

# **CHAPTER 6**

## ***OPERATION AND MAINTENANCE PROGRAM***

## **6.1 WATER SYSTEM MANAGEMENT AND PERSONNEL**

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

### **Water System Management Structure**

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

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

**City Supervisor:** Reviews all water system policy changes and expenditures, approves all personnel hiring, and advises Public Works Director on general water department operation.

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

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

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

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

**Public Works Foreman:** Responsible for managing and assisting in the operation, maintenance, and preventive maintenance of water system facilities; providing supportive recommendations for policies, procedures, and improvements to the department, budget preparation, and future facilities; and training subordinate employees in aspects and functions of field operations. Must be capable of operating or learning to operate every tool, piece of machinery, and equipment within the Utility Department and must have a working knowledge of all types of materials, i.e., pipes, valves, and pumps. Must have a High School Diploma, and a minimum of five years experience in the public works field with three years in a supervisory position. Must maintain a valid Class II or better Washington State Water Distribution Manger Certificate.

**Public Works Lead:** Responsible for supervising subordinate field personnel; assisting in the operation, maintenance, and preventive maintenance of water system facilities; providing supportive recommendations for policies, procedures, and improvements to the department, personnel issues, and future facilities; and training subordinate employees in aspects and functions of field operations. Must be capable of operating or learning to operate every tool, piece of machinery, and equipment within the Utility Department and must have a working knowledge of all types of materials, i.e., pipes, valves, and pumps. Must have a High School Diploma, a minimum of five years experience in the public works field with three years in a supervisory position. Must maintain a valid Class II, or better, Washington State Water Distribution Manager Certificate.

**Utility Worker III:** Responsible for maintaining a complete knowledge of all aspects of the operation, maintenance, preventive maintenance, policies, procedures, and safety aspects of water system facilities. Must be capable of performing all duties required without direction or supervision and shall have the ability to supervise subordinate staff effectively. Must maintain a valid Washington

State Water Distribution Specialist Class II Certificate or better. Minimum experience shall be five years in the public works field with two years in a supervisory role.

Utility Worker II: Responsible for having knowledge of all aspects of the general operations, maintenance, and preventive maintenance, policies, and procedures with safety aspects of the water system facilities. Must be capable of performing duties required with a minimum of supervision or direction. Must maintain a valid Washington State Water Distribution Specialist Class I Certificate, or better. Minimum experience shall be three years in the public works field.

Utility Worker I: Responsible for having general knowledge of water system operations and maintenance activities. Must be capable of assisting with duties under supervision or direction. Must maintain a valid Washington State Water Operator-In-Training Certificate.

## **6.2 OPERATOR CERTIFICATION**

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

Included within Figure 6-1 are the water certifications of the various public works employees responsible for the operation and maintenance of Selah's water system. Selah currently has two utility employees with Water Distribution Manager certifications at the Class 2 level, two utility employees with Cross-Connection Control Specialist certifications, and two utility employees with Backflow Assembly Tester certifications. Figure 6-1 provides the current certifications of all of Selah's public works employees who work in and have water system responsibilities.

## **6.3 SYSTEM OPERATION AND CONTROL**

Section 3.3, System Description and Analysis, provides a detailed look at the various water system components and their interrelationship. This interrelationship is depicted in Figure 3-2 and a map of the existing water system (Map A) is provided in the back of this Plan. It is important that water department personnel fully understand the system in order to evaluate its operation and maintenance requirements.

### Routine System Operation

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

#### A. Source Wells and Pumps

1. Daily Tasks
  - a. Check all well facilities visually.
  - b. Maintain oil levels in well pumps.
  - c. Check telemetry system.
  - d. Record flow meter totalizer readings.
  - e. Check chlorination system.
2. Monthly Tasks
  - a. Check and grease well pump packing and pump motor seal bearings.
  - b. Check oil level in pump bearing reservoir and fill, if necessary.
  - c. Check floor drains and clean, if necessary.
  - d. Clean pumphouse floors.

# CITY OF SELAH

**MAYOR BOB JONES**  
AND  
**CITY COUNCIL**  
DENISE NICHOLS                      KEITH LARSON  
PAUL OVERBY                         JOHN TIERNEY  
HERB SCHMIDT                         SUMMER DERREY  
KEVIN JORGENSEN

**CITY ADMINISTRATOR**  
FRANK SWEET  
(509) 698-7333

**CITY CLERK**  
DALE NOVOTSKI  
(509) 698-7334

**PUBLIC WORKS DIRECTOR**  
JOE HENNE  
(509) 698-7368

**CONSULTING ENGINEER**  
HUIBREGTSE, LOUMAN ASSOCIATES  
(509) 966-7000

**UTILITY BILLINGS CLERK**  
DORRAINE BIGBY  
(509) 698-7326

**PUBLIC WORKS FOREMAN**  
TY JONES - WDM2, WDS1, CCS, BAT  
(509) 698-7373

**UTILITY WORKER LEAD**  
ROD ALLEN - WDM2, CCS, BAT

**UTILITY WORKER**  
WARREN PETERS  
JIM MORRISON  
BRUCE FORENPHONE

**UTILITY WORKER**  
SCOTT KRAMMER

**UTILITY WORKER I**  
JARED SYBOUTS

**LEGEND**

WDM2 = WATER DISTRIBUTION MANAGER CLASS II  
WDS1 = WATER DISTRIBUTION SPECIALIST CLASS I  
CCS = CROSS CONNECTION CONTROL SPECIALIST  
BAT = BACKFLOW ASSEMBLY TESTER

## WATER SYSTEM ORGANIZATIONAL CHART

3. Seasonal Tasks
  - a. Winterize or de-winterize pumphouse facilities.
  - b. Check heating equipment and thermostats.
  - c. Monitor and record well levels from ground level to the static water level during low (winter) demand and high (summer) demand periods.
4. Yearly Tasks
  - a. Summarize flow meter totalizer records.
  - b. Clean chlorination system equipment.
5. Every Three Years Tasks
  - a. Take sample of raw water from each well and submit to the State Department of Health Lab for an Inorganic Chemical and Physical Analysis (IOC), for Volatile Organic Chemical (VOC) Analysis, and for Synthetic Organic Chemical (SOC) analysis, unless sources have been granted a waiver under the susceptibility waiver program.
  - b. Lead and Copper - sample as directed by the Washington State Department of Health.
6. Every Four Years Task
  - a. Conduct sampling for required radionuclides testing and submit to the Department of Health Lab.

B. Booster Pump Stations

1. Daily Tasks
  - a. Check the Goodlander Heights constant pressure pump operation.
  - b. Visually check alarm status at North Reservoir Booster Pump Station and at the Brader Hill Booster Pump Station.
2. Weekly Tasks
  - a. Check North Reservoirs, Hillcrest, and Brader Hill booster pump operation.
  - b. Grease all fittings.
  - c. Check floor drains and clean, if necessary.
  - d. Check oil levels.
  - d. record flow meter totalizer readings.
3. Quarterly Tasks
  - a. Change oil in constant pressure pumps.
4. Seasonal Tasks
  - a. Winterize or de-winterize pumphouse facilities.
  - b. Check heating equipment and thermostats.

C. Reservoirs

1. Daily Tasks
  - a. Visually check all reservoir level indicators.
2. Quarterly Tasks
  - a. Check North Reservoir screens.
3. Yearly Tasks
  - a. Visually inspect reservoir exteriors.
  - b. Inspect reservoir interiors as possible without removing them from service.
4. Every Five Years Task
  - a. Empty reservoirs individually and inspect interiors. Clean, refill, and chlorinate reservoir before removing the next one from service.

