Appendix R
Operation and Maintenance Program Details
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Appendix R
Operations and Maintenance Program Details

R.1 Standard Operating Procedures

There are specific procedures for start-up and shutdown of certain facilities, as well as safety issues and performance evaluations. Based on the type of facility, startup and shutdown cycles could occur more than once per year or only once every several years. The procedures are general for a type of facility will be adapted as necessary for each specific facility.

Supply Source – Wells

Start-Up Procedures for the Wells

1. Check all valves to make sure they are in the correct positions.
2. Check power supply to make sure nothing is locked off or tagged out.
3. Check oil and packing of the pump motor assembly.
4. Pre-lube column of non-submersible pumps for 15 to 20 minutes.
5. Make sure mainline valve is shut.
6. Start and flush well for approximately 20 minutes two to three times or until water is clear.
7. Take bacteriological sample and wait for results. (Minimum of 48 hours.)
8. When satisfactory bacteriological results obtained, set all valves for normal operation.
9. Check any chemical and filter media levels
11. Adjust start set points in the telemetry system before placing the well into automatic operation.

Shutdown Procedures for the Wells

1. Shut off mainline valve to the system.
2. Check power to make sure it is off and tag out.
3. Winterize if necessary.
4. Winterize chemical injection system – chlorine, fluoride, and pH and filter plants.

Safety Procedures for Wells

Wells are characterized by loud noises, fast rotating assemblies and electrical hazards. Safety procedures to mitigate these hazards should be followed. PPE should be used for whatever chemicals are used at each well. Confined space procedures will need to be followed for certain areas of specific wells also.
Meter Reading Procedures for Wells

Meters are read and information transferred to a form during regular well visits, at least twice per week.

Performance Evaluation for Wells

The Wells are monitored 24 hours a day using a computer that is integrated with telemetry monitoring equipment. When a parameter exceeds the preprogrammed limits, an alarm is presented at the computer station. This station is monitored during normal work hours by District staff. After hours, the computer is programmed to dial the on-call pager and deliver a text message identifying the type of problem that was detected. The on-call staff person uses the on-call laptop computer, from home or in the field, to access and control the telemetry system in the same manner they would, were they in the office.

Supply Source - Regional Supply Connection

Start-Up Procedures for the Regional Supply Connection

1. Notify Cascade, Bellevue and Issaquah for the South Regional Connection, and Cascade and Redmond for the North Regional Connection.
2. Flush the regional line to the District connection point.
3. Take a bacteriological sample at the connection point and wait for notification of results
4. Test operational functionality of control valve, meters, SCADA of facility prior to turning on to system.
5. Set a specific flow rate per Cascade operational contract.

Shutdown Procedures for the Regional Supply Connection

1. Notify Cascade, Bellevue and Issaquah for the South Regional Connection, and Cascade and Redmond for the North Regional Connection.
2. Isolate the regional line at the District connection point.

Safety Procedures for Regional Supply Connection

Confined space (at both North and South Regional Connection) and fall protection (at South Regional Connection) safety procedures need to be followed.

Meter Reading Procedures for Regional Supply Connection

Meter reading is done at the end of every month (south end) and supply reading to Cascade, Bellevue and Issaquah. Meter reading at the north end is done monthly and used to verify Redmond’s meter reading.

Performance Evaluation for Regional Supply Connection
The Regional Connections are monitored 24 hours a day using a computer that is integrated with telemetry monitoring equipment. When a parameter exceeds the preprogrammed limits, an alarm is presented at the computer station. This station is monitored during normal work hours by District staff. After hours, the computer is programmed to dial the on-call pager and deliver a text message identifying the type of problem that was detected. The on-call staff person uses the on-call laptop computer, from home or in the field, to access and control the telemetry system in the same manner they would, were they in the office.

_Treatment Facilities_

Start-Up Procedures for the Treatment Facilities

_NaOH – Sodium Hydroxide for pH Adjustment_

1. Fill all lines with water and check for leaks  
2. Fill lines with caustic soda  
3. Turn on caustic pump, fill day tank and dial in the appropriate feed rates for pH levels  
4. Check pH levels (done daily) and adjust feed rate as necessary.

_Cl2 – Chlorine Generator_

1. Take a meter reading for Cl2 system water meter  
2. Check system for general fitness  
3. Turn on the water softener  
4. Fill Cl2 Generation system with water  
5. Fill the brine tank with salt  
6. Turn the generation system on (for 0.08 Cl2 solution)  
7. Fill the injection system with water  
8. Check injection system for leaks  
9. Open valves and turn system on to allow injection of Cl2 solution into system.  
10. Dial in injection pump feed rate for flow pacing (match feed rate for supply source rate and appropriate Cl2 concentration)  
11. Check for appropriate Cl2 residual

_F – Fluoride Injection System_

1. Take a meter reading for F system water meter  
2. Fill saturator ½ full with water  
3. Add saturator with Fluoride (1/4 to 1/3 of tank size)  
4. Check valve alignments for flow to the injection system, and to the system  
5. Fill injection system from saturator  
6. Turn on injection pump  
7. Check for appropriate Fluoride level
ATEC filters – for Manganese Removal

1. Check media levels in each tank
2. Energize system with water (backflush)
3. Dial in the Cl2 levels for each particular system (0.4 – 0.6 free residual EG)
4. Take sample after the discharge point to check for Mg levels

Ferric Chloride (coagulant to settle Mg removed by the ATEC system)

1. Record setpoints on both pumps and volume of ferric chloride within barrel.
2. Insert flexible suction tube into the barrel of ferric chloride.
3. Close the two ball valves on the drain lines.
4. Close the ball valve on the bottom of the Calibration Column.
5. Open the red handled ball valve near the injection point. The injection point is located at the static mixer, which is on the south wall near the backwash tanks.
6. Open all five ball valves on the pump suction lines (2 on each pump and 1 main suction line ball valve in the lower right-hand corner of the pump skid).
7. Open all six ball valves on the pump discharge lines.
8. Turn the 3-way ball valve located at the upper left-hand corner of the pump skid to the left to direct flow towards the injector.
9. At the Main Control Panel turn the HOA switch (MP-5 and 6) for one pump to HAND and verify flow. Turn switch to OFF and verify operation of the second pump.
10. Turn the HOA switch MP-5 and MP-6 to AUTO.

