SHALL BE 3 PORTS.
2) HYDRANTS SHALL BE PER SECTION 4-5 OF THE CITY OF SUNNYSIDE STANDARD SPECIFICATIONS.
3) HUB & FLANGE CASTING. (SEE NOTE 2)
4) HYDRANTS SHALL BE HOODED UNTIL OPERATIONAL.
5) REMOVE CHAINS ON SIDE PORTS AND REMOVE CHAIN AND CAP ON MAIN PORT.



ALL NUTS & BOLTS TO BE STAINLESS STEEL

TABLE A

WATER MAIN	THRUST BLOCK SIZE
6"	2.12 S.F.*
8"	3.83 S.F.*
10"	5.93 S.F.*
12"	8.48 S.F.*

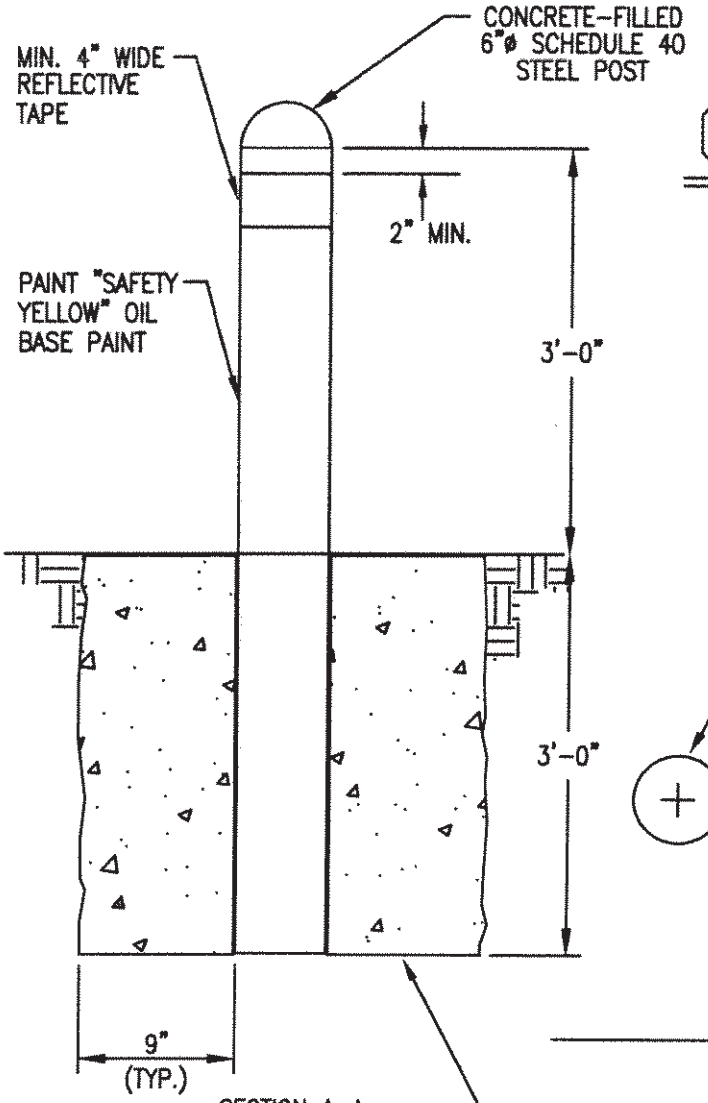
ALL NUTS & BOLTS TO BE STAINLESS STEEL

CITY OF SUNNYSIDE
PUBLIC WORKS DEPARTMENT

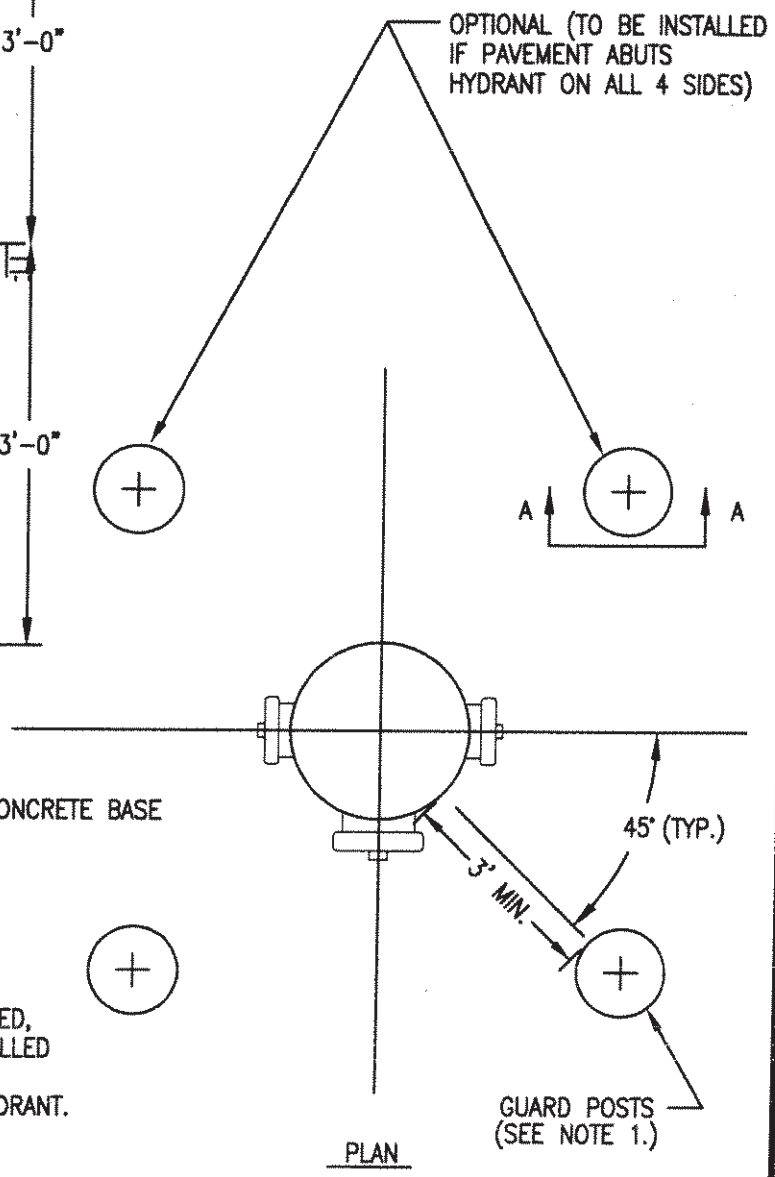
DATE	5/05
DWN	SRF
REV	
CHK	JLB
SCALE	NTS

DWG. NO. 4-4

BOLLARD GUARD POST



SECTION A-A



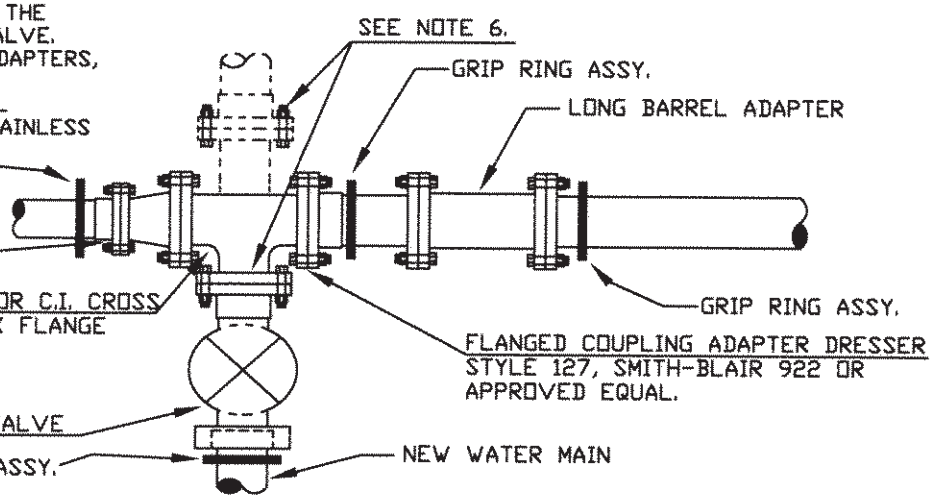
PLAN

NOTES:

1. WHERE CONCRETE CURBING IS NOT INSTALLED, GUARD POSTS (2 EA. MIN) SHALL BE INSTALLED ON SIDE FACING PAVED SURFACE.
2. GUARD POSTS TO BE PAINTED SAME AS HYDRANT.