C. Distribution System

1. Weekly Tasks
  - a. Conduct free and total chlorine tests at random sites within the distribution system.
2. Monthly Tasks
  - a. Take required number of water samples from various representative sites within the distribution system and submit them for bacteriological analysis in accordance with the Coliform Monitoring Plan.
2. Seasonal Tasks
  - a. Insulate service meters.
3. Yearly Tasks
  - a. Operate all valves through their full range and listen for leaks.
  - b. Operate and flush all fire hydrants. Lubricate hydrant caps and threads. Touch-up paint as required.
  - c. Inspect all cross-connection control devices.
  - d. Take required number of water samples from various representative sites within the distribution system and submit them for disinfection byproducts analysis in accordance with the Disinfection Byproducts Monitoring Plan.
4. As Required Tasks
  - a. Flush low velocity water mains as required to remove sedimentation.
  - b. Review plans for installation of cross-connection control devices on proposed new construction.
  - c. Inspect installation of required devices on new construction.
  - d. Repair and/or replace service meters as necessary.

D. Telemetry System

1. Daily Tasks
  - a. Observe telemetry system operation.
2. Monthly Tasks
  - a. Check telemetry system alarms.
3. As Required Tasks
  - a. Make any required changes to pump Start / Stop settings.
  - b. Replace printer paper.
  - c. Replace printer ribbon cartridge.

## **6.4 SAFETY PROCEDURES**

All City personnel are instructed to exercise the utmost care when working on any water system facility. Safety of City staff and the public is the number one priority. All City personnel are instructed to exercise the utmost care when working on any water system facility. Selah's Public Works Department has developed the following safety programs that apply to City employees working on Selah's water system:

1. Accident Prevention and Safety Program;
2. Hazard Communication Program;
3. Confined Space Entry Program; and
4. Chlorine Safety Plan.

City employees working in and on the water system are expected to follow the policies and procedures specified within these safety programs. Specific work in and around chlorine and chlorine equipment shall be done in accordance with the procedures specified in the City's Chlorine Safety Program, and all work conducted in confined spaces shall be done in accordance with the procedures specified in the

City's Confined Space Entry Safety Program. Copies of these safety programs are included within the Miscellaneous Documents Chapter (Chapter 10) of this Plan.

Provided below is an outline of safety procedures to be followed when working on water system facilities:

A. Pumping Equipment

1. Removing Pumps

- a. All work conducted within confined spaces shall be done in accordance with the procedures specified in the City's Confined Space Entry Safety Program.
- b. Close valves.
- c. Shut off power to the pump, use lockout, tagout policy and procedures.
- d. Ensure power is disconnected and then remove electrical cables.
- e. Lift pump with proper equipment.

2. Installing Pump

- a. All work conducted within confined spaces shall be done in accordance with the procedures specified in the City's Confined Space Entry Safety Program.
- b. Lift pump with proper equipment.
- c. Ensure all pipe connections are properly installed and tightened.
- d. Employ an electrician to properly connect power cables.
- e. Check pump rotation.
- f. Open valves.
- g. Ensure pump control valve (if present) is operating properly.
- h. Turn on power to the pump and remove lockout, tagout tag.

B. Chlorination Equipment

- a. All work in and around chlorine and chlorination shall be done in accordance with the procedures specified in the City's Chlorine Safety Program.
- b. Verify leak alarm status before entering the room.
- c. Immediately check for chlorine odors.
- d. Routinely inspect for leaks.
- e. Check ventilation system equipment for proper operation.
- f. Properly maintain emergency breathing equipment.

C. Reservoirs

1. Interior Inspection

- a. All work conducted within confined spaces shall be done in accordance with the procedures specified in the City's Confined Space Entry Safety Program.
- b. Inspection to be conducted by a minimum of two workers, one worker to stay outside the reservoir.
- c. Ensure the reservoir interior is properly ventilated and illuminated.
- d. Properly set and secure ladder before climbing into reservoir.

D. Distribution System

1. Pipeline Installation

- a. All construction work requiring excavation, trenching, and shoring shall be conducted in accordance with the Department of Labor and Industries Safety Standards for Construction Work.
- b. Close all valves connecting to pipe segment.
- c. Properly set traffic control signing, barricades and cones.
- d. Install shoring or cribbing in all trenches over 48 inches in depth.
- e. Construct thrust blocking, if required, and partially backfill the trench at a minimum prior to charging the pipeline.

## **6.5 SERVICE AND SUPPLY REPRESENTATIVES**

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

A. Pipe, Valves, and Fittings

1. H.D. Fowler Co.  
1100 River Road  
Yakima, WA 98902  
Phone: 248-8400
2. Pacific Waterworks  
3500 North Fourth  
Pasco, WA 99302  
Phone: 1-800-422-0057
3. Hughes  
P.O. Box 79382  
City of Industry, CA  
Phone: 1-888-888-6087

B. Water Service Materials - Ford

1. H.D. Fowler Co.  
1100 River Road  
Yakima, WA 98902  
Phone: 248-8400

C. Service Meters - Master Meter

1. H.D. Fowler Co.  
1100 River Road  
Yakima, WA 98902  
Phone: 248-8900

D. Chlorination Equipment

1. Spokane Instruments  
Route 1, Box 149  
Chatteroy, WA 99003  
Phone: 509-292-8560  
Contact: Gene Meridith

E. Chlorine Gas

1. Jones Chemical  
P.O. Box 412641  
Tacoma, WA 98422  
Phone: 253-274-0104

F. Water Main Tapping

1. Spear Taps, Inc.  
309 NE 159<sup>th</sup> Street  
Seattle, WA 98155

G. Electrical

1. Hoydar Buck  
210 West Ordhard  
Selah, WA 98942  
Phone: 509-697-8800

H. Pumps

1. Akland  
704 River Road  
Yakima, WA 98902  
Phone: 509-452-7867
2. Picatti Brothers  
105 South Third Avenue  
Yakima, WA 98902  
Phone: 509-248-2540

I. Pressure Reducing Valves

1. GC Systems  
13107 NE 20<sup>th</sup>, #6  
Bellevue, WA 98005  
Phone: 206-882-2198
2. Kent NW Sales  
555 - 116<sup>th</sup> Avenue NE, Suite 218  
Bellevue, WA 98004  
Phone: 206-232-3911

J. Telemetry System

1. Conley Engineering, Inc.  
205 North 40<sup>th</sup> Avenue, Suite 201  
Yakima, WA 98902  
Phone: 509-965-9872

K. Pump, Motor Oil, and Bearing Grease

1. Wondrack Distributing, Inc.  
North Front & East First  
Yakima, WA 98901  
Phone: 509-453-3147
2. Powell  
311 West I Street  
Yakima, WA 98902  
Phone: 509-453-3191

J. Bearing Grease

1. NAPA Auto Parts  
201 South First Street  
Selah, WA 98942  
Phone: 509-697-7241

## **6.6 COMPREHENSIVE MONITORING PLAN**

WAC 246-290-300, 246-290-310 and 246-290-320, which are included in the Department of Health (DOH) publication Drinking Water Regulations, define the minimum monitoring requirements, maximum contaminant levels (MCL), and follow-up action requirements for public water systems. The following summarizes the requirements as they pertain to the City of Selah:

## Monitoring Requirements, Location, and Frequency

### A. Bacteriological Analysis - Required of all public water systems.

1. Bacteriological analysis will be conducted in accordance with the procedures and locations specified in Selah's Coliform Monitoring Plan, a copy of which is provided in the Miscellaneous Documents Chapter (Chapter 10) of this Plan. The minimum number of bacteriological samples required per month within the distribution system is based upon the population served and is shown in part on Table 6-1 below:

Permanent Population Served	Minimum Number of Samples per Month
1 - 1,000	1
1,001 - 2,500	2
2,501 - 3,300	3
3,301 - 4,100	4
4,101 - 4,900	5
4,901 - 5,800	6
5,801 - 6,700	7 (Selah's current requirement)
6,701 - 7,600	8
7,601 - 8,500	9
8,501 - 12,900	10

### B. Disinfection Byproducts - Required of all public water systems.

1. Samples are to be collected from four locations within the distribution system identified in the City's Disinfection Byproducts Monitoring Plan as directed by the City's current Water Quality Monitoring Report issued by the Department of Health.