Shutdown Procedures for the Treatment Facilities NaOH – Sodium Hydroxide for pH Adjustment

1. Turn off caustic pump
2. Drain and flush lines
3. Isolate valves so the caustic cannot leak back into the system.

Cl2 – Chlorine Generator

1. Shut off Generation system
2. Turn off injection pump
3. Isolate system from injection pump
4. Drain off the injection system
5. Empty out the storage tank
6. Take a meter reading for Cl2 system water meter

**F – Fluoride Injection System**

1. Shut off the injection pump
2. Drain the system
3. Isolate the injection pump from the system
4. Empty saturator tank
5. Take a meter reading for F system water meter

**ATEC filters – for Manganese Removal**

1. Isolate system

**Ferric Chloride (coagulant to settle Mg removed by the ATEC system)**

1. At the Main Control Panel turn the HOA switches for pumps MP-5 and MP-6 to OFF.

**Safety Procedures for Treatment Facilities**

**NaOH – Sodium Hydroxide for pH Adjustment**

1. Eye protection, gloves and aprons should be worn when handling NaOH.
2. MSDS procedures for exposure or spills should be followed

**Cl2 – Chlorine Generator**

1. Eye protection, gloves and aprons should be worn when handling Cl2
2. MSDS procedures for exposure or spills should be followed

**F – Fluoride Injection System**

1. Particulate Face Shield, dust mask, eye protection, gloves and aprons should be worn when handling Sodium Fluoride
2. MSDS procedures for exposure or spills should be followed

**ATEC filters – for Manganese Removal**

1. Gloves and aprons should be worn when handling the filter media
2. MSDS procedures for exposure or spills should be followed

**Ferric Chloride (coagulant to settle Mg removed by the ATEC system)**
1. Eye protection, gloves and aprons should be worn when handling Ferric Chloride
2. MSDS procedures for exposure or spills should be followed

**Meter Reading Procedures for Treatment Facilities**

**NaOH – Sodium Hydroxide for pH Adjustment**

Hour run meters for the pump are read to track duration of use.

**Cl2 – Chlorine Generator**

Water meter for Cl2 is read to use in calibration of the Cl2 dosage

**F – Fluoride Injection System**

Water meter for F is read to use in calibration of the F dosage

**ATEC filters – for Manganese Removal**

Backwash meters read to track with unbilled water use and recording sewer use.

**Ferric Chloride (coagulant to settle Mg removed by the ATEC system)**

Ferric Chloride is delivered in 55-gallon barrels. The volume of liquid within the barrel is measured using a sonic level gage.

**Performance Evaluation for Treatment Facilities**

Certain pieces of the treatment facilities, such as chemical feed equipment, are monitored 24 hours a day using a computer that is integrated with telemetry monitoring equipment. When a parameter exceeds the preprogrammed limits, an alarm is presented at the computer station. This station is monitored during normal work hours by District staff. After hours, the computer is programmed to dial the on-call pager and deliver a text message identifying the type of problem that was detected. The on-call staff person uses the on-call laptop computer, from home or in the field, to access and control the telemetry system in the same manner they would, were they in the office.

**Storage Facilities**

**Start-Up Procedures for the Storage Facilities**

1. Verify no debris or materials are in the tank
2. Verify the tank is ready for operation by checking all inlets, outlets, screens and alarm and measuring devices.
3. Spray down interior with disinfectant (heavily chlorinated water) per AWWA standards.
4. Start filling and take bacteriological samples as filled at different levels
5. Verify SCADA operation
6. Open valves and put on-line

**Shutdown Procedures for the Storage Facilities**

1. Drain tank as much as possible into the water system
2. Where possible, pump remainder into water system
3. Isolate the tank from the water system, including modifying setpoints for operating system as appropriate
4. Drain remainder of tank, dechlorinating the water prior to discharge to any storm water system

**Safety Procedures for Storage Facilities**

Operation and maintenance of storage tanks can have hazards such as confined space or fall protection depending on the task. Appropriate PPE gear and procedures need to be used, based on activity.

**Performance Evaluation for Storage Facilities**

The Storage Facility water levels are monitored 24 hours a day using a computer that is integrated with telemetry monitoring equipment. When a parameter exceeds preprogrammed limits, an alarm is presented at the computer station. This telemetry is monitored during normal work hours by District staff. After hours, the computer is programmed to dial the on-call pager and deliver a text message identifying the type of problem that was detected. The on-call staff person uses the on-call laptop computer, from home or in the field, to access and control the telemetry system in the same manner they would, were they in the office.

**Water Distribution System**

**Start-Up Procedures for the Water Distribution System**

1. Install pipe and appurtenances with chlorine granules placed during installation. New pipe is kept disconnected from District's active water system during installation and testing.
2. Fill pipe using cross connection controls in place to prevent contamination
3. Pressure test per AWWA procedure
4. Allow 24 hours minimum contact time after filling for disinfection
5. Flush to appropriate discharge point (directly to sewer, or dechlorinate if discharging to environment)
6. Collect samples for bacteriological testing
7. If samples show no bacteria, schedule and connect to existing District active water system using following process:
   a. Swab connection piping and fittings with 200 ppm chlorine solution before
connection
b. Flush final connection to remove air and dechlorinated water in connection
c. For existing customer reconnection, flush and connect new service lines to new water services. Notify customers of outage and reconnect new water services to existing customer service line
d. For new water service installation (e.g., plat), crimp service line, trim to desired length, dechlorinate new setter and fittings, install in designated location, and place meter box. Flow new setter to ensure that setter flows freely

Shutdown Procedures for the Water Distribution System

1. Evaluate shutdown effect on the system
2. Determine isolation valves
3. Notify customers affected by the shutdown (48 hours in advance for planned shutdown)
4. Shutdown meters connected to area
5. Shutdown appropriate isolation valves
6. Verify that the main has been isolated

Safety Procedures for Water Distribution System

The water system should be considered a high-pressure system. Workers also need to be cognizant of the potential for creating problems in the system outside of the immediate area of their work, due to the interconnectivity within the system. Pressure issues and water hammer are examples of problems that can travel long distances through the system. Different safety procedures will be necessary based on the type of task being done on the distribution system. Accessing the distribution system may involve trench safety, fall hazards, and exposure to heavy equipment and traffic. PPE and safety procedures appropriate to the specific task should be followed.