CITY OF SUNNYSIDE PUBLIC WORKS DEPARTMENT	DATE 5/05 DWN SRF REV CHK JLB SCALE NTS	DWG. NO. 4 — 4A

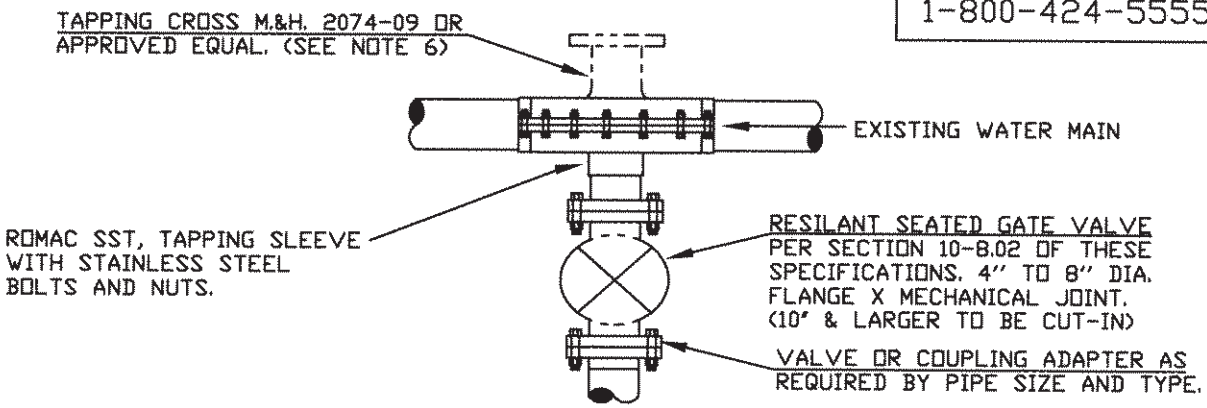
WHEN EXISTING WATERLINE REQUIRES THE INSTALLATION OF A CUT-IN TEE & VALVE, ALL VALVES, REDUCERS, & FLANGE ADAPTERS, MUST BE FLANGED. A LONG BARRELL ADAPTER MUST BE USED AS WELL. ALL FLANGED CONNECTIONS MUST HAVE STAINLESS STEEL NUTS & BOLTS.



NOTE:
ADDITIONAL VALVES AT ALL TEE LOCATIONS AS REQUIRED BY CITY ENGINEER.

CUT-IN TEE

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555



TAPPING SLEEVE AND VALVE

NOTES:

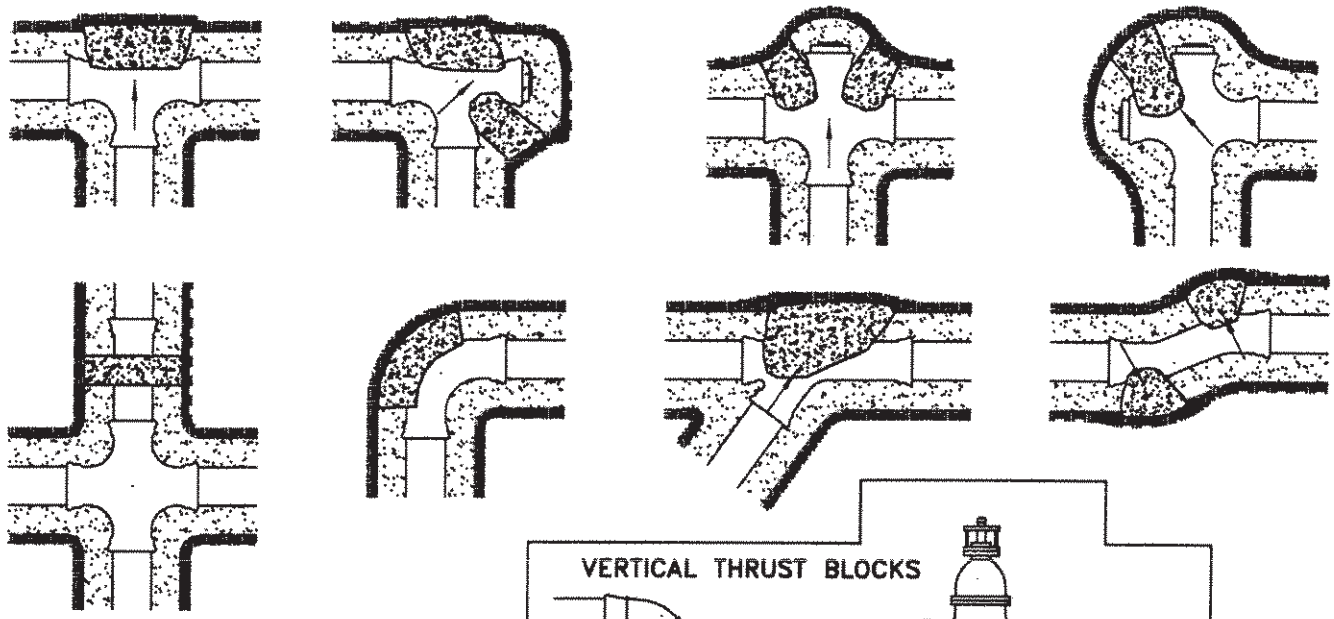
1. CONTRACTOR TO DIG & VERIFY MAIN SIZE AND PIPE PRIOR TO ORDERING MATERIALS.
2. CHLORINATE VALVE & FITTINGS PER SECTION 4-14 OF THE C.O.S. STANDARD SPECIFICATIONS.
3. MATERIALS TO BE ON THE THE JOB PRIOR TO SCHEDULING SHUTDOWNS OR TAPS. UP TO 3 WORK DAYS NOTICE MAY BE REQUIRED TO SCHEDULE CITY CREWS FOR TAP.
4. MAXIMUM TAP TO EXISTING LINE NOT TO EXCEED 50% OF MAIN DIAMETER ON A.C. OR P.V.C. PIPE; OR MORE THEN 75% OF THE MAIN DIAMETER FOR STEEL OR DUCTILE IRON PIPE. MAX. TAP FOR CROSS NOT TO EXCEED 50% OF MAIN.
5. INSTALL THRUST BLOCKS PER STD. DRAWING 4-6
6. ON STEEL PIPE, CONTRACTOR TO RESTORE ALL DISTURBED COAL TAR & WRAPPING.
7. ALL NUTS & BOLTS TO BE STAINLESS STEEL.

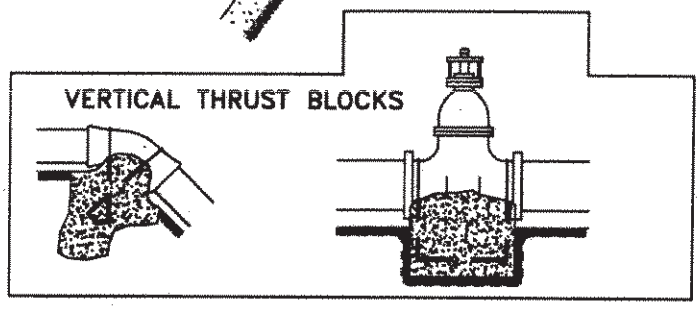
DETAILS FOR TAPPING WATER MAINS

(TYPICAL)

CITY OF SUNNYSIDE
PUBLIC WORKS DEPARTMENT

DATE	5/05	DWG. NO.
DWN	SRF	
REV		
CHK	JLB	4-5
SCALE	NTS	





Pipe Size in Inches	HORIZONTAL THRUST BLOCKS MIN. BEARING AREA IN SQUARE FEET				VERTICAL THRUST BLOCKS MIN. VOLUME IN CUBIC YARDS		
	Tees, Wyes & Dead Ends	90° Bend	45° Bend	11 1/4° 22 1/2° Bend	45° Vertical Bend	11–1/4° 22–1/2° Vert. Bend	Restrained Valve (see note 5)
4 & Smaller	1.88	2.66	1.44	0.74	0.74	0.38	0.96
6	4.24	6.00	3.24	1.66	1.66	0.84	2.16
8	7.54	10.66	5.78	2.94	2.94	1.50	3.86
10	11.78	16.66	9.02	4.60	4.60	2.34	6.02
12	16.96	24.00	12.98	6.62	6.62	3.38	8.66
14	23.10	32.66	17.68	9.00	9.00	4.60	11.80
16	30.16	42.66	23.08	11.76	11.80	6.02	15.40

NOTES:

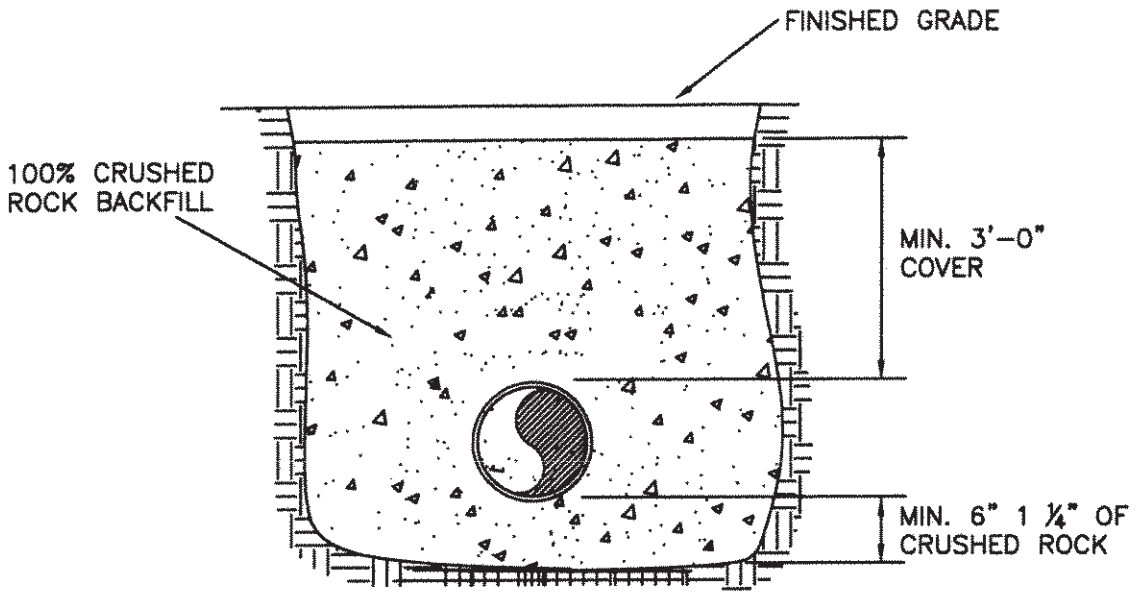
1. Concrete thrust blocking to be poured against undisturbed earth.
2. Keep concrete clear of joint and accessories.
3. Above bearing areas and volumes are calculated at a soil bearing capacity of 2000 PSF and a test pressure of 150 PSI.
4. Thrust blocks for vertical upward bends shall be the same as for horizontal bends.
5. When called for on the construction drawings or contract special provisions, valves shall have concrete restraint blocks as specified above, unless the valve is flanged to a tee, cross or similar fitting or another method of restraint acceptable to the engineer is provided.

THRUST BLOCKING DETAILS

CITY OF SUNNYSIDE
PUBLIC WORKS DEPARTMENT

DATE	5/05
DWN	SRF
REV	
CHK	JLB
SCALE	NTS

DWG. NO.
4–6

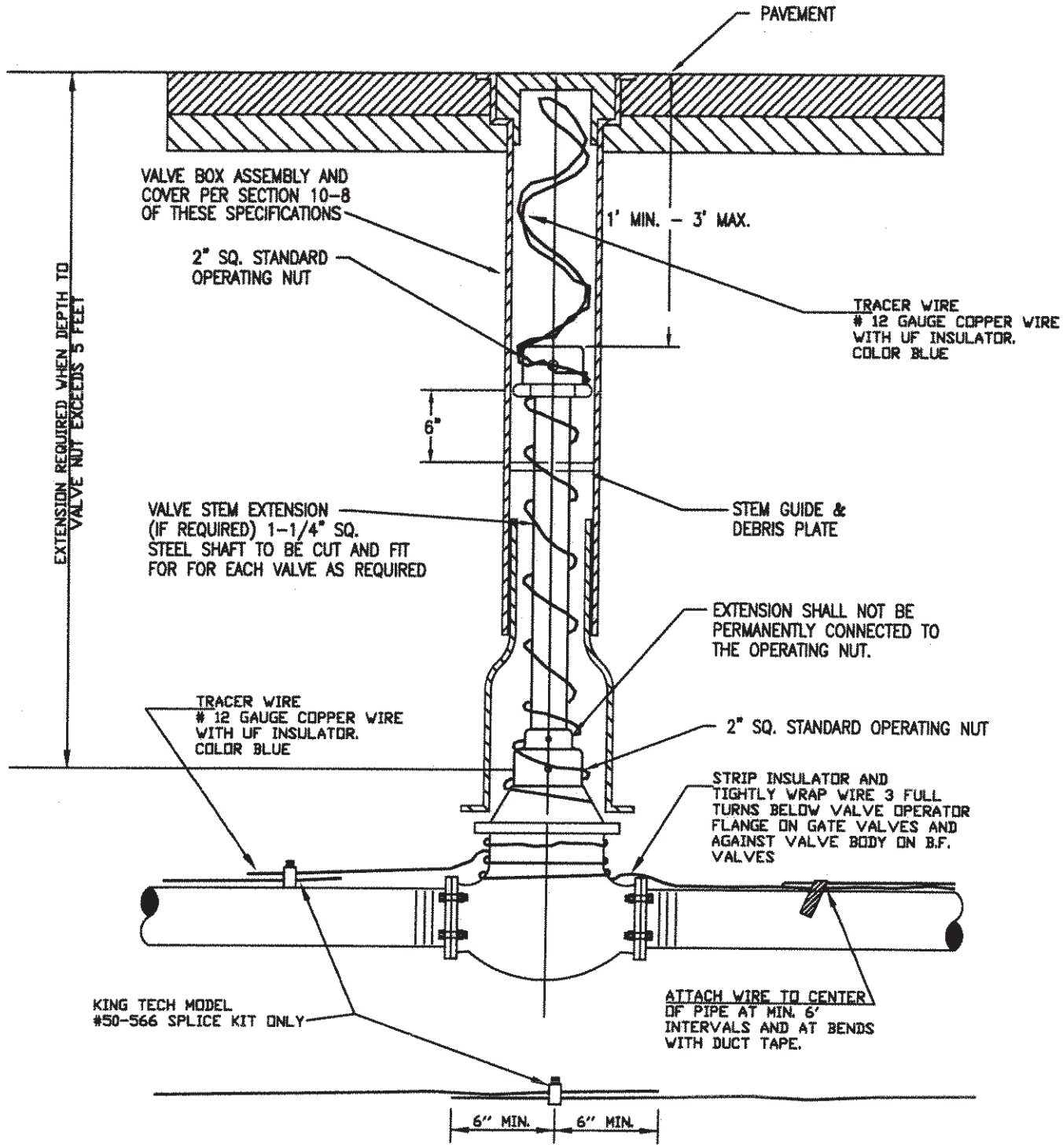


1. IMPORTED BEDDING & TRENCH BACKFILL MATERIAL ABOVE AND BELOW ALL UNDERGROUND SHALL BE 1 1/4" MINUS IN ACCORDANCE WITH THE CITY OF SUNNYSIDE STANDARD SPECIFICATIONS AND ENGINEER.
2. TRENCH WIDTH SHALL BE 40 INCHES MAXIMUM FOR PIPE 15 INCHES I.D. OR SMALLER AND 1 1/2 INCH I.D. PLUS 18 INCHES FOR PIPE 18 INCHES OR LARGER.
3. HAND TAMP UNDER PIPE HAUNCHES.
4. PROVIDE UNIFORM SUPPORT UNDER PIPE BARREL.
5. COMPACT TRENCH BACKFILL MATERIAL TO 95% MAXIMUM DENSITY EXCEPT DIRECTLY OVER THE PIPE, WHERE BEDDING MATERIAL SHALL BE HAND TAMPED ONLY.
6. PAVEMENT WIDTH FOR EXCAVATION AND PAVEMENT REPAIR.... SEE CITY OF SUNNYSIDE STANDARD DRAWING 2-6.