### C. Inorganic Chemical and Physical Analyses - Required of all public water systems.

1. A minimum of one sample every thirty-six (36) months from each source well is required. The sample shall be collected as near the source as possible and before any treatment.

### D. Radionuclides - Required of all public water systems.

1. Every 48 months, an analysis consisting of four consecutive quarterly samples is required. The samples shall be collected as near the source as possible and before any treatment.

### E. Volatile Organic Chemicals (VOCs) - Required of all public water systems.

1. During the first 12 months of VOC monitoring, samples shall be taken at each source once every 3 months, or as directed by the Department of Health. If no VOCs are detected in the first sample from a ground water source, only one additional sample will be required during the 12 month period.
2. If no VOCs are verified after the initial 12 months of monitoring, the water system shall monitor each source at least every 36 months.

F. Synthetic Organic Chemicals (SOCs) - Required of all public water systems.

1. During the first 12 months of SOC monitoring, samples shall be taken at each source once every 3 months, or as directed by the Department of Health. If no SOC's are detected in the first sample from a ground water source, only one additional sample will be required during the 12-month period.
2. If no SOC's are verified after the initial 12 months of monitoring, the water system shall monitor each source at least every 36 months.

G. Lead and Copper - Required of all public water systems.

H. Other Substances - As required by the Department of Health.

Testing Laboratories

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

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

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

Violation Procedures

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

A. Maximum Contaminant Levels (MCLs)

1. Bacteriological - If any coliform bacteria are present in any sample, follow-up action as described under WAC 246-290-320(2) shall be taken in accordance with the Coliform Monitoring Plan.
2. Disinfection Byproducts - MCLs for disinfection byproducts are as shown on Table 6-2.

<b>TABLE 6-2 DISINFECTION BYPRODUCTS MCLs</b>		
CONTAMINANT	MCL (mg/L)	COMPLIANCE
Total Trihalomethanes (TTHM)	0.080	RAA of Quarterly Averages
Five Haloacetic Acids (HAA5)	0.060	RAA of Quarterly Averages
Bromate	0.010	RAA of Quarterly Averages
Chlorite	1.0	Daily

3. Inorganic Chemical and Physical - MCLs for inorganic chemicals and physical properties are as shown on Table 6-3.

**TABLE 6-3 INORGANIC CHEMICAL MCLs**

Chemical or Physical Property	MCL (mg/l)
<b>Primary Substances</b>	
Antimony (Sb)	0.006
Arsenic (As)	0.05
Asbestos	7 million fibers/liter (> 10 microns)
Barium (Ba)	2.0
Beryllium (Be)	0.004
Cadmium (Cd)	0.005
Chromium (Cr)	0.1
Copper (Cu)	1.3*
Cyanide (HCN)	0.2
Fluoride (F)	4.0
Lead (Pb)	0.015*
Mercury (Hg)	0.002
Nickel (Ni)	0.1
Nitrate (as N)	10.0
Nitrite (as N)	1.0
Selenium (Se)	0.05
Sodium (Na)	20*
Thallium (Tl)	0.002
<b>Secondary Substances</b>	
Chloride (Cl)	250.0
Fluoride (F)	2.0
Iron (Fe)	0.3
Manganese (Mn)	0.05
Silver (Ag)	0.1
Sulfate (SO <sub>4</sub> )	250
Zinc (Zn)	5.0
Color	15 Units
Hardness	None
Specific Conductivity	700 umhos/cm
* Recommended "Action Level" concentrations	

4. Radionuclides - Maximum Contaminant Levels are as shown on Table 6-4.

<b>TABLE 6-4 RADIONUCLIDE MCLs</b>	
<b>RADIONUCLIDE</b>	<b>MCL</b>
Radium-226	3 pCi/l
Combined Radium-226 and Radium-228	5 pCi/l
Gross alpha particle activity (excluding uranium)	15 pCi/l
Beta particle and photon radioactivity	4 milliren/year

5. Volatile Organic Chemicals - Maximum Contaminant Levels are as shown on Table 6-5.

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

6. Synthetic Organic Chemicals - MCLs are as shown on Table 6-6.

<b>TABLE 6-6 SYNTHETIC ORGANIC CHEMICAL MCLs</b>	
<b>VOLATILE ORGANIC CHEMICAL</b>	<b>MCL (mg/l)</b>
Alachlor	0.002
Atrazine	0.003
Carbofuran	0.04
Chlordane	0.002
EDB	0
DBCP	0.0002
Heptachlor	0.0004
Heptachlor Epoxide	0.0002
Lindane	0.0002
Methoxychlor	0.04
Toxaphene	0.0003
PCBs	0.0005
Pentachlorophenol	0.001
2,4-D	0.07
2,4,5-TP	0.05
PAHs (Benzo(a)pyrene)	0.0002
Dalapon	0.2
Di(ethylhexyl)-Adipate	0.4
Di(ethylhexyl)-Phthalate	0.006
Dinoseb	0.007
Diquat	0.1
Endothall	0.1
Endrin	0.002
Glyphosate	0.7
Hexachlorobenzene	0.001
Hexachlorocyclo-Pentadiene	0.05
Oxymal	0.2
Picloram	0.5
Simazine	0.004
2,3,7,8-TCDD (Dioxin)	0

B. Follow-up Action

1. General:

- a. If water quality exceeds any MCLs listed in WAC 246-290-310, the purveyor shall notify the Department and take follow-up action as described in this section.
- b. When a primary MCL violation occurs, the purveyor shall:
  - i. Notify the Department within 48 hours in accordance with WAC 246-290-480;

- ii. Notify the public according to the procedures outlined under WAC 246-290-330;
  - iii. Determine the cause of the contamination; and
  - iv. Take corrective action as required by the Department.
- c. When a secondary MCL violation occurs, the purveyor shall notify the Department and take corrective action as directed by the Department.