Performance Evaluation for Water Distribution System

The integrated telemetry/computer system collects and stores field information that is periodically provided to the Engineering Department and Planning Engineer. The field results are compared to the predicted results from the District’s hydraulic analysis model, H2OMap. During initial calibration of the H2OMap model several flow tests were conducted to monitor fire-flow events at numerous sites throughout the District.

Booster Pump Stations

Start-Up Procedures for the Booster Pump Stations

1. Perform a visual inspection of all mechanical and electrical systems
2. Energize water piping and check for leaks
3. Flush water through and bleed out all air throughout the booster system
4. Set all appropriate valves for booster operation
5. If system has been off for a significant time or is new, flush and take bacteriological sample
6. Check setpoints for operation (make sure pumps are not set to come on immediately)
7. Turn HOA switch to Off
8. Turn power supply On
9. Operate the system manually to determine valves open and close appropriately
10. Set set-points for automatic operation, check SCADA operation
11. Turn HOA switch to Automatic

**Shutdown Procedures for the Booster Pump Stations**

1. Turn HOA switch to Off
2. If taking the Booster system off-line for a significant period of time, turn power off
3. If taking the Booster system off-line for a short period, turn pump disconnect switch off
4. Isolate system
5. Drain booster pump system to take pressure off of system

**Safety Procedures for Booster Pump Stations**

Booster Pump Stations are characterized by loud noises, fast rotating assemblies and electrical hazards, and require safety procedures for these hazards be followed. Confined spaces exist at certain booster pump stations, which require additional safety procedures. In addition, use of PPE are required for any chemicals located at a particular booster pump stations, such as at the Section 36 BPS.

**Meter Reading Procedures for Booster Pump Stations**

Hour run meters are normally read twice per week. SCADA hour run times are checked against manual meter readings on a monthly basis.

**Performance Evaluation for Booster Pump Stations**

The Booster Pump Stations are monitored 24 hours a day using a computer that is integrated with telemetry monitoring equipment. When a parameter exceeds the preprogrammed limits, an alarm is presented at the computer station. This station is monitored during normal work hours by District staff. After hours, the computer is programmed to dial the on-call pager and deliver a text message identifying the type of problem that was detected. The on-call staff person uses the on-call laptop computer, from home or in the field, to access and control the telemetry system in the same manner they would, were they in the office.

**Pressure Reducing Stations**
Start-Up Procedures for the Pressure Reducing Stations

1. Determine pressure settings for downstream pressure zone
2. Visually inspect connections within the vault
3. Open downstream valve to introduce downstream pressure to the station
4. Bleed air out of the system
5. Set up Pressure Relief Valve to predetermined system relief pressure
6. Ensure flow in the system below PRV through normal use or hydrant flush
7. Set bypass PRV downstream pressure setting
8. Set primary PRV downstream pressure setting
9. Verify operation of each by varying flows
10. Retest the Pressure Relief Valve with high pressure in system
11. Shut off hydrant
12. Document pressure settings

Shutdown Procedures for the Pressure Reducing Stations

1. Shut the downstream valve first
2. Shut the upstream valve second
3. Shut the pressure relief valve
4. Bleed water out of the system
5. Document that the PRV has been shut down
6. Notify the Fire District if the fire flow in the downstream zone has been adversely impacted

Safety Procedures for Pressure Reducing Stations

Procedures to mitigate for confined space, fall protection, high pressure water awareness, and engulfment should be followed in Pressure Reducing Stations.

Performance Evaluation for Pressure Reducing Stations

Evaluate pressure settings and operation annually

Control Valves

Start-Up Procedures for the Control Valves

If the control valve is electronically operated, start with the power disconnected. Open the incoming mainline valve, then open the appropriate control valves and petcocks. Energize power to the control valve for operation. Check operations by allowing some water to flow through the control valve. Set any associated Pressure Reducing Valves. Once the control valve is set and operational open downstream mainline valve and put into operation.

Shutdown Procedures for the Control Valves
If the valve is electronically operated, the power should be disconnected first. Isolate the control valve by shutting the downstream mainline valve off, and then shutting the incoming mainline valve. Shut off all controls and petcocks.

**Safety Procedures for Control Valves**

Standard safety precautions are followed for any control valves located in confined space or traffic areas.

**Performance Evaluation for Control Valves**

The settings and operations of each control valve are checked at least annually to verify proper operation.

**Interties**

**Start-Up Procedures for the Interties**

1. Notify affected entity of intention to activate the intertie
2. Verify that all systems are intact and operational
3. Get meter reading
4. Flush system and take sample if necessary.
5. Open the lower pressure side of the intertie first
6. Check any verify settings as appropriate
7. Open the higher pressure side of the intertie second
8. Verify system operation

**Shutdown Procedures for the Interties**

1. Notify affected entity of intention to close the intertie
2. Close the lower pressure side of the intertie
3. Close the upper pressure side of the intertie
4. Read the meter and provide readings to appropriate parties.
5. Drain intertie

**Safety Procedures for Interties**

Procedures to mitigate for confined space, fall protection, high pressure water awareness, and engulfment are to be followed in Pressure Reducing Stations.