TRENCH BACKFILL & PIPE BEDDING FOR UNDERGROUND UTILITIES

CITY OF SUNNYSIDE
PUBLIC WORKS DEPARTMENT

DATE	5/05	DWG. NO.
DWN	SRF	4-7
REV		
CHK	JLB	
SCALE	NTS	

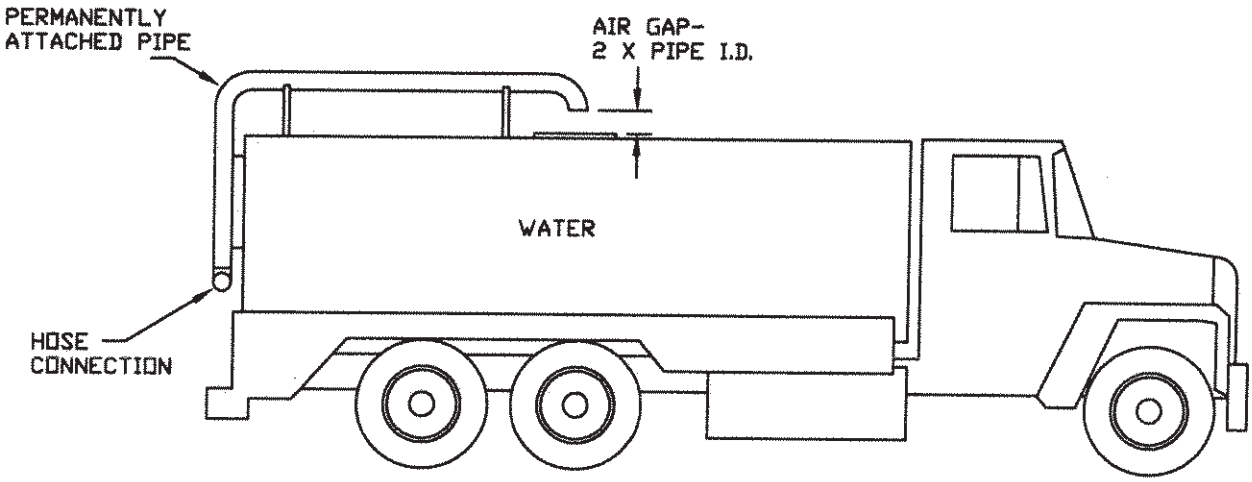


TRACER WIRE INSTALLATION
AND VALVE STEM EXTENSION DETAIL

CITY OF SUNNYSIDE
PUBLIC WORKS DEPARTMENT

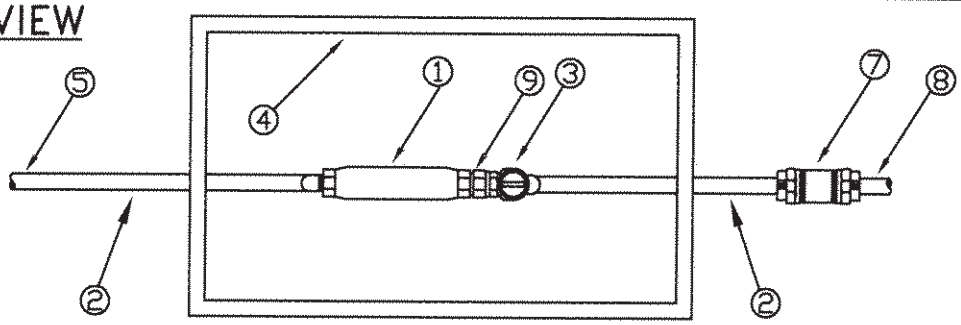
DATE	5/05	DWG. NO.
DWN	SRF	
REV		
CHK	JLB	4-9
SCALE	NTS	

WATER TRUCK WITH AIR GAP



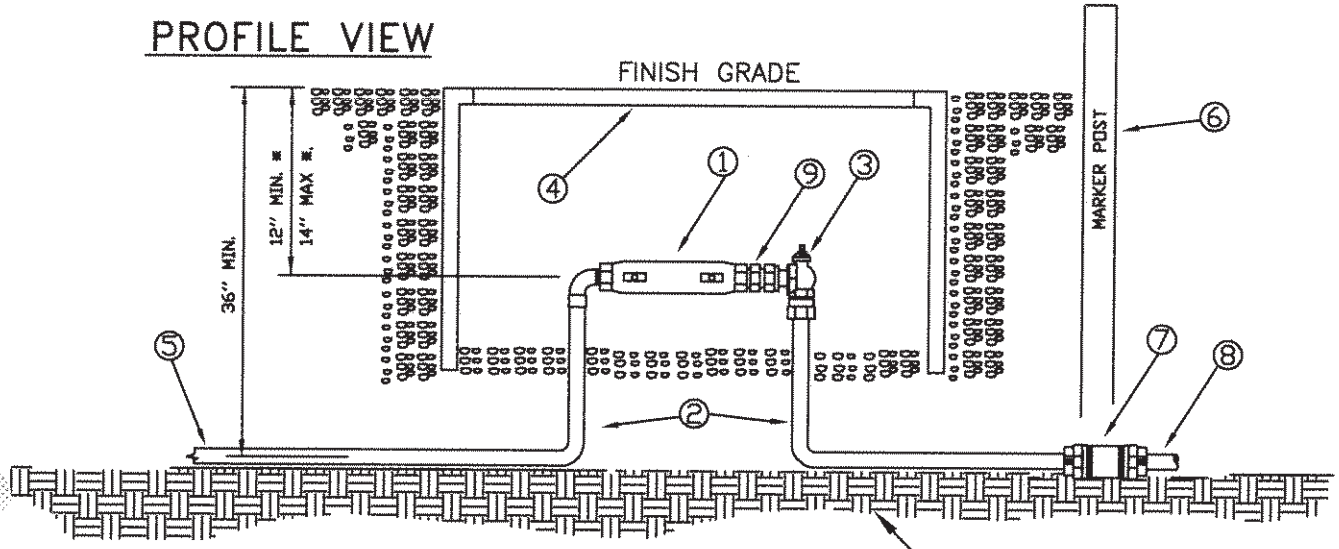
CITY OF SUNNYSIDE PUBLIC WORKS DEPARTMENT	DATE 5/05 DWN SRF REV CHK JLB SCALE NTS	DWG. NO. 4-10

PLAN VIEW



BACKFLOW REQUIRED ON ALL SERVICES

PROFILE VIEW



* BACKFLOW MUST BE WITHIN 12"-14" OF FINISHED GRADE. IT IS THE CONTRACTORS RESPONSIBLITY TO ESTABLISH FINISHED GRADE. IF DEVICE IS MORE THAN 14" BELOW GRADE, CITY WILL REQUIRE THE SERVICE TO BE A STACKED BOX. 1 1/2" & 2" SERVICES MUST BE A STACKED BOX.

DO NOT OVER EXCAVATE TRENCH. PLACE PIPE BEDDING A MINUMUM OF 4" ABOVE PIPE ZONE WITH 5/8" UNCOMPACTED CRUSHED MATERIAL.

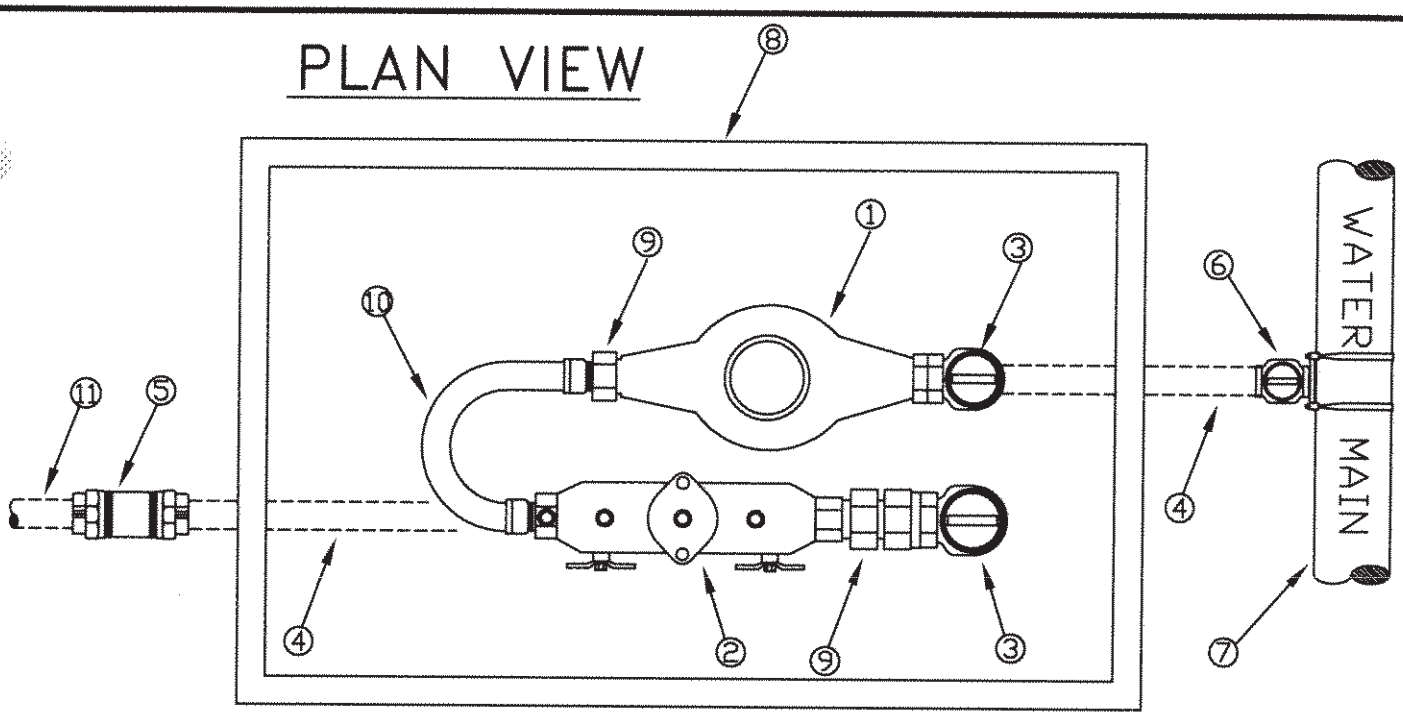
IN-LINE DCVA INSTALLATION

DOUBLE CHECK VALVE ASSEMBLY
FOR ASSEMBLIES 3/4" TO 2"

1. CITY OF SUNNYSIDE APPROVED BACKFLOWS:
   A) WATTS 007 QT
   B) WILKINS 950 XLT
2. TYPE "K" COPPER TUBING OR PEX-A TUBING (CTS)
3. ANGLE BALL VALVE 90° SHUT OFF(MUELLER)
4. 3/4"-1" SERVICES-MID-STATES BCF-173018B
   1 1/2"-2" SERVICES-(2)CARSON SUPER JUMBO 1730-18
   TRAFFIC AREAS- BROOKS- MODEL 66(ROAD RATED)
5. COPPER PIPE TO WATER METER
6. CONTRACTOR TO INSTALL GROUND CONTACT STEEL MARKER POST SET TO 3' ABOVE FINISH GRADE, PAINTED BLUE.
7. COMPRESSION COUPLING
8. OWNERS SERVICE LINE BY LICENSED PLUMBING CONTRACTOR
9. SPUD ADAPTER

CITY OF SUNNYSIDE PUBLIC WORKS DEPARTMENT	DATE 5/05 DWN SRF REV CHK JLB SCALE NTS	DWG. NO. 4-13

PLAN VIEW



BACKFLOW REQUIRED ON ALL SERVICES

NOTES:

1. WATER METER MUST BE WITHIN 12"-14" OF FINISHED GRADE. IT IS THE CONTRACTORS RESPONSIBILITY TO OBTAIN FINISHED GRADE FROM THE CONSTRUCTION PLANS. IF METER IS MORE THAN 14" FROM GRADE, THE CITY MAY REQUIRE THE METER BOX TO BE STACKED TO ACHIEVE CLEARENCE FROM THE BOTTOM OF THE METER TO DIRT GRADE INSIDE THE BOX..