2. Bacteriological:

- a. When coliform bacteria are present in any sample and the sample is not invalidated under (d) of this subsection, the purveyor shall ensure the following actions are taken:
  - i. The sample is analyzed for fecal coliform or E.coli. When a sample with a coliform presence is not analyzed for E.coli or fecal coliforms, the sample shall be considered as having a fecal coliform presence for MCL compliance purposes;
  - ii. Repeat samples are collected in accordance with (b) of this subsection;
  - iii. The Department is notified in accordance with WAC 246-290-480; and
  - iv. The cause of the coliform presence is determined and corrected.
- b. Repeat samples:
  - i. The purveyor shall collect and submit for analysis a set of repeat samples for every sample in which the presence of coliforms is detected. A set of repeat coliform samples consists of:
    - (a) Four repeat samples for Group A systems collecting one routine coliform sample each month;
    - (b) Three repeat samples for all Group A systems collecting more than one routine coliform sample each month; and
    - (c) Two repeat samples for Group B systems.
  - ii. The purveyor shall collect repeat sample sets according to Table 6-7;
  - iii. The purveyor shall collect one set of repeat samples for each sample with a coliform presence as follows:
    - (a) For Group A systems, all samples in a set of repeat samples shall be collected on the same day and submitted for analysis within 24 hours after notification by the laboratory of a coliform presence. If the purveyor can demonstrate to the satisfaction of the Department that logistical problems beyond the purveyor's control make analysis of the samples in the repeat sample set impractical because the time between sample collection and analysis will exceed 30 hours, then the purveyor shall collect the required set of repeat samples as directed by the Department; and
    - (b) For Group B systems, as soon as possible after the notification by the laboratory of a sample with a coliform presence.
  - iv. When repeat samples have coliform presence, the purveyor shall:
    - (a) Contact the Department and collect a minimum of one additional set of repeat samples as directed by the Department; or
    - (b) Collect one additional set of repeat samples for each sample where coliform presence was detected.
  - v. The purveyor of a system providing water to consumers via a single service shall collect repeat samples from the same location as the sample with a coliform presence. The set of repeat samples shall be collected:
    - (a) On the same collection date; or
    - (b) Over consecutive days, with one sample collected each day until the required samples in the set of repeat samples are collected.
  - vi. If a sample with a coliform presence was collected from the first two or last two active services, the purveyor shall monitor as directed by the Department;
  - vii. The purveyor may change a previously submitted routine sample to a sample in a set of repeat samples when the purveyor:

- (a) Collects the sample within five adjacent service connections of the location from which the initial sample with a coliform presence was collected;
    - (b) Collects the sample after the initial sample with a coliform presence was submitted for analysis;
    - (c) Collects the sample on the same day as other samples in the set of repeat samples, except under (b)(viii) of this subsection; and
    - (d) Notifies the Department of the change.
  - viii. The Department may waive the requirement to collect sets of repeat samples under this subsection during a month when a non-acute coliform MCL violation is determined for the system.
- c. Monitoring frequency following a coliform presence: Group A systems having one or more coliform presence samples that were not invalidated during the previous month shall collect and submit for analysis the minimum number of routine samples shown in the last column in A - Bacteriological Analysis, subsection 1.
  - i. The Department may waive the monitoring frequency requirement when one or more samples with a coliform presence were collected during the previous month, if the purveyor proves to the satisfaction of the Department:
    - (a) The cause of the sample with a coliform presence; and
    - (b) The problem is corrected before the end of the next month the system provides water to the public.
  - ii. If the Department waives this monitoring frequency requirement:
    - (a) The purveyor shall collect and submit at least the minimum number of samples required when no samples with a coliform presence were collected during the previous month; and
    - (b) The Department shall make available a written description explaining:
      - (i) The specific cause of the coliform presence; and
      - (ii) Action taken by the purveyor to correct the cause of coliform presence.
- d. Invalid samples.
  - i. The Department shall consider coliform samples with no coliform presence detected invalid when:
    - (a) Multiple tube technique cultures are turbid without appropriate gas production;
    - (b) Presence-Absence technique cultures are turbid in the absence of an acid reaction;
    - (c) There are confluent growth patterns or growth of TNTC (too numerous to count) colonies without a surface sheen using a membrane filter analytic technique; or
    - (d) There is excess debris in the sample.
  - ii. The Department may invalidate a coliform sample when:
    - (a) The analyzing laboratory establishes that improper sample analysis occurred;
    - (b) The Department determines a domestic or nondistribution system problem is indicated by:
      - (i) All samples in the set of repeat samples collected at the same location as the original coliform presence sample also are coliform presence; and
      - (ii) All other samples in the set of repeat samples are free of coliform.
    - (c) The Department determines a coliform presence result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, when the Department invalidates a sample:
      - (i) The purveyor shall collect a set of repeat samples following the sample invalidation in accordance with Table 6-7; and

- (ii) The Department's rationale for invalidating the sample shall be documented in writing and made available to the public. The documentation shall state the specific cause of the coliform presence and what action the purveyor has taken or will take.
- iii. When a coliform sample is determined invalid, the purveyor shall collect and submit for analysis:
  - (a) An additional coliform sample from the same location as each invalid sample within 24 hours of notification of the invalid sample; or
  - (b) Additional coliform samples as directed by the Department.
- iv. When the Department or laboratory invalidates a sample, the sample shall not count towards the purveyor's minimum coliform monitoring requirements.

<b>TABLE 6-7 REPEAT SAMPLE REQUIREMENTS</b>		
SYSTEM GROUP (# of Routine Samples Collected Each Month)	NUMBER OF SAMPLES IN A SET OF REPEAT SAMPLES	LOCATIONS FOR REPEAT SAMPLES (Collect at Least One Sample per Site)
GROUP A (1 routine sample each month)	4	<ul style="list-style-type: none"> <li>* Site of previous sample with a coliform presence</li> <li>* Within 5 active services <u>upstream</u> of site of sample with a coliform presence</li> <li>* Within 5 active services <u>downstream</u> of site of sample with a coliform presence</li> <li>* At any other active service</li> </ul>
GROUP A (more than 1 routine sample each month)	3	<ul style="list-style-type: none"> <li>* Site of previous sample with a coliform presence</li> <li>* Within 5 active services <u>upstream</u> of site of sample with a coliform presence</li> <li>* Within 5 active services <u>downstream</u> of site of sample with a coliform presence</li> </ul>
GROUP B	2	<ul style="list-style-type: none"> <li>* Site of the previous sample with a coliform presence</li> <li>* From active service other than the site of the previous sample with a coliform presence</li> </ul>

- 3. Inorganic chemical and physical: When an initial analysis of any substance exceeds the MCL, the purveyor shall take the following action:
  - a. For nitrate, immediately take one additional sample from the same sampling point. If the average of the two samples exceeds the MCL, a violation is confirmed, or
  - b. For all other inorganic chemical and physical substances, within 30 days take three additional samples from the same sample point. If the average of all four samples exceeds the MCL, a violation is confirmed.
- 4. Turbidity: When the turbidity exceeds the maximum allowable limit identified under WAC 246-290-310 for longer than one hour monitored continuously, the purveyor shall report to the Department within 48 hours. When the results of a manual turbidity analysis exceed maximum allowable limit, another sample shall be collected within one hour. When the repeat sample confirms the maximum allowable limit has been exceeded, the purveyor shall notify the Department.
- 5. Volatile Organic Chemicals (VOCs): The purveyor shall be responsible for the following follow-up actions:
  - a. After the purveyor's receipt of the first VOC analysis results from the laboratory, the purveyor shall provide notice to persons served by the system as described under WAC 246-290-330(5).