**Meter Reading Procedures for Interties**

Meters are read upon startup and shut down and monthly during operation.

**Performance Evaluation for Interties**
Check operation monthly when in operation. Verify meter calibration as necessary.

R.2 System Operations and Preventative Maintenance Programs

Most water system tasks can be categorized as either operation or preventative maintenance. The District has prepared a detailed estimate of the hours for routine operations and preventative maintenance tasks. The maintenance tasks and corresponding annual staff hours are presented in Table R-1.

Based on the estimated staff hours needed to complete a task, the FTEs required to complete this task is calculated for each task group in the tables. One FTE is equal to 1,788 staff hours (260 available workdays less 15 days’ vacation, 10 days sick leave, and 11.5 days of holidays).

As described in Table R-1 the Water Operators work for District routine and preventative maintenance requires 20,572 hours per year, representing 11.51 FTEs. When the contract work for Cascade Water Alliance is included the figures are 20,722 hours per year, representing 11.59 FTEs.

Table R-1
Routine and Preventative Maintenance Staffing Level Evaluation

<table>
<thead>
<tr>
<th>Operations Function</th>
<th>Task</th>
<th>Activity</th>
<th>Task Frequency</th>
<th>Annual Staff Hours</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Administration</td>
<td>Vehicle Maintenance</td>
<td>Routine general maintenance and inspections, checking physical condition and fluid levels to ensure vehicle is road worthy and ready for service.</td>
<td>Weekly</td>
<td>280</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Tool and Equipment</td>
<td>Tool and Equipment maintenance</td>
<td>Weekly</td>
<td>300</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outside Department</td>
<td>Water operations support of DE’s, CIP’s special engineering projects and customer service requests.</td>
<td>Support as needed by other departments</td>
<td>800</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Support (DE, CIP, ENG, CS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table R-1 (cont.)
### Routine and Preventative Maintenance Staffing Level Evaluation

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Water Administration (cont.)</strong></td>
<td>Field Admin (Meetings, School, Training)</td>
<td>Operational training and administrative support for reliability centered maintenance (RCM) project</td>
<td>Training schedule varies by employee. RCM project work is weekly.</td>
<td>4,455</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Water Administration</td>
<td></td>
<td></td>
<td>5,835</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Wells and Production</strong></td>
<td>Pump Run</td>
<td>Routine inspections for maintenance, site security and data collection to verify well pumps, motors and associated production equipment is operating correctly and that buildings and sites are secure</td>
<td>2 times weekly</td>
<td>500</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Well Equipment Maintenance</td>
<td>Maintenance and inspections for equipment at a well facility: Control Valves, Dehumidifiers, Heaters, discharge vaults and pumps etc.</td>
<td>Monthly, Annually</td>
<td>193</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Pump and Motor Maintenance</td>
<td>Oil changes and bearing lubrication of well motors.</td>
<td>Annually</td>
<td>250</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Table R-1 (cont.)
Routine and Preventative Maintenance Staffing Level Evaluation

<table>
<thead>
<tr>
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<th>Annual Staff Hours</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wells and Production (cont.)</td>
<td><strong>Generator Maintenance</strong></td>
<td>Routine general maintenance and inspections, checking physical condition and fluid levels to ensure generator is ready for service in an emergency.</td>
<td>Weekly</td>
<td>80</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Well Monitoring</strong></td>
<td>Routine inspection and logging of production and monitoring well levels.</td>
<td>Monthly</td>
<td>250</td>
<td>0.1</td>
</tr>
<tr>
<td>Facility Maintenance</td>
<td><strong>Maintenance of building structure</strong></td>
<td>An annuall maintenance of building structure.</td>
<td>Annually</td>
<td>100</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Wells and Production</td>
<td></td>
<td></td>
<td>1,373</td>
<td>0.8</td>
</tr>
<tr>
<td>Water Treatment</td>
<td><strong>Water Samples</strong></td>
<td>Routine collection of system and source water samples for compliance with federal and state drinking water regulations.</td>
<td>Weekly</td>
<td>850</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td><strong>Daily Treatment Testing Wells and Boosters</strong></td>
<td>Routine inspections, maintenance and data collection at water treatment facilities to monitor and verify chemical pumps, skids and associated treatment and process monitoring equipment is operating correctly.</td>
<td>2 times weekly</td>
<td>616</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Equipment Maintenance Wells and Boosters</strong></td>
<td>Inspection, maintenance and calibration of treatment pumps, piping and water quality analyzers and testing equipment</td>
<td>Monthly, quarterly and annually</td>
<td>1,280</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Water Treatment</td>
<td></td>
<td></td>
<td>2,746</td>
<td>1.5</td>
</tr>
</tbody>
</table>
### Table R-1 (cont.)
**Routine and Preventative Maintenance Staffing Level Evaluation**

<table>
<thead>
<tr>
<th>Operations Function</th>
<th>Task</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Water Storage</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reservoir Inspections and Maintenance</td>
<td>Visual inspections of water storage tanks and reservoirs and related components for security, safety and maintenance purposes. Pressure washing is done for tank maintenance</td>
<td>Tank inspections every 6 months. Maintenance approx. every 3 years.</td>
<td>458</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Reservoir Draining &amp; Cleaning</td>
<td>Drain, inspect &amp; place storage tank back online. Includes operations required to take the tank off-line.</td>
<td>Each tank approximately every 10 years (80 hrs/tank)</td>
<td>192</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td>650</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Booster Stations</strong></td>
<td>Pump Run</td>
<td>Routine inspections for maintenance, site security and data collection to verify booster station pumps, motors and associated production equipment is operating correctly and that buildings and sites are secure</td>
<td>2 times weekly</td>
<td>400</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Booster Equipment Maintenance</td>
<td>Maintenance and inspections for equipment at a booster station: Control valves, Dehumidifiers, Heaters, discharge vaults and pumps etc.</td>
<td>Monthly, Annually</td>
<td>100</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Pump and Motor Maintenance</td>
<td>Oil changes and bearing lubrication of booster pump motors.</td>
<td>Annually</td>
<td>166</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Table R-1 (cont.)
Routine and Preventative Maintenance Staffing Level Evaluation