2. NEW SERVICE LINES WILL BE 1" OR 2" ONLY. IF A 1 1/2" METER IS NEEDED, CONTRACTOR CAN REDUCE AT THE BALL VALVE BEFORE THE METER.

METER & BACKFLOW MATERIALS

① WATER METER- PURCHASED FROM THE CITY

② CITY OF SUNNYSIDE APPROVED BACKFLOWS:
A) WATTS 007 QT
B) WILKINS 950 XLT

③ ANGLE BALL VALVE 90° SHUT OFF(MUELLER)

④ TYPE "K" COPPER TUBING OR, PEX-A TUBING (CTS)

⑤ COMPRESSION COUPLING TO OWNERS SERVICE LINE BY LICENSED PLUMBING CONTRACTOR

⑥ ROMAC 202N SADDLE & CORP. BALL VALVE W/ C-C PIPE THREAD X COMPRESSION CONNECTION AT HORIZONTAL FOR ALL 3/4" TO 2" PIPE TYPES

⑦ WATER MAIN

⑧ MID-STATES BCF-173018B- (1")
(2)CARSON SUPER JUMBO- (1 1/2"-2")
BROOKS MODEL 66- TRAFFIC AREAS

⑨ ADAPTER

⑩ U-BEND

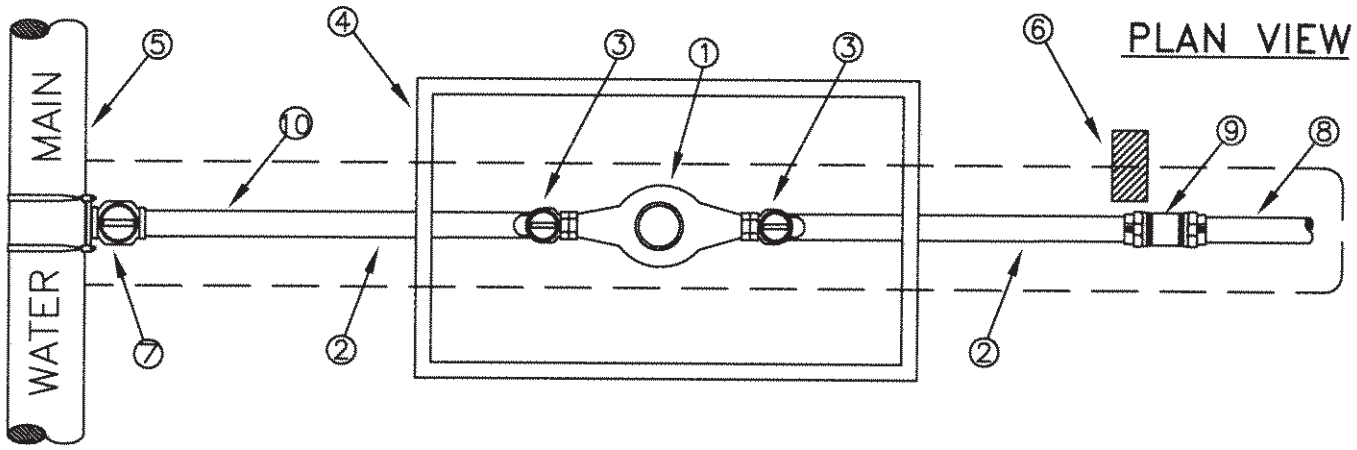
⑪ WHEN USING PEX-A TUBING, A 12-GAUGE TRACER WIRE MUST BE TAPED TO TUBING.

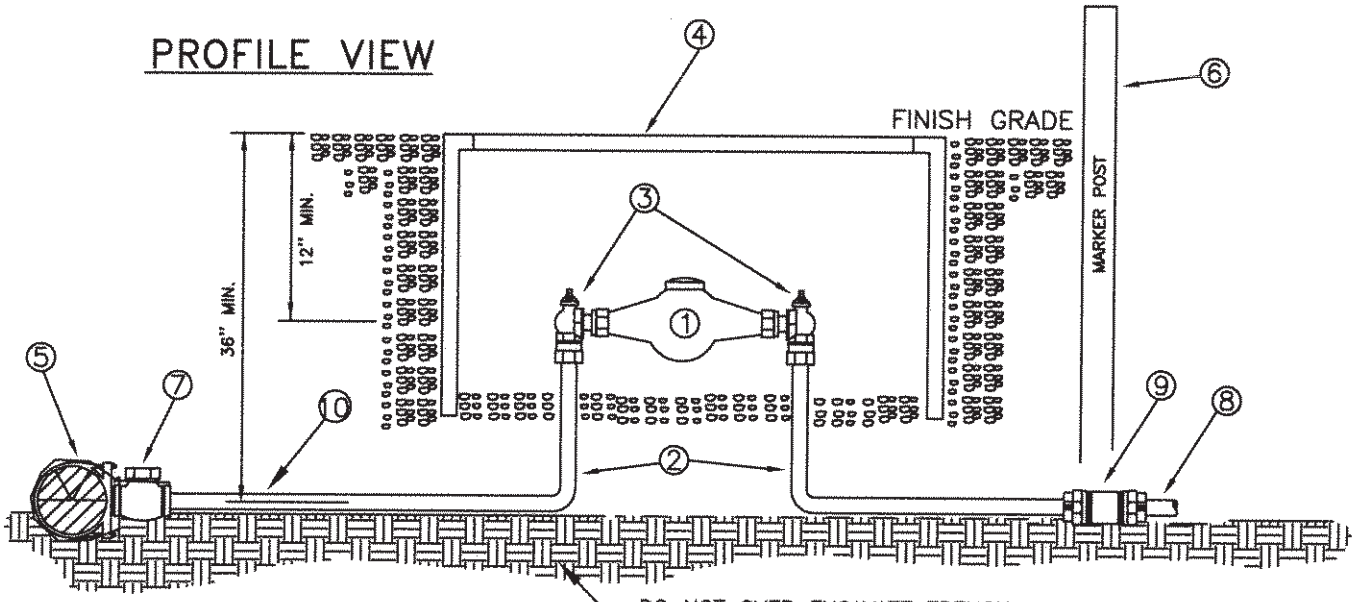
WATER METER & DCVA INSTALLATION

REQUIRED FOR 1" THRU 2" METER INSTALLATIONS

CITY OF SUNNYSIDE
PUBLIC WORKS DEPARTMENT

DATE	5/05	DWG. NO.
DWN	SRF	
REV		
CHK	JLB	4—14
SCALE	NTS	





DO NOT OVER EXCAVATE TRENCH.
PLACE PIPE BEDDING A MINIMUM OF 4" ABOVE PIPE ZONE WITH 5/8" CRUSHED UNCOMPACTED MATERIAL.

METER ASSEMBLY MATERIALS

1. WATER METER– PURCHASE FROM CITY
2. TYPE "K" COPPER TUBING OR PEX–A TUBING(CTS)
3. ANGLE BALL VALVE 90° SHUT OFF(MUELLER)
4. 3/4" & 1" SERVICES– MID–STATES BCF–173018B
   1 1/2" & 2" SERVICES– CARSON SUPER JUMBO 1730–18
   TRAFFIC AREAS– BROOKS MODEL 66(ROAD RATED)
5. MAINLINE
6. CONTRACTOR TO INSTALL GROUND CONTACT STEEL MARKER POST SET 3' ABOVE FINISH GRADE, PAINTED BLUE.
7. ROMAC 202N SADDLE & CORP. BALL VALVE W/ C–C PIPE THREAD X COMPRESSION CONNECTION AT HORIZONTAL FOR ALL 3/4" TO 2" PIPE TYPES
8. OWNERS SERVICE LINE BY LICENSED PLUMBING CONTRACTOR
9. COMPRESSION COUPLING
10. WHEN PEX–A TUBING IS USED, 12 GAUGE TRACER WIRE IS REQUIRED. PLASTIC COATED & TAPED TO THE PEX TUBING.