- b. When a List 1 VOC is verified at a concentration above the detection limit, the purveyor shall, at a minimum:
  - i. Sample the source once every three months for at least three years; and
  - ii. Make analysis results available to consumers within three months of receipt from the laboratory as described under WAC 246-290-330(5).
- c. When a List 1 VOC is verified at a concentration greater than an MCL, and the level will not cause the running annual average to exceed the MCL, the purveyor shall repeat sample the source as soon as possible. If a concentration greater than an MCL is confirmed, the purveyor shall:
  - i. Notify the Department within seven days of receipt of the repeat sample analysis results;
  - ii. Provide consumer information in accordance with WAC 246-290-330(5)(b);
  - iii. Submit documentation to the Department describing the water system's strategy for gathering and analyzing additional data, and identify plans for keeping the public informed; and
  - iv. Sample the source a minimum of once every three months for at least three years.
- d. When the running annual average of a List 1 VOC is greater than an MCL, or one sample analysis result causes the annual average to exceed an MCL, the purveyor shall:
  - i. Notify the Department within seven days of receipt of analysis results;
  - ii. Notify the public as described under WAC 246-920-330, including mandatory health effects language;
  - iii. Submit an action plan to the Department for approval addressing follow-up activities, including corrective action. The purveyor shall submit the action plan within four months of receipt of Department notice that the annual average exceeds the MCL. The purveyor's action plan shall, at a minimum, contain:
    - (a) Tabulation of VOC sample analysis results, including the location where VOCs were detected;
    - (b) Description of monitoring plans for system sources;
    - (c) Strategy for informing the public of monitoring results and investigations; and
    - (d) Description of short and long-term plans to minimize exposure and/or eliminate the source of contamination.
  - iv. Implement the action plan within one year of the Department's approval. The Department may require the purveyor's earlier compliance, if necessary, to eliminate an immediate health threat, or may require a revision of the action plan based upon additional sample results. The Department may extend the purveyor's period of compliance when the Department determines:
    - (a) Substantial construction is required; and
    - (b) The purveyor has taken all appropriate measures to protect the health of consumers served by the public water system.

If the Department grants the purveyor an extension, the purveyor shall issue a notice identifying the MCL exceeded and the amount by which the repeat sample analysis results exceeded the MCL. The purveyor shall include the notice in all bills mailed to affected customers until the Department determines that the purveyor complies with the MCL.
  - v. Sample the source a minimum of once every three months for at least three years.
- e. When a List 2 or List 3 VOC is verified at a concentration above the detection limit, the purveyor shall:
  - i. Submit the sample analysis results to the Department within seven days of receipt from the laboratory; and
  - ii. Sample the source a minimum of once every three months for one year, and then annually thereafter during the three-month period when the highest previous measurement occurred.
- f. If the Department determines that a List 2 or List 3 VOC is verified at a level greater than a state advisory level (SAL), the Department shall notify the

purveyor in writing. The purveyor shall repeat sample the source as soon as possible after initial Department notice that an SAL has been exceeded. The purveyor shall submit the analysis results to the Department within seven days of receipt from the laboratory. If any repeat sample confirms that an SAL has been exceeded, the purveyor shall:

- i. Provide consumer information in accordance with WAC 246-290-330(5)(b);
  - ii. Sample the source a minimum of once every three months for at least three years; and
  - iii. Submit documentation to the Department listing VOC analysis results, describing the water system's strategy for gathering and analyzing additional data, and identifying plans for keeping the public informed. The purveyor shall submit this information to the Department within six months of the date of the first notice from the Department that an SAL has been exceeded.
- g. The Department may reduce the purveyor's monitoring requirement for a source detecting a List 1 VOC if, after three years of quarterly monitoring, all analysis results are less than the MCL. The purveyor's reduced monitoring frequency shall be no less than one sample per year.
  - h. The Department may reduce the purveyor's monitoring requirement for a source detecting a List 2 or List 3 VOC if the source has been monitored annually for at least three years, and all analysis results are less than the SAL.
  - i. In establishing SAL's for List 2 and List 3 VOCs, the Department shall use the most recent edition of the Department document titled "Procedures and References for Determination of State Advisory Levels for Drinking Water Contaminants" which has been approved by the State Board of Health. Copies are available from the Department upon request.
  - j. When List 1, List 2 (exclusive of THMs) or List 3 VOCs are verified in well fields, the purveyor shall repeat sample individual wells within the well field.
  - k. When the sum of all trihalomethanes detected exceeds 0.100 mg/L, the purveyor shall sample within three months for total trihalomethanes as required under WAC 246-290-300(5).
  - l. The Department may collect samples from a water system or may require that specified quality assurance techniques be used to collect samples.
6. Follow-up action shall be determined by the Department when the MCL for any additional substance is exceeded.

#### C. Public Notification

1. Responsibility: The purveyor of a Group A water system shall notify the water system users and the Department for any of the following conditions:
  - Exceedances of maximum contaminant levels (MCLs) or maximum residual disinfectant levels (MRDLs);
  - Violation of treatment techniques;
  - Monitoring and testing procedure violations;
  - Failure to comply with the schedule of a variance or exemption;
  - Operation under a variance or exemption;
  - Occurrence of a waterborne disease outbreak or other waterborne emergency;
  - Exceedance of the secondary maximum contaminant level for fluoride; and
  - Availability of unregulated contaminant monitoring results.

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

- a. Tier 1 Conditions require public notification within 24 hours. Such conditions include:
  - i. Violation of the MCL for total coliform, when fecal coliform or E. coli are present in the water distribution system, or failure to test for fecal coliform or E. coli when any repeat sample tests positive for coliform;

- ii. Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite; or when a confirmation sample is not taken within 24 hours of the system's receipt of the first sample showing exceedance of the nitrate or nitrite MCL;
  - iii. Violation of the turbidity MCL of 5 NTU, where the primary agency determines after consultation that a Tier 1 notice is required or where consultation does not occur in 24 hours after the system learns of violation;
  - iv. Violation of the treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit, where the primary agency determines after consultation that a Tier 1 notice is required or where consultation does not take place in 24 hours after the system learns of violation;
  - v. Occurrence of a waterborne disease outbreak, as defined in 40 CFR 141.2, or other waterborne emergency; and
  - vi. Other violations or situations with significant potential to have serious adverse effects on human health as a result of short term exposure, as determined by the primary agency, either in its regulations or on a case-by-case basis.
- b. Tier 2 conditions require public notification within 30 days. Such conditions include:
- i. All violations of the MCL, MRDL, and treatment technique requirements except where Tier 1 notice is required;
  - ii. Violations of the monitoring requirements where the primary agency determines that a Tier 2 public notice is required, taking into account potential health impacts and persistence of the violation; and
  - ii. Failure to comply with the terms and conditions of any variance or exemption in place.
- c. Tier 3 conditions require public notification within 1 year. Such conditions include:
- i. Monitoring violations, except where Tier 1 notice is required or the primary agency determines that the violation requires a Tier 2 notice;
  - ii. Failure to comply with an established testing procedure, except where Tier 1 notice is required or the primary agency determines that the violation requires a Tier 2 notice;
  - iii. Operation under variance granted under §1415 or exemption granted under §1416 of the Safe Drinking Water Act;
  - iv. Availability of unregulated contaminant monitoring results; and
  - v. Exceedance of the secondary maximum contaminant level for fluoride.
2. Content. Notices in English and in Spanish shall provide:
- a. A clear, concise, and simple explanation of the violation;
  - b. Discussion of any potential adverse health effects and any segment of the population which may be at higher risk;
  - c. Mandatory health effects information in accordance with subsection (4) of this section;
  - d. A list of steps the purveyor has taken or is planning to take to remedy the situation;
  - e. A list of steps the consumer should take including advice on seeking an alternative water supply if necessary; and
  - f. The purveyor's name and phone number.

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

3. Distribution.
- a. Public notice of a Tier 1 condition shall occur within 24 hours after learning of the condition by placing notices on the front door of every system user. The public notice shall be written in both English and in Spanish.