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<th>Annual Staff Hours</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Booster Stations (cont.)</td>
<td>Generator Maintenance</td>
<td>Routine general maintenance and inspections, checking physical condition and fluid levels to ensure generator is ready for service in an emergency.</td>
<td>Weekly</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Facility Maintenance</td>
<td>Maintenance of building structure</td>
<td></td>
<td>Annually</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>Booster Stations</td>
<td></td>
<td></td>
<td>686</td>
<td>0.4</td>
</tr>
<tr>
<td>Water Mains and Appurtenances</td>
<td>Valve Survey</td>
<td>Locating, operating and exercising valves to confirm that all valves in the distribution system are accessible and function properly.</td>
<td>25% annually (every valve every 4 years)</td>
<td>1,200</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>Hydrant Survey</td>
<td>Visual inspection and operation of fire hydrants to verify proper function, visibility, and accessibility for maintenance and emergency use. Maintenance specific information like manufacturer and distance to the foot valve are verified, while inspection date and static pressure are recorded.</td>
<td>25% annually (every hydrant every 4 years)</td>
<td>1,200</td>
<td>0.7</td>
</tr>
</tbody>
</table>
### Table R-1 (cont.)
#### Routine and Preventative Maintenance Staffing Level Evaluation

<table>
<thead>
<tr>
<th>Operations Function</th>
<th>Task</th>
<th>Activity</th>
<th>Task Frequency</th>
<th>Annual Staff Hours</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Blow off Survey</td>
<td>The inspection and operation of blow off valves is incorporated into the District's water main flushing program. Inspections consist of locating and confirming blow off assemblies are accessible, and then operated/flushed to verify proper function</td>
<td>25% annually (every blow off every 4 years)</td>
<td>300</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Air Vac Survey</td>
<td>Locating and confirming air and vacuum release assemblies are accessible and function properly. Maintenance related information like manufacturer and size are verified, and operational status and inspection dates are recorded and stored in the CMMS database.</td>
<td>25% annually (every valve every 4 years)</td>
<td>400</td>
<td>0.2</td>
</tr>
<tr>
<td>Water Mains and Appurtenances (cont.)</td>
<td>Leak Detection</td>
<td>Systematic monitoring and recording of water mains and appurtenances to detect leaks.</td>
<td>As needed or per customer request.</td>
<td>250</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Water Main Flushing</td>
<td>Regular flushing and cleaning of water mains improves chlorine residuals and water aesthetics (appearance, taste and odor) in low flow or dead end areas of the District.</td>
<td>13,000 ft. quarterly, and additional mains upon customer request.</td>
<td>260</td>
<td>0.2</td>
</tr>
<tr>
<td>Operations Function</td>
<td>Task</td>
<td>Activity</td>
<td>Task Frequency</td>
<td>Annual Staff Hours</td>
<td>FTE</td>
</tr>
<tr>
<td>---------------------</td>
<td>------</td>
<td>--------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------</td>
<td>-----</td>
</tr>
<tr>
<td>Water Mains and Appurtenances (cont.)</td>
<td>PRV Maintenance</td>
<td>Maintenance inspections consist of cycling/ operating pressure reducing valves via pilot systems, checking and recording pressure settings and ensuring proper valve function. Pressure relief valves are tested and reset. Scheduled rebuilds of pilot systems and valves.</td>
<td>Inspections performed annually. Pilot systems rebuilt every 3 years or as needed. Full valve disassembly and rebuilds every 6 years.</td>
<td>1,000</td>
<td>0.6</td>
</tr>
<tr>
<td>Water Mains</td>
<td></td>
<td>Reactive Work Category: Repair of water mains - Hit by contractor or pipe failure</td>
<td>Anticipate avg of 2 per year</td>
<td>400</td>
<td>0.2</td>
</tr>
<tr>
<td>Water Services</td>
<td></td>
<td>Reactive Work Category: Installation of new services or repairs to existing lines</td>
<td>Anticipate avg of 10 new installs or service line leak repairs</td>
<td>1,000</td>
<td>0.6</td>
</tr>
<tr>
<td>Locates</td>
<td></td>
<td>Marking underground water and sewer utilities for excavation per RCW 19.122.030</td>
<td>2450 locates annually</td>
<td>1,880</td>
<td>1.1</td>
</tr>
<tr>
<td>Easements</td>
<td></td>
<td>Assisting Building Maintenance and Grounds crew with water easement maintenance</td>
<td>2 easements annually</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>Water Mains and Appurtenances</td>
<td></td>
<td></td>
<td>7,910</td>
<td>4.4</td>
</tr>
</tbody>
</table>
Table R-1 (cont.)
Routine and Preventative Maintenance Staffing Level Evaluation

<table>
<thead>
<tr>
<th>Operations Function</th>
<th>Task</th>
<th>Activity</th>
<th>Task Frequency</th>
<th>Annual Staff Hours</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Meters</td>
<td>Meter Maintenance</td>
<td>Automated Metering Infrastructure (AMI) support and large meter testing</td>
<td>AMI Project support as needed, Meter testing as needed, and routine interval TBD because of new AMI system</td>
<td>1,372</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Water Meters</td>
<td></td>
<td>1,372</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regional System Maintenance – Under Contract to CWA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cascade Water Alliance (CWA)</td>
<td>Maintenance and Operations of Bellevue Issaquah Pipeline (BIP) for CWA</td>
<td>Maintaining pipeline and appurtenances – Locates, special projects.</td>
<td>Monthly</td>
<td>150</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td>Regional System Maintenance</td>
<td></td>
<td>150</td>
<td>0.1</td>
<td></td>
</tr>
</tbody>
</table>