BACKFLOW DEVICE REQUIRED ON ALL WATER METERS

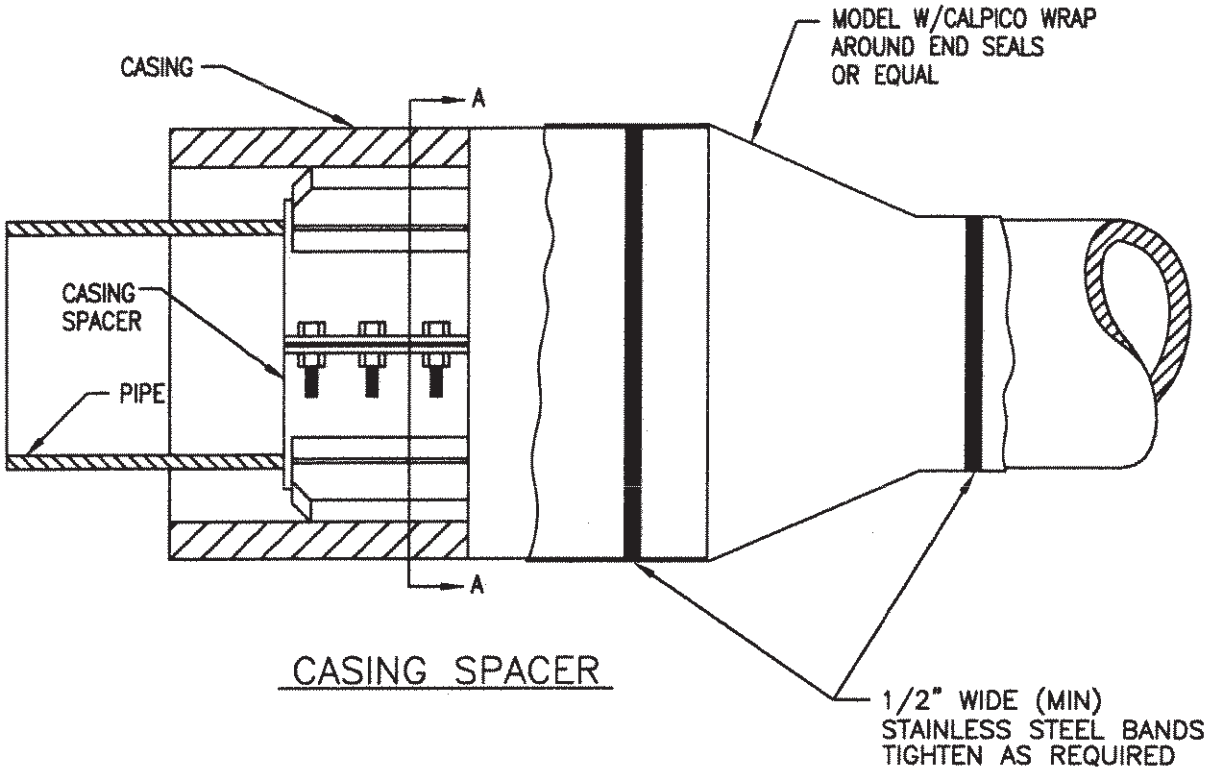
RESIDENTIAL WATER SERVICE INSTALLATION

REQUIRED FOR 3/4" THRU 2" METER INSTALLATIONS

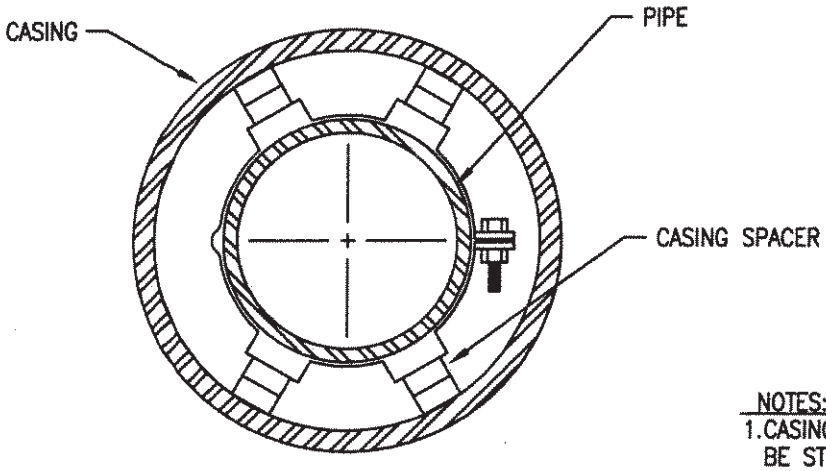
CITY OF SUNNYSIDE
PUBLIC WORKS DEPARTMENT

DATE	5/05
DWN	SRF
REV	
CHK	JLB
SCALE	NTS

DWG. NO. 4–30



CASING SPACER



SECTION A–A

NOTES:
1. CASING SPACERS SHALL BE STEEL OR POLYETHYLENE.
2. MINIMUM NUMBER OF SPACERS PER MANUFACTURERS SPECIFICATIONS

WATERMAIN CASING DETAIL

CITY OF SUNNYSIDE PUBLIC WORKS DEPARTMENT	DATE 5/05 DWN SRF REV CHK JLB SCALE NTS	DWG. NO.	4–33

Appendix 11 Water Quality Documents

A. Hydrant Meter Rental Form
B. Public Works Permit Application
C. General Complaint Form
D. Water Quality Complaint Form
E. SEPA Environmental Checklist and Determination of Non-Significance
F. Water Facilities Inventory

City of Sunnyside
Office (509) 837-5206
Fax (509) 837-3268

City of SUNNYSIDE WASHINGTON

Public Works Department
818 E. Edison Avenue
Sunnyside, WA 98944

Hydrant Meter Rental Instructions

<u>*Please allow a minimum of 48 hour notice for the Water Division to setup the hydrant meter.</u>

1. The meter assembly shall be used per instructions to measure <u>all</u> water used.
2. Water will be billed at the current City water usage rate. All water used and daily rental fees will be billed to the user upon return of the meter assembly. If use exceeds thirty (30) days, billing will be monthly. Deposit will be retained until all bills are paid in full.
3. Only City of Sunnyside personnel are authorized to make any adjustments, repairs or modifications to the meter assembly. If any of these are needed, please contact the Public Works Office.
4. If the assembly is lost damages or altered by the user, the user shall be responsible for any necessary repair or replacement costs which will be deducted from the deposit.
5. The user shall obtain permission from the Public Works Department if the need to use a different hydrant than the one listed becomes necessary. The meter shall not be relocated to another hydrant by anyone other the City personnel.
6. The use shall promptly notify the Public Works Department of any defects observed in the hydrant they are using.

<u>NOTE:</u>

To view the Fire Hydrant Meter City ordinance, visit the City of Sunnyside website at:

Search Hydrant Meters – Rental Agreement – Fees

City of Sunnyside
Office (509) 837-5206
Fax (509) 837-3268

City of SUNNYSIDE WASHINGTON

Public Works Department
818 E. Edison Avenue
Sunnyside, WA 98944

Hydrant Meter Rental Agreement

Company Name _____ Contact Name _____

Billing Address _____ City _____ Zip _____

Phone _____ Cell _____

Beginning Date _____ Estimated Return Date _____

Hydrant Location _____ Hydrant # _____

Desired Size ☐ ¾" ☐ 3" Purpose _____

Authorized Signature _____ Date _____
I hereby agree to the conditions set forth in this agreement.

Forward to Water Division on _____ Initials _____

Serial # _____ Size ☐ ¾" ☐ 3" Type _____ Model _____

Backflow Preventer _____ Misc. _____

Set Up By _____ Date and Time _____

Meter Reading (out) _____

Picked Up By _____ Date and Time _____

Meter Reading (in) _____ Total Consumption _____
(R 410.343.40.19

Fee Schedule (R 410.369.90.00)		Deposits (G 410.245.10)	
Set Up Fee	$100.00	¾" Meter Deposit	$250.00
¾" Rental Fee	$1.50/day	3" Meter Deposit	$800.00
3" Rental Fee	$2.50/day	Backflow Device	$150.00

Fee Amount Paid _____ Deposit Amount Paid _____ Total Paid _____

Date Paid _____ Check # _____ Cash _____ Initials _____
Please attach a copy of receipt.