- b. Public notice of a Tier 2 condition shall occur within 30 days after learning of the condition and shall be provided in both English and in Spanish.
  - c. Public notice of a Tier 3 condition shall occur within 1 year after learning of the condition and shall be provided in both English and in Spanish.
  - d. The purveyor of a COMMUNITY water system shall give a copy of the most recent public notice for all outstanding violations to all new billing units or new hookups before or at the time water service begins.
  - e. The purveyor shall provide the Department with a copy of the public notification at the time the purveyor notifies the public.
4. Mandatory Language.
- a. The purveyor shall provide specific health effects language in English and Spanish in the notice when a violation involves:
    - i. A primary VOC MCL;
    - ii. A secondary fluoride MCL;
    - iii. An acute coliform MCL;
    - iv. A non-acute coliform MCL;
    - v. Granting or continuation of exemption or variance; or
    - vi. Failure to comply with a variance or exemption schedule.
  - b. Required specific language is contained in the Department guideline titled "Health Effects Language for Drinking Water Public Notification."
5. VOC Notification Procedure.
- a. Availability of results: After receipt of the first analysis results, the purveyor of a COMMUNITY or NTNC water system shall notify persons served by the system of the availability of results and shall supply the name and telephone number of a contact person.
    - i. The purveyor shall initiate notification within three months of the purveyor's receipt of the first VOC analysis results. This notification is only required one time.
    - ii. Notification shall occur by:
      - (a) Inclusion in the first set of water bills issued after receipt of the results;
      - (b) Newspaper notice which shall run at least one day each month for three consecutive months;
      - (c) Direct mail;
      - (d) Posting if NTNC system; or
      - (e) Any other method approved by the Department.
    - iii. Within three months of receipt of analysis results, purveyors selling water to other public water systems shall provide copies of the analysis results to the purchasing system.
    - iv. Within 30 days of receipt of analysis results, purveyors purchasing water shall make results available to their customers. The purveyor's notification shall occur by the method outlined under (a)(i) of this subsection.
  - b. Consumer information.
    - i. The purveyor shall provide consumer information within 21 days of receipt of confirmation sample results when:
      - (a) A List 1 VOC is confirmed at a concentration greater than an MCL, and the level will not cause the running annual average to exceed the MCL; or
      - (b) The Department determines a List 2 or List 3 VOC is confirmed at a level greater than an SAL.
    - ii. Consumer information shall include:
      - (a) Name and level of VOC detected;
      - (b) Location where the VOC was detected;
      - (c) Any health effects the VOC could cause at its present concentration;
      - (d) Plans for follow-up activities; and
      - (e) Phone number to call for further information.

- iii. Consumer information shall be distributed by any of the following methods:
    - (a) Notice placed in the major newspaper in the affected area;
    - (b) Direct mail to customers;
    - (c) Posting if NTNC system; or
    - (d) Any other method approved by the Department.
- 6. Fluoride Notification Procedure. When a secondary MCL violation occurs, the purveyor of a COMMUNITY water system shall send notice to:
  - a. The Department annually;
  - b. Water system users annually; and
  - c. New billing units added while the violation exists.
- 7. When circumstances dictate the purveyor give a broader or more immediate notice to protect public health, the Department may require the purveyor's notification by whatever means necessary.
- 8. When the State Board of Health grants a public water system a waiver, the purveyor shall notify customers and new billing units or new hookups before water service begins. The purveyor shall provide a notice annually and send a copy to the Department.
- 9. The Department may give notice to the water system users as required by this section on behalf of the water purveyor. However, the purveyor remains responsible for ensuring the Department's requirements are met.

## **6.7 EMERGENCY RESPONSE PROGRAM**

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

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

### System Information

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

System Name:	City of Selah Water System
System Identification Number:	774006
System Address:	115 West Naches Avenue; Selah, WA 98942
System Phone Number:	(509) 829-5151
City Mayor:	Bob Jones
Public Works Director/Water System Manager:	Joe Henne/Ty Jones
System Consulting Engineer:	Huibregtse, Louman Associates, Inc. 801 North 39 <sup>th</sup> Avenue Yakima, WA 98902 (509) 966-7000 Jeffery T. Louman, PE
System Service Population:	6,840
System Service Connections:	2,219
Emergency Plan Responsible Party:	Joe Henne (509) 698-7365

## Chain of Command

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

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

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

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

Table 6-8 shows the Selah Water System's emergency chain of command, and responsibilities of individuals during water system emergencies:

<b>TABLE 6-8 EMERGENCY CHAIN-OF-COMMAND AND RESPONSIBILITIES</b>		
<b>Name / Title</b>	<b>Responsibilities</b>	<b>Contact Numbers</b>
Bob Jones Mayor	Lead for providing information to the public and the media.	Phone: 698-7328
Frank Sweet City Supervisor	Coordinates responses and actions of the PWD and of the WSM, and assists the Mayor as requested.	Phone: 698-7328 Cell: 728-1668
Joe Henne Public Works Director (PWD)	Overall management and decision-making for the water system. Lead for managing the emergency, providing information to regulatory agencies.	Phone: 698-7365 Cell: 728-3498
Ty Jones Water System Manager (WSM)	Operation of the water system, performing inspections, maintenance and sampling, relaying critical information, and assessing facilities, and providing recommendations to the Public Works Director.	Phone: 698-7365 Cell: 728-1296 Home: 248-5184
Diane Turner Public Works Secretary	Administrative functions including receiving phone calls and keeping a log of events.	Phone: 698-7365
Warren Peters Public Works Utility Worker	Perform duties, functions, and activities as directed by the Water System Manager.	Phone: 698-4291 Cell: 945-4933
Bruce Forenpoar Public Works Utility Worker	Perform duties, functions, and activities as directed by the Water System Manager.	Phone: 697-7584 Cell: 961-3268
Jared Sybouts Public Works Utility Worker	Perform duties, functions, and activities as directed by the Water System Manager.	Phone: 697-5636

### Events that Cause Emergencies

Emergencies happen for a variety of reasons including:

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

### Severity of Emergencies

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

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

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

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

#### A. Level 1 - Routine Emergencies

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

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

#### B. Level 2 - Minor Emergencies

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

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

#### C. Level 3 - Significant Emergencies

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

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

#### D. Level 4 - Catastrophic Disasters/Major Emergencies

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

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

## Emergency Notification

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

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

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

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

Call-up lists should be comprehensive, including local law enforcement, Yakima County Emergency Management, Yakima County Health District, DOH Drinking Water, WDOE, county and neighboring city officials, service and repair providers, and water testing laboratories. A list of priority customers, such as nursing homes, medical clinics, and schools should also be maintained for immediate notification. Provided on tables 6-9, 6-10, 6-11, and 6-12 are notification lists to be used during emergency situations.

<b>TABLE 6-9 LOCAL NOTIFICATION LIST</b>	
Entity	Contact Numbers
Selah Public Works (Water) Department	daytime phone: 698-7365 24-hour phone: 698-7365
Selah Police Department	daytime phone: 698-7347 24-hour phone: 911
Yakima County Sheriff's Office	daytime phone: 574-2500 24-hour phone: 574-2500
Yakima County Office of Emergency Management	daytime phone: 574-1900 24-hour phone: 574-2500
Yakima Health District	daytime phone: 575-4040 24-hour phone: 575-4040
Yakima County Public Works Department	daytime phone: 574-2300 24-hour phone: 574-2300
City of Yakima Water Department	daytime phone: 575-6154 24-hour phone: 575-6154
Water Testing Laboratory: Cascade Analytical, Inc.	daytime phone: 452-7707
Newspaper: Yakima Herald Republic	daytime phone: 248-1251
Radio Stations: KIT - 1280 AM	daytime phone: 972-5481
Television Stations: KAPP KNDO KIMA	daytime phone: 453-0351 daytime phone: 225-2300 daytime phone: 575-0029

<b>TABLE 6-10 STATE NOTIFICATION LIST</b>	
Entity	Contact Numbers
Department of Health (DOH)	daytime phone: (509) 456-3115 24-hour phone: 1-877-481-4901
Washington Department of Ecology (WDOE)	daytime phone: 575-2490 24-hour phone: 575-2490
DOH Drinking Water After-Hours Emergency Hotline	1-877-481-4901