R.3 Preventative Maintenance Program – Extraordinary Operating Conditions

Most preventative maintenance activities take place with minimal system interruption. In addition, the system has been developed to have redundancy, so that the temporary loss of a facility does not disrupt service provision. However, there are some tasks that require major equipment be taken offline during which time the system operations may need to be modified. These are noted in the table, as extraordinary operations, and a more detailed explanation of operational considerations is provided in Table R-2.
### Table R-2
Preventative Maintenance - Extraordinary Operating Conditions

<table>
<thead>
<tr>
<th>Facility</th>
<th>Impact on Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Storage Tanks</strong></td>
<td></td>
</tr>
<tr>
<td>3-MG Tank</td>
<td>The 3-MG Tank is the only tank in the 700 Pressure Zone. The Well 4 boosters can supply domestic and fire flows to the north end of the Plateau Zone without the tank being online, thus avoiding an interruption of service, but would need to operate on a continuous basis. Alternatively, NESSWD may be able to provide water as well.</td>
</tr>
<tr>
<td>297 Tank</td>
<td>The 297 Tank is the only tank in the 297 Zone and providing storage for the 297 Zone. When the 297 Tank is offline the valley wells, Wells 7, 8 and 9, or the Regional Line provide the source of water for the 297 Zone. Several PRVs can also provide a source of water to the 297 Zone from the higher-pressure zones, although they would be operating at a higher flow rate than normal. The 297 Tank also serves as a source of water for the 297 and SE 43rd Booster Stations pumping from the 297 Zone to the 650 Zone. This is especially true for the 297 Booster Pump Station, located immediately adjacent to the tank. Again, the valley wells and Regional Line can provide the source for the booster pump stations, and the 43rd Booster Pump Station is not likely to be directly affected by work at the 297 Tank site.</td>
</tr>
<tr>
<td><strong>Booster Pump Stations</strong></td>
<td></td>
</tr>
<tr>
<td>Well 4 Booster Pump</td>
<td>The Well 4 Booster Pump Station provides water to the 700 Pressure Zone by boosting water following treatment at the Well 4 Treatment Facility. If the Well 4 Booster Pump Station is completely off-line (all pumps non-operational) the District may arrange with NESSWD to provide water to the 700 Pressure Zone.</td>
</tr>
<tr>
<td><strong>Pressure Reducing Stations</strong></td>
<td></td>
</tr>
<tr>
<td>14 Sole Source Pressure Reducing Stations</td>
<td>Fourteen (14) of the District pressure reducing stations supply pressure zones that have only one PRV providing supply, with no redundancy. When these PRVs are rebuilt or require major maintenance the District keeps operational either the primary or bypass PRV valve during maintenance of the other valve in the station. The Fire District may be notified during major maintenance of the larger valve as fire flow could be compromised.</td>
</tr>
</tbody>
</table>
### R.4 Chemicals, Equipment, Supplies, and Maintenance Contractors

Table R-3 provides a list of vendors the District currently uses for chemical, equipment, and part supplies and maintenance contractors.

#### Table R-3
**Chemicals, Equipment, Supplies, and Maintenance Contractors**

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Contacts</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chemicals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium Hydroxide (Caustic)</td>
<td><strong>Univar (Kent)</strong></td>
<td>Wells 1, 2, and 10 Order Per Gallon (Wet)</td>
</tr>
<tr>
<td>Partial Loads</td>
<td>(253) 872-5000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fax (253) 872-5041</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jennifer Perras</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(253) 872-5040</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cell (206) 249-6109</td>
<td></td>
</tr>
<tr>
<td>Sodium Hyroxide (Caustic)</td>
<td><strong>JCI Jones Chemicals (Tacoma)</strong></td>
<td>Well 9 Order Per Gallon (Wet)</td>
</tr>
<tr>
<td>Full Loads</td>
<td>(253) 274-0104</td>
<td></td>
</tr>
<tr>
<td>Sodium Fluoride</td>
<td><strong>Cascade Columbia Distribution (Seattle)</strong></td>
<td>Wells 1, 2, 4, 9, 10, 13, Section 36 Order Per Bag / 50 Pound Bags / 40 Bags Per Pallet</td>
</tr>
<tr>
<td></td>
<td>(800) 683-9724</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(206) 282-6334</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fax (206) 282-6330</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kevin Rock</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(206) 255-7299</td>
<td></td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td><strong>Cascade Columbia Distribution (Seattle)</strong></td>
<td>Well 4 Treatment Facility Per Drum, Order Size 20 Tons</td>
</tr>
<tr>
<td></td>
<td>(800) 683-9724</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(206) 282-6334</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fax (206) 282-6330</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kevin Rock</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(206) 255-7299</td>
<td></td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td><strong>Cascade Columbia Distribution (Seattle)</strong></td>
<td>Wells 1, 2, 9, 10, 12, 13, Section 36 Order Per Bag / 50 Pound Bags / 49 Bags Per Pallet</td>
</tr>
<tr>
<td></td>
<td>(800) 683-9724</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(206) 282-6334</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fax (206) 282-6330</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kevin Rock</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(206) 255-7299</td>
<td></td>
</tr>
</tbody>
</table>
### Table R-3 (cont.)
Chemicals, Equipment, Supplies, and Maintenance Contractors