Water Consumption _____ + Tax _____ + Rental Fee _____ = Bill Total _____

Deposit Release Date _____ Initials _____

Notes: _____

City of Sunnyside
(509) 837-5206 Office
(509) 837-3268 Fax

City of SUNNYSIDE WASHINGTON

Public Works Department
818 E. Edison Avenue
Sunnyside, WA 98944

PUBLIC WORKS PERMIT APPLICATION

FOR INSPECTIONS PLEASE CALL: 837-5206

OFFICIAL USE ONLY	
Application #	

Applicant:
Job Address:
Lot No. Parcel:
Owner: Mailing Address: Phone:
Architect/Engineer:
Contractor: Mailing Address: Phone:
Describe Work:

Footage Curb & Gutter _____ Footage Sidewalk _____
Plans showing the extent of the proposed work attached hereto:
Yes: _____ No: _____

Dimensions of Excavation:
_____ Ft. width x _____ Ft. length = _____
sq. ft. @ 1.50 = $ _____ **Amt. of Deposit**

Cash Deposit _____ Surety Bond _____

PERMIT FEES	AMOUNT
Curb & Gutter	
Sidewalk	
Street Excavation	
Sewer Equity Fee	
Water Equity Fee	
Water Meter	
Water Install. Fee	
Curb Cut	
Other	
TOTAL FEE:	

INSPECTIONS:		*DATE:*	*APPROVED BY:*
Rough			
Tests			
Final			

CALL 48 HOURS BEFORE YOU DIG **1-800-424-5555**

NOTICE TO APPLICANT:

This permit becomes null and void if the work or construction authorized is not commenced within 180 days or if work or construction is suspended or abandoned for 180 days at any time after work is commenced or if work is not completed within one (1) year from date of issue.

All work shall be done in accordance with the approved plans, except where such approval is in conflict with other codes. The approved plans shall not be changed or modified without the prior approval of the City.

It is the responsibility of the permittee to obtain the required inspections. Failure to notify this department that the work is ready for inspection may necessitate the removal of some of the construction materials at the owner's expense in order to perform such inspection.

I hereby certify that I have read this application and know the same to be true and correct. All provisions of laws and ordinances governing this type of work will be complied with whether specified herein or not. The granting of a permit does not presume to give authority to violate or cancel the provision of any other State or local law regulating construction or the performance of construction.

Signature of OWNER/CONTRACTOR/OR AUTHORIZED AGENT _____ DATE _____

PERMIT IS APPROVED FOR WORK DESCRIBED ABOVE IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

BY _____ DATE _____

General Water Complaint Form

					FINANCE DEPT:	WATER DEPT:
Service Location	Account Number	Register Number	Meter No.	Last Read	Problem	Results

WATER QUALITY COMPLAINT FORM

DATE RECEIVED _____

TIME RECEIVED _____

CALL TAKEN BY _____

ADDRESS _____

CONTACT INFO _____

_____

DESCRIPTION OF COMPLAINT		
TASTE	_____	AESTHETIC
ODOR	_____	
AIR	_____	
DIRT	_____	
DISCOLORED		
NO WATER	_____	OTHER
LOW HIGH PSI	_____	
LEAKS	_____	
OTHER	_____	
HEALTH RELATED		

WHEN DID THIS PROBLEM OCCUR? _____

HAVE THERE BEEN ANY PROBLEMS IN THE PAST? YES NO

COMMENTS

_____

_____

_____

WATER DEPARTMENT OFFICIAL USE ONLY

DATE RECEIVED _____

TIME RECEIVED _____

CI2 RESIDUAL _____

TYPE OF PROBLEM	
OWNER	_____
FIRE DEPT. USE	_____
CONSTRUCTION	_____
FLUSHING	_____
LOW HIGH PSI	_____
MAIN BREAK	_____
WATER OUTAGE	

WAS THERE A BACKFLOW INCIDENT? _____

WAS THE PWS SYSTEM CONTAMINATED? _____

WAS THE CUSTOMERS SYSTEM CONTAMINATED? _____

COMMENTS

_____

_____

_____

OPERATOR:

K. WEETS R. MORITZ J. ALVAREZ G. BARNETT

DATE/TIME: _____

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

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.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:
   City of Sunnyside Water System Plan

2. Name of applicant:
   City of Sunnyside, WA

3. Address and phone number of applicant and contact person:
   City of Sunnyside Contact Person:
   818 E Edison Ave. Shane Fisher, Public Works Superintendent
   Sunnyside, WA 98944 (509) 836-5206

4. Date checklist prepared: November 15, 2016

5. Agency requesting checklist: Washington State Department of Health

6. Proposed timing or schedule (including phasing, if applicable):
   Plan includes a schedule of activities for 2015 through 2021. plan is scheduled to be updated every six years.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Yes recommendations in the plan include future improvements and additions to the transmission and distribution system, new storage reservoirs, improvements to wells, upgrades to booster pumps, and other miscellaneous improvements. Plan is scheduled to be updated every six years.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

The following plans have been produced for the area served by the City of Sunnyside: City of Sunnyside Comprehensive Plan.

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.

Any further zoning and planning changes affecting the existing service area will affect this document.

10. List any government approvals or permits that will be needed for your proposal, if known.

Review and approval is required by the Sunnyside City Council and the Washington State Department of Health.

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.)

Water System Plan for the City of Sunnyside, which includes approximately 4000 connections served from several groundwater sources. The plan was developed to meet the requirements of WAC 246-290 and provide comprehensive planning to meet future water supply requirements for the service area served by the City of Sunnyside.

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.

Sunnyside is located in Yakima County, Washington. The City of Sunnyside's water service area is shown in Exhibit 1-1 of the Water System Plan.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other . . . . . .

Areas include varied terrain

b. What is the steepest slope on the site (approximate percent slope)?

Unknown, slope of area varies

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 prime farmland.

Water System Plan includes a large area, which includes all of the listed soil types.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Soils in the vicinity of specific construction projects will be evaluated during design of each project.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Requirements for filling and grading will be evaluated during the design of specific construction projects.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Proper construction practices should minimize erosion.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Cannot be evaluated until new facilities are designed.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Proper construction practices will minimize runoff from the site and rstore disturbed areas as quickly as possible to prevent erosion.

a. **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Typical emissions from construction and construction equipment during construction of new facilities anticipated.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None Known

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Proper mufflers and air emissions control equipment devices will be maintained on equipment. Disturbed areas will be wetted to control dust.

3. **Water**

a. Surface:

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. Sulfur creek wasteway, which drains into the Yakima River, Various irrigation return drains managed, maintained, and operated by the Sunnyside Valley Irrigation District.

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.

Future projects may include work near the above stated water body. Construction descriptions or plans are not available at this time.

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.

Information is not available at this time.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

Information is not available at this time

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.

None are anticipated

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No discharges to the groundwater are anticipated. In addition, some dewatering may be necessary during construction. Construction dewatering will be addressed during design of each specific project.

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.

No discharges to the groundwater are anticipated

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.

Storm water will be diverted around construction sites. Strom water drainage will be considered during design of new facilities.

2) Could waste materials enter ground or surface waters? If so, generally describe.

Proper construction practices will prevent waste materials from entering the ground or surface waters.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Anticipated measures include diversion of storm water around construction sites, proper dewatering practices, and consideration of storm water drainage during design of new facilities. Wellhead protection is addressed in this Plan as well.

4. **Plants**

a. Check or circle types 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

X_____ 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?

Specific types of vegetation removed during future work is unknown

c. List threatened or endangered species known to be on or near the site.

None Known

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Landscaping and replacement of vegetation will be considered during the design of future projects.

5. **Animals**

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

A survey of birds and animals in the service area was not performed. Several of the birds and animals listed may exist in the service area.

birds: hawk, heron, eagle, songbirds, 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.

Not researched

c. Is the site part of a migration route? If so, explain.

Not researched

d. Proposed measures to preserve or enhance wildlife, if any:

Exact location of future work and wildlife mitigation measures will be addressed during design.

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.

Electricity will be used for lighting, heating, pumping, and telemetry. Gasoline and diesel fuel will be used for construction equipment and generators.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No effect to adjacent properties expected at this point.

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:

Energy efficient pumps and equipment should be used wherever possible

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.

Proper safety precautions will be taken when buried utilities are encountered during trenching operations. No other hazards are known.

1) Describe special emergency services that might be required.

None are anticipated

2) Proposed measures to reduce or control environmental health hazards, if any:

Source and wellhead protection measures are being implemented to protect water sources. No other measures are anticipated.

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.

Short-term noise during construction from construction activities and long-term background noise from pumps at wells and booster stations.

3) Proposed measures to reduce or control noise impacts, if any:

Well pumps will be installed inside of a pump house. Booster pumps will be installed inside of a pump house or in a vault. Proper mufflers will be used on all construction equipment.

8. **Land and shoreline use**

a. What is the current use of the site and adjacent properties?

Plan affects many areas with various uses ranging from undeveloped to residential commercial and industrial

b. Has the site been used for agriculture? If so, describe.

More than likely at some point

c. Describe any structures on the site.

The service area is large and contains many residential recreational, commercial, and industrial structures.

d. Will any structures be demolished? If so, what?

No structures are planned for demolition at this time.

e. What is the current zoning classification of the site?

Residential, commercial, and industrial zoning exists throughout the planning area

f. What is the current comprehensive plan designation of the site?

Service area includes several comprehensive plan designations, similar to the above-mentioned zoning classifications.

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 an "environmentally sensitive" area? If so, specify.

None Known

i. Approximately how many people would reside or work in the completed project?

Estimated population of the service area in 2012 is approximately 16,010

j. Approximately how many people would the completed project displace?