<b>TABLE 6-11 SERVICE / REPAIR NOTIFICATION LIST</b>	
Entity	Contact Numbers
Electrical: Hoydar Buck	daytime phone: 697-8800
Pumps: Akland Picatti Brothers Ponderosa Pump Systems, Inc.	daytime phone: 452-7867 daytime phone: 248-2540 daytime phone: 457-6018
Telemetry System: Technical Systems, Inc. (service) Crown Control (supplies)	daytime phone: (206) 775-5696 daytime phone: (206) 775-7309
Water System Materials: H.D. Fowler Co. Pacific Waterworks Western Utilities	daytime phone: 952-7751 daytime phone: (800) 422-0057 daytime phone: (509) 535-1396
Chlorination System: Spokane Instruments	daytime phone: (509) 292-8560

<b>TABLE 6-12 SENSITIVE USERS NOTIFICATION LIST</b>	
Entity	Contact Numbers
Schools: Selah School District  Yakima Valley School	daytime phone: 697-0706 voice mail: 697-0700  daytime phone: 697-1245
Medical / Dental Facilities: Selah Family Medicine Selah Medical Center Paul E. Emmans Selah Family Dentistry Terry Savage, DDS Jennifer King, DDS Richard Washut, DDS Selah Physical Therapy	daytime phone: 697-5511 daytime phone: 697-8008 daytime phone: 697-4827 daytime phone: 697-4744 daytime phone: 697-7206 daytime phone: 697-4821 daytime phone: 697-4666 daytime phone: 607-9109
Nursing Homes: Riverview Manor Selah Convalescent	daytime phone: 697-3333 daytime phone: 697-8503
Red Cross:	daytime phone: 457-1690

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

Other procedures include:

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

Tables 6-13 through 6-17 provide notification procedures for the Selah Water System.

<b>TABLE 6-13 CUSTOMER NOTIFICATION PROCEDURES</b>	
Responsibility:	The Public Works Director (PWD) should consult with the Mayor, the City Supervisor, and the Water System Manager (WSM) as part of the decision-making process, whether to notify customers regarding a potential water shortage, water contamination, or other situation that results in water use restrictions. Once the decision is made to notify customers, procedures for notification should be initiated.
Procedures:	<p>The PWD confers with the WSM to verify problems.</p> <p>The Mayor, the City Supervisor, and the PWD develop the message to be delivered to the customers and to the media.</p> <p>PWD consults with Department of Health regarding the problem and response alternatives.</p> <p>WSM continues to investigate problem and make repairs/take action as necessary.</p> <p>Notice to customers will be distributed by:</p> <p style="padding-left: 40px;">Water System staff placing water notices on customers' doors and on signs posted on travel routes throughout the City.</p> <p style="padding-left: 40px;">PWD contacts media requesting issuance of notice and information on the problem.</p> <p style="padding-left: 40px;">Administrative support person will provide a pre-scripted message to phone callers and log in each phone call.</p> <p>WSM continuously updates the Mayor, the City Supervisor, and the PWD on the current condition of the problem.</p> <p>Once the problem is resolved:</p> <p style="padding-left: 40px;">Water System staff re-notify customers through signs on doors.</p> <p style="padding-left: 40px;">PWD notifies media regarding problem resolution.</p>

<b>TABLE 6-14 LAW ENFORCEMENT, EMERGENCY MANAGEMENT, COUNTY HEALTH, DOH, AND WDOE NOTIFICATION PROCEDURES</b>	
Responsibility:	The Public Works Director (PWD) is responsible for notifying law enforcement, emergency management, county health, DOH, and WDOE.
Procedures:	<p>PWD consults with the Mayor and the City Supervisor regarding if and when to notify law enforcement, emergency management, county health, DOH, and WDOE.</p> <p>PWD consults with DOH regarding the problem and response alternatives.</p> <p>PWD informs law enforcement, emergency management, county health, and WDOE, and requests assistance as appropriate.</p>

<b>TABLE 6-15 SERVICE AND REPAIR CONTRACTOR NOTIFICATION PROCEDURES</b>	
Responsibility:	The Water System Manager (WSM) is responsible for contacting service and repair contractors.
Procedures:	<p>WSM determines what repairs and/or services are needed to return the water system to normal operation.</p> <p>WSM contacts service and repair contractors, and monitors the progress of the work.</p> <p>WSM informs the Public Works Director of the progress of the repairs and the time estimate for returning the system to normal operation.</p>

<b>TABLE 6-16 NEIGHBORING WATER SYSTEM NOTIFICATION PROCEDURES</b>	
Responsibility:	The Public Works Director (PWD) is responsible for contacting neighboring water systems.
Procedures:	<p>PWD consults with the Mayor and with the City Supervisor regarding if and when a neighboring water system will be contacted, and what assistance will be requested.</p> <p>PWD contacts neighboring water system and requests appropriate assistance.</p>

<b>TABLE 6-17 HEALTH ADVISORY ISSUANCE NOTIFICATION PROCEDURES</b>	
Responsibility:	The Public Works Director (PWD) is responsible for issuing a health advisory.
Procedures:	PWD consults with DOH regarding problem and response procedures.

### Water Quality Sampling

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

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

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

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

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

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

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

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

#### Response Actions for Specific Events

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

- ❖ Confirm and analyze the type and severity of the emergency.
- ❖ Take immediate action to save lives.
- ❖ Take action to reduce injuries and system damage.
- ❖ Prioritize and accomplish system repairs.
- ❖ Return the system to normal operation.

Tables 6-18 through 6-25 identify the assessment, response actions, notifications, and follow-up actions required for various emergency situations.

<b>TABLE 6-18 RESPONSE ACTIONS FOR POWER OUTAGES</b>	
Assessment	The Selah Water System experiences an average of 2 outages per year that last 20 minutes to several hours. Of the system's sources, only Well No. 7 is equipped with an emergency electrical generator. Of the system's booster pump stations, only the Hospital Hill Booster Station can operate with a City-owned electrical generator. Historically, power outages have been of short duration such that reservoir storage has been able to supply the City with water until power is restored. However, the Goodlander Heights Booster Station can not be operated with a portable electrical generator. Customers served by that booster station are without water during power outages.
Immediate Actions	<ol style="list-style-type: none"> <li>1. Inform customer in the Goodlander Heights area that they will experience extremely low water pressures until power is restored.</li> <li>2. Assess whether the outage is likely to last more than 2 hours. If no, be on alert for changing conditions and monitor reservoir levels. If yes, complete the following:               <ol style="list-style-type: none"> <li>a. Ensure the standby generator at Well No. 7 is running.</li> <li>b. Operate the Hospital Hill Booster Station using a City-owned portable generator.</li> <li>c. Implement water shortage response actions to inform customers to cut back on water usage until power is restored.</li> </ol> </li> </ol>
Notifications	<ol style="list-style-type: none"> <li>1. Pacific Power (power company) - Let them know that a public water system is experiencing an outage.</li> <li>2. Inform customers in the Goodlander Heights area that they will be without water until power is restored.</li> <li>3. Implement water shortage response actions to inform customers to cut back on water usage until power is restored.</li> </ol>
Follow-Up Actions	<ol style="list-style-type: none"> <li>1. Turn off and disconnect standby generator at Well No. 7 and the portable generator at the Hospital Hill Booster Station.</li> <li>2. Return system to general power supply.</li> <li>3. Inspect reservoirs and pumping facilities to ensure proper operation and to assess any damages.</li> </ol>

<b>TABLE 6-19 RESPONSE ACTIONS FOR WATER MAIN BREAK</b>	
Assessment	Visually determine the physical nature of the problem.
Immediate Actions	Visually assess the problem. Return to the area if the water needs to be turned off to effect repairs.
Notifications	Notify customers prior to shutting off water.
Follow-Up Actions	Check with all customers to ensure water has been returned to normal service. Take water samples for bacteriological testing.