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Contacts</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Chloride</td>
<td>Cascade Columbia Distribution (Seattle)</td>
<td>Well 4 Treatment Facility Order in groups of (4) 55 gallon drums</td>
</tr>
<tr>
<td></td>
<td>(800) 683-9724</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(206) 282-6334</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fax (206) 282-6330</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kevin Rock (206) 255-7299</td>
<td></td>
</tr>
<tr>
<td>Filter Media</td>
<td>ATEC (Longview)</td>
<td>Need specific volume and media size when ordering</td>
</tr>
<tr>
<td></td>
<td>(360) 414-9223</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fax (360) 397-0375</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bill Ketchum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(360) 693-6202</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cell (360) 901-2273</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Equipment/Power</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorine Pumps</td>
<td>TMG Services (Tacoma)</td>
<td>(800) 562-2310</td>
</tr>
<tr>
<td></td>
<td>Pumptech, (Bellevue)</td>
<td>(425) 644-8501</td>
</tr>
<tr>
<td>Caustic Pumps (Injection Pump)</td>
<td>Milton Roy (Warminster, PA)</td>
<td>(215) 441-0800</td>
</tr>
<tr>
<td></td>
<td>Pumptech (Bellevue)</td>
<td>(425) 644-8501</td>
</tr>
<tr>
<td>Fluoride Pumps</td>
<td>Pumptech (Bellevue)</td>
<td>(425) 644-8501</td>
</tr>
<tr>
<td>Control Valves</td>
<td>GC Systems (Sumner)</td>
<td>(800) 525-9425</td>
</tr>
<tr>
<td>Well Pumps</td>
<td>Cascade Machinery</td>
<td>(800) 289-0500</td>
</tr>
<tr>
<td></td>
<td>(206) 762-0500</td>
<td>U.S. Motors, GE Motors</td>
</tr>
<tr>
<td></td>
<td>(206) 762-0500</td>
<td></td>
</tr>
<tr>
<td>Well Pumps</td>
<td>Utilities Service Co., Inc.</td>
<td>(206) 246-5674</td>
</tr>
<tr>
<td></td>
<td>Ed Mola</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cell (206) 730-6193</td>
<td></td>
</tr>
<tr>
<td>Well Service</td>
<td>Pump Tech (Bellevue)</td>
<td>(425) 644-8501</td>
</tr>
</tbody>
</table>

Table R-3 (cont.)
## Chemicals, Equipment, Supplies, and Maintenance Contractors

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Contacts</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Power</td>
<td>Tanner Electric (North Bend)</td>
<td>(425) 888-0623</td>
</tr>
<tr>
<td>Electric Power</td>
<td>Puget Sound Energy (Bellevue)</td>
<td>(800) 321-4123</td>
</tr>
<tr>
<td>Diesel Fuel (All brands)</td>
<td>Associated Petroleum Products (Tacoma)</td>
<td>(800) 929-5243 Becky Lantz (253) 207-4267</td>
</tr>
</tbody>
</table>

### Supplies/Parts

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscellaneous Parts</td>
<td>Ferguson Enterprises (Woodinville)</td>
</tr>
<tr>
<td>Miscellaneous Parts</td>
<td>H.D. Fowler Company (Bellevue)</td>
</tr>
<tr>
<td>Miscellaneous Parts</td>
<td>HD Supply Waterworks (Seattle)</td>
</tr>
<tr>
<td>Miscellaneous Parts</td>
<td>H. B. Jaeger Co. LLC (Snohomish)</td>
</tr>
<tr>
<td>Miscellaneous Parts</td>
<td>Pollard Water (Redmond)</td>
</tr>
<tr>
<td>Miscellaneous Parts</td>
<td>Consolidated Supply Co. (Seattle)</td>
</tr>
</tbody>
</table>
### Table R-3 (cont.)
**Chemicals, Equipment, Supplies, and Maintenance Contractors**

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Contacts</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meters</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferguson Enterprises (Woodinville)</td>
<td>(425) 486-9600</td>
<td>3” and 4” Omni Meters</td>
</tr>
<tr>
<td>Consolidated Supply Co. (Seattle)</td>
<td>(206) 784-0047 Charlie Sandoval Cell (425) 922-4581</td>
<td>Mueller Meters for AMI</td>
</tr>
<tr>
<td><strong>Electrical Supplies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Coast Electric (Bellevue)</td>
<td>(425) 641-3400</td>
<td></td>
</tr>
<tr>
<td><strong>Electrical Supplies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stusser Electric (Bellevue)</td>
<td>(425) 454-3339</td>
<td></td>
</tr>
<tr>
<td><strong>Batteries</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interstate Batteries of Seattle (Seattle)</td>
<td>(800) 562-3212</td>
<td></td>
</tr>
<tr>
<td><strong>Maintenance Contractors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generator Maintenance</td>
<td>Cummins Northwest, Inc. (Renton)</td>
<td>(425) 235-3400</td>
</tr>
<tr>
<td>SCADA Maintenance</td>
<td>Performance Information Technologies</td>
<td>(425) 440-0626</td>
</tr>
<tr>
<td>Telemetry Maintenance</td>
<td>S&amp;B Inc. (Bellevue)</td>
<td>(425) 644-1700</td>
</tr>
<tr>
<td>PLCs for Telemetry</td>
<td>S&amp;B Inc. (Bellevue)</td>
<td>(425) 644-1700</td>
</tr>
<tr>
<td>Groundwater Protection</td>
<td>CDM (Bellevue)</td>
<td>(425) 453-8383</td>
</tr>
<tr>
<td>Water Testing</td>
<td>Water Management Labs (Tacoma)</td>
<td>(253) 531-3121</td>
</tr>
<tr>
<td>Water Testing</td>
<td>AmTest (Redmond)</td>
<td>(425) 885-1664</td>
</tr>
</tbody>
</table>
### Table R-3 (cont.)
**Chemicals, Equipment, Supplies, and Maintenance Contractors**

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Contacts</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Testing</td>
<td>Seattle Public Utilities</td>
<td>Wylie Harper, P.E. Drinking Water Quality Director (206) 684-7880</td>
</tr>
<tr>
<td>Communication (Mobile Radios and Base Radios and DSL)</td>
<td>Westhill Electronics (Bothell)</td>
<td>Russ Wentz (425) 486-0777 Cell (206) 605-3444</td>
</tr>
<tr>
<td></td>
<td>Accu Comm, Inc. (Mukilteo)</td>
<td>(800) 404-9344</td>
</tr>
<tr>
<td></td>
<td>Qwest (Seattle)</td>
<td>(888) 777-9569</td>
</tr>
</tbody>
</table>

### R.5 Area Agencies and Institutions of Note

Table R-4 provides a list of local agencies and institutions relevant to the District's purpose, and their contact information.