No displacement anticipated

k. Proposed measures to avoid or reduce displacement impacts, if any:

Does not apply

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

Water demands in this plan were calculated using existing and projected populations. Land Uses in this plan are consistent with the growth management act, the City of Sunnyside Comprehensive plan and the existing land use within the water system's service area.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Does not Apply

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Does not Apply

c. Proposed measures to reduce or control housing impacts, if any:

Does not Apply

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?

Future structure desing will be selected during the design of that structure

b. What views in the immediate vicinity would be altered or obstructed?

No views are expected to be effected

c. Proposed measures to reduce or control aesthetic impacts, if any:

Does not Apply

11. **Light and glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Unknown at this time

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Light or glare that is a safety hazard or interferes with views is not anticipated.

c. What existing off-site sources of light or glare may affect your proposal?

Does not Apply

d. Proposed measures to reduce or control light and glare impacts, if any:

Impacts form light and glare will be considered during design of future facilities

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

Many parks and recreation facilities exist in the service area

b. Would the proposed project displace any existing recreational uses? If so, describe.

Unknown at this time

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Mitigation of impacts on recreation will be considered during design of future facilities

13. **Historic and cultural preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

Some sites selected for future projects may be near historic or cultural sites

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

Unknown at this time

c. Proposed measures to reduce or control impacts, if any:

Mitigation of impacts on historic and cultural sites will be considered during design of future facilities

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

The city transportation system consists of a large network of streets and highways

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

No closest transit is in Yakima

c. How many parking spaces would the completed project have? How many would the project eliminate?

Does not Apply

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

Private access to reservoir sites may be required. New or replacement water lines in existing streets will require repair of the streets.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

Unknown at this time

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

A significant increase in vehicular trips is not anticipated. Visits to well sites, pump stations, and reservoir sites for inspection and maintenance will be necessary Vehicular traffic will increase temporarily during construction whne construction workers drive to and from the construction site.

g. Proposed measures to reduce or control transportation impacts, if any:

None are anticipated

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.

Water services will be provided as dictated by need. Water service by itself will not cause the need for public services to increase

b. Proposed measures to reduce or control direct impacts on public services, if any.

Growth within the service area will determine by zoning, land use, and needs or restrictions. Water services will be provided based on need. Recommendations in the plan are made to improve water service and fire protection in the service area.

16. **Utilities**

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

Depends on location of future facilities

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.

Plan describes water supply, storage, transmission, and distribution facilities needed to serve exiosting and projected service areas. The city provides water service and sewer. Construction activities will depend on the facility and site.

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: .....

Date Submitted: .....11/21/16.....

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not 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?

Water service alone does not cause any of the mentioned situations. Some minor temporary impacts may occur during construction.

Proposed measures to avoid or reduce such increases are:

Proper construction practices will avoid or reduce temporary impacts.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Recommendations proposed in this plan are not anticipated to affect plants, animals, fish or marine life. Measures for protection or conservation should be considered during design.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

Design decisions and construction procedures should follow all proper procedures and practices to minimize impacts on plants animals and fish

3. How would the proposal be likely to deplete energy or natural resources?

Energy will be used to construct new facilities and operate equipment after facilities are constructed. Proposed measures to protect and conserve energy and natural resources are: Appropriate reviews approvals and permits will be obtained before planned construction projects. The plan includes a water conservation plan identifying activities to be performed by the city. Energy efficient equipment should be considered whenever possible.

There will be an increase in groundwater withdrawal corresponding to growth projections outlined in this plan.

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?

No Effects anticipated

Proposed measures to protect such resources or to avoid or reduce impacts are:

All regulations concerning sensitive or protected areas will be followed.

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?

The plan is compatible with all existing and proposed land use plans.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Does not apply

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

The plan proposes to respond to a projected increase in needs for water service resulting from projected population growth in the service area. Increase in demands on public services and utilities resulting from growth will be determined by zoning, land use and restriction on needs. Water service in itself will not increase the demand for public services.

Proposed measures to reduce or respond to such demand(s) are:

Source enhancement, storage construction, and transmission and distribution improvements

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The plan is consistent with good management practices for water resources and does not conflict with current laws and regulations. The plan conforms to all laws and requirements for the protection of the environment.

Gmail

Dan Sander <dsander138@gmail.com>

Sunnyside water system Plan SEPA

1 message

Jamey Ayling <jayling@sunnyside-wa.gov> Wed, Feb 1, 2017 at 12:14 PM
To: "dsander138@gmail.com" <dsander138@gmail.com>
Cc: Kirk Weets <kweets@sunnyside-wa.gov>

Dan, Kirk forwarded me your email response and for the record we didn't receive any comments on the SEPA that we circulated. It is also past the appeal period in which we didn't receive an appeal either. Any questions let me know thanks Jamey

DETERMINATION OF NON-SIGNIFICANCE

1. **Description of Proposal**: The proposal is a non-project action to adopt a comprehensive water system plan to future improvements and additions to the transmission and distribution system, new storage reservoirs, improvements to wells, upgrades to booster pumps, and other miscellaneous improvements. Plan is scheduled to be updated every six years.

2. **Proponent:** City of Sunnyside
   818 E Edison
   Sunnyside, WA 98944

3. **Location of Proposal**: The proposal is a non-project action that encompasses a water system plan for the entire city.

4. **Lead Agency:** City of Sunnyside Planning Department

5. **File Number:** SEP16-04

   The City of Sunnyside Planning Department, as SEPA lead agency for the proposal, has determined that this proposal will not have a probable significant adverse impact on the environment. The Determination of Non-Significance (DNS) was issued on January 12, 2017. You or any aggrieved parties can appeal the DNS by filing a written appeal on forms provided by the Planning Department by 5:00 p.m. on January 26, 2017.

6. **Responsible Official:** Jamey Ayling

7. **Position/Title:** Planning Supervisor

8. **Address:** 818 E Edison
   Sunnyside, WA 98944

9. **Date:** January 12, 2017

10. **Signature:**

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: 03/28/2016
Printed: 4/12/2017
WFI Printed For: On-Demand
Submission Reason: Pop/Connect 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
85400 3	SUNNYSIDE, CITY OF	YAKIMA	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS

KIRK D. WEETS [SUPERVISOR]
CITY OF SUNNYSIDE
818 E EDISON AVE
SUNNYSIDE, WA 98944

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN
ADDRESS
CITY STATE ZIP

7. OWNER NAME & MAILING ADDRESS **8. OWNER NUMBER: 005792**

SUNNYSIDE, CITY OF
SHANE FISHER DIRECTOR
818 E EDISON
SUNNYSIDE, WA 98944

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN
ADDRESS
CITY STATE ZIP

9. 24 HOUR PRIMARY CONTACT INFORMATION		10. OWNER CONTACT INFORMATION	
Primary Contact Daytime Phone:	(509) 836-6365	Owner Daytime Phone:	(509) 837-5399
Primary Contact Mobile/Cell Phone:	(509) 305-0583	Owner Mobile/Cell Phone:	(509) 430-1321
Primary Contact Evening Phone:	(xxx)-xxx-xxxx	Owner Evening Phone:	(xxx)-xxx-xxxx
Fax:	E-mail: xxxxxxxxxxxxxxxxxxxx	Fax: (509) 837-3268	E-mail: xxxxxxxxxxxxxxxxxxxx

WAC 246-290-420(9) requires that water systems provide 24-hour contact information for emergencies.

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
- [ ] 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
85400 3	SUNNYSIDE, CITY OF	YAKIMA	A	Comm

15	16 SOURCE NAME	17 INTERTIE	18 SOURCE CATEGORY										19 USE			20	21 TREATMENT						22 DEPTH	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
S06	Well #6 - AFL811		X										X			Y		X					760	650	NW SW	30	10N	22E
S07	Well #7		X										X			Y		X					1057	1100	SW NW	36	10N	22E
S08	Well #8 - AFL812		X										X			Y		X					440	750	NE NE	26	10N	22E
S09	Well #9 - AFK905		X										X			Y		X					919	1500	SW NE	29	10N	23E
S10	Well #10 - AFL815		X												X	Y		X					1701	1000	SE NW	25	10N	22E
S11	Well #11 - AKN517		X										X			Y		X					377	500	SE NW	25	10N	22E
S12	Well #12 - ALM337				X								X			Y		X					383	350	NW NE	27	10N	22E
S13	Well #13 - BAL875				X								X			Y		X					351	650	NW NE	27	10N	22E
S14	Wellfield / S12, S13			X									X			Y	X						351	1000	NE NW	27	10N	22E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
85400 3	SUNNYSIDE, 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?)		4475	Unspecified
A. Full Time Single Family Residences (Occupied 180 days or more per year)	2800	2846	
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	~~152~~	154	
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	~~1675~~	1677	
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.	~~594~~	594	
28. TOTAL SERVICE CONNECTIONS	536	5069	

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? ~~16280~~ 16,540

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?												
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
* Requirement is exception from WAC 246-290	15	15	15	15	15	15	15	15	15	15	15	15

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: [signature] DATE: 5-9-17

PRINT NAME: Kirk Watts TITLE: Water Supervisor

WS ID	WS Name
85400	SUNNYSIDE, CITY OF

Total WFI Printed: 1