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

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

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

<b>TABLE 6-23 RESPONSE ACTIONS FOR HAZARDOUS MATERIAL SPILL IN THE VICINITY OF A WATER SOURCE</b>	
Assessment	Assess the nature and extent of the spill.
Immediate Actions	Contact local agencies including DOH, WDOE, Selah Police, Yakima County Sheriff, and Yakima County Office of Emergency Management.
Notifications	Notify affected customers.
Follow-Up Actions	Provide customers with estimated length of service disruption.

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

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

## Alternative Water Sources

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

Table 6-26 provides information regarding alternative water sources.

<b>TABLE 6-26 ALTERNATIVE WATER SOURCES</b>				
<b>Alternative Source</b>	<b>Name</b>	<b>Phone</b>	<b>Availability</b>	<b>Safe for Drinking?</b>
City of Yakima in conjunction with tanker trucks	City of Yakima Dave Brown	575-6204	yes	yes
Bottled Water	Central Vending	248-1212	yes	yes
	Crystal Springs Water Co.	225-7822	yes	yes
	Culligan Water Conditioning	452-6601	yes	yes
	Independent Water Service	457-3631	yes	yes

## Returning to Normal Operations

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

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

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

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

<b>TABLE 6-27 ACTIONS FOR RETURNING THE SYSTEM TO NORMAL OPERATION</b>	
Action / Activity	Description
Inspect, flush, and disinfect the system	Water System Manager (WSM) and support staff inspect all system facilities and verify that the system has been flushed and disinfected and that all water quality tests have been done.
Verification of water quality	WSM and Public Works Director (PWD) verify water quality sampling results.
Coordinate with DOH	PWD coordinates with DOH regarding system condition and water quality results.
Notify customers	PWD meets with WSM and communications lead to write and distribute notice to customers.

## **6.8 CROSS-CONNECTION CONTROL PROGRAM**

In 1998, Selah developed a cross-connection control program intended to protect the City's water distribution system from the possibility of contamination due to existing or potential cross-connections. Selah's cross-connection program includes the following elements:

1. Adoption of a cross-connection control ordinance by the City;
2. Written procedures for implementing the cross-connection control program;
3. Identification of a staff position delegated for organization and implementation of the cross-connection control program, and the qualifications required of personnel working in the cross-connection control program;
4. Detailed procedures for conducting surveys of new and existing facilities to identify all existing and potential cross-connections;
5. A list of approved backflow assemblies;
6. A procedure to ensure all required backflow assemblies are tested upon installation, after a repair or relocation, and on a routine basis as established by State regulation;
7. A record system which includes a list identifying the location of all required cross-connection control devices, the type of device, the testing schedule, the performance results, a description of repairs and/or repair recommendations, and the tester's name and certification number; and
8. A description of the process which will provide cross-connection control information to existing and future system users.

A copy of Selah's Cross-Connection and Backflow Policy and Procedures is included within the Miscellaneous Documents Chapter (Chapter 10) of this Plan. A copy of Selah's 2005 Cross Connection Summary Report is included within the Miscellaneous Documents Chapter (Chapter 10) of this Plan.

## **6.9 CUSTOMER COMPLAINT RESPONSE PROGRAM**

In 1998, the City of Selah developed a Water System Complaint Response Program. The program is designed to formally receive, track, and record complaints received on the City's water system. Water system complaints typically include taste, color, or odor conditions, low or excessive pressure, or leaky or broken service connections or water mains.

Complaints received by the City are routed to the Public Works Office, where the information is recorded onto a Water System Complaint Form. The complaint information and form are routed to the Public Works staff who investigate and resolve the problem. Actions taken to resolve the problem are recorded on the form, which is then returned to the Public Works Office for filing. A copy of the Water System Complaint Form is included in the Miscellaneous Documents Chapter (Chapter 10) of this Plan.

## **6.10 RECORD KEEPING AND REPORTING**

The City of Selah keeps and maintains records on its water system as shown on Table 6-28.

<b>TABLE 6-28 SELAH WATER SYSTEM RECORDS</b>		
<b>Record Type</b>	<b>Location of Records</b>	<b>Retained For:</b>
Water Consumption (by user category)	City Hall	6 Years
Water Production (by well)	Public Works Department	10 Years
Well Water Level Measurements	Public Works Department	6 Years
Water Quality Chemical Analysis Results	Public Works Department	Lifetime of System
Water Quality Bacteriological Analysis Results	Public Works Department	5 Years
Equipment Maintenance	Public Works Department	6 Years
Water System Complaints	Public Works Department	6 Years
Backflow Assembly Testing	Public Works Department	6 Years

Water quality monitoring results are reported to the Department of Health as required.

# **CHAPTER 7**

## ***DISTRIBUTION FACILITIES DESIGN AND CONSTRUCTION STANDARDS***

## **7.1 PROJECT REVIEW PROCEDURES**

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

Once the project design report and/or construction plans and specifications have been submitted to the City, review of said documents is undertaken by the City's Public Works Department, Fire Department and engineering consultant. Comments and/or required changes are forwarded to the proponent. Resubmittal of the revised documents, review and City approval are required before construction may proceed. In addition, the construction plans and documents must be submitted to and approved by the Department of Health as specified in WAC 246-290-120 before construction may proceed.

## **7.2 POLICIES AND REQUIREMENTS FOR OUTSIDE PARTIES**

Selah will provide water service to properties outside the City Limits in accordance with Chapter 9.15 of Selah's Municipal Code. A copy of the Code chapter is provided in the Miscellaneous Documents Chapter (Chapter 10) of this Plan. The "outside customers" must execute an outside utility agreement and will be assessed water rates which are higher than those charged to customers within the City Limits. (Ordinance No. 1741, provided in the Miscellaneous Documents Chapter of this Plan, establishes rates for services both within and outside the City Limits).

As a prerequisite to obtaining domestic water service, Selah requires property owners to make a sanitary sewer connection, if available, within 200 feet or less of the nearest property corner. If sanitary sewer is not available within 200 feet, the property owner is required to sign a waiver prohibiting the property owner from opposing a future Local Improvement District (LID) for sewer service.

All costs associated with extending water mains to unimproved properties are the responsibility of the developer. Requirements to be met by developers when extending the City's water system are identified in "Extension by Developers" which is provided in the Miscellaneous Documents Chapter (Chapter 10) of this Plan. In addition, Selah has established, by ordinance, a "Latecomer's Agreement" format for extension of water mains. A copy of this ordinance is provided in the Miscellaneous Documents Chapter (Chapter 10) of this Plan.

## **7.3 DESIGN STANDARDS AND CONSTRUCTION STANDARDS**

All water system improvements must conform to Selah's design and construction standards. A copy of Selah's Design and Construction Standards is available in Chapter 10 of this Plan.

## **7.4 CONSTRUCTION CERTIFICATION AND FOLLOW-UP PROCEDURES**

Selah confirms that water system extensions are constructed in accordance with City requirements through construction inspection by City Public Works staff and observation of pressure testing of new water lines by the developer. These construction inspection and testing procedures are specified in "Extension by Developers" which is provided in the Miscellaneous Documents Chapter (Chapter 10) of this Plan. The City may reject construction for which it has not had ample opportunity for inspection.