### Table R-4
**Area Agency/Institution Contact List**

<table>
<thead>
<tr>
<th>The Alarm Center</th>
<th>1 (800) 252-8338</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office/Shop</td>
<td>Acct# -1756335</td>
</tr>
<tr>
<td>Well 10</td>
<td>Acct# 515-5091</td>
</tr>
<tr>
<td>Well 1</td>
<td>Acct# 515-5092</td>
</tr>
<tr>
<td>Inglewood Lift Station</td>
<td>Acct# 523-1960</td>
</tr>
<tr>
<td>Emergency</td>
<td>911</td>
</tr>
<tr>
<td>911 Center, non-emergency</td>
<td>206-296-3311</td>
</tr>
<tr>
<td>NORCOM (Fire Dispatch), non-emergency</td>
<td>425-557-5700</td>
</tr>
</tbody>
</table>
### Table R-4 (cont.)
Area Agency/Institution Contact List

<table>
<thead>
<tr>
<th>Police Departments</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Issaquah Police Department</td>
<td>425-837-3200</td>
</tr>
<tr>
<td>King County Sheriff</td>
<td>206-296-3311</td>
</tr>
<tr>
<td>Redmond Police Department - records</td>
<td>425-556-2500</td>
</tr>
<tr>
<td>Redmond Dispatch 24 hour</td>
<td>425-885-1333</td>
</tr>
<tr>
<td>Sammamish Police Department - Main Admin</td>
<td>425-295-0770</td>
</tr>
<tr>
<td>Sammamish Police (24 hour non- emergency dispatch)</td>
<td>206-296-3311</td>
</tr>
<tr>
<td>Washington State Patrol – Bellevue District</td>
<td>425-401-7788</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fire Districts</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastside Fire &amp; Rescue</td>
<td>425-313-3200</td>
</tr>
<tr>
<td>EF&amp;R Battalion Chief Duty Officer – 24 hour Cell</td>
<td>425-765-1676</td>
</tr>
<tr>
<td>EF&amp;R Battalion Chief Fax</td>
<td>425-557-7640</td>
</tr>
<tr>
<td>EF&amp;R Fire Station 81 – Pine Lake</td>
<td>425-313-3381</td>
</tr>
<tr>
<td>EF&amp;R Fire Station 82 – Sahalee</td>
<td>425-313-3382</td>
</tr>
<tr>
<td>EF&amp;R Fire Station 83 – Klahanie</td>
<td>425-313-3383</td>
</tr>
<tr>
<td>King County Fire District #27 - Fall City</td>
<td>425-222-5841</td>
</tr>
<tr>
<td>KCFD #27 On-Call Duty Officer Cell</td>
<td>425-941-8975</td>
</tr>
<tr>
<td>King County Fire District #34 - Redmond</td>
<td>425-556-2226</td>
</tr>
<tr>
<td>KCFD #34 Fire Station Battalion Chief</td>
<td>425-556-2234</td>
</tr>
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<table>
<thead>
<tr>
<th>Federal</th>
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</thead>
<tbody>
<tr>
<td>EPA – Region 10 Seattle Office</td>
<td>1-800-424-4372</td>
</tr>
<tr>
<td>Federal Emergency Management Agency (FEMA) Region 10 Office</td>
<td>425-487-4600</td>
</tr>
<tr>
<td>FEMA general phone line</td>
<td>1 (800) 621-3362</td>
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<thead>
<tr>
<th>Washington State</th>
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<tbody>
<tr>
<td>Department of Ecology 24 hour</td>
<td>425-649-7000</td>
</tr>
<tr>
<td>Department of Transportation</td>
<td>206-440-4697</td>
</tr>
<tr>
<td>Department of Transportation – Emergency</td>
<td>206-440-4490</td>
</tr>
<tr>
<td>Department of Fish &amp; Wildlife (Nuisance Wildlife)</td>
<td>425-775-1311</td>
</tr>
<tr>
<td>OSHA</td>
<td>1 (800) 321-6742</td>
</tr>
<tr>
<td>WA State Dept of Labor &amp; Industries</td>
<td>1 (800) 423-7233</td>
</tr>
<tr>
<td>Department of Health 24-Hour Drinking Water Emergencies</td>
<td>1 (877) 481-4901</td>
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### Table R-4 (cont.)
#### Area Agency/Institution Contact List

<table>
<thead>
<tr>
<th>King County</th>
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</thead>
<tbody>
<tr>
<td><strong>Department of Emergency Management</strong></td>
<td></td>
</tr>
<tr>
<td>Office (ECC when activated)</td>
<td>206-296-3830</td>
</tr>
<tr>
<td>Animal Control – Regional Animal Services of King Co.</td>
<td>206-296-7387</td>
</tr>
<tr>
<td><strong>King County Wastewater Treatment Division (Sewer)</strong></td>
<td></td>
</tr>
<tr>
<td>24 hour Emergency/Overflows</td>
<td>206-263-3801</td>
</tr>
<tr>
<td>South Treatment Plant, Renton – 24 hour Emergency/Overflows</td>
<td>206-263-1760</td>
</tr>
<tr>
<td><strong>Public Health – Seattle/King County</strong></td>
<td></td>
</tr>
<tr>
<td>Emergency/24 hour number</td>
<td>206-296-4774</td>
</tr>
<tr>
<td><strong>Roads</strong></td>
<td></td>
</tr>
<tr>
<td>24-Hour Road Helpline</td>
<td>206-477-8100</td>
</tr>
<tr>
<td>King County Roads Dispatch</td>
<td>206-296-8100</td>
</tr>
<tr>
<td><strong>Water and Land Resources Division</strong></td>
<td></td>
</tr>
<tr>
<td>General Information</td>
<td>206-477-4800</td>
</tr>
<tr>
<td>Josh Baldi - Division Director -</td>
<td>206-477-9440</td>
</tr>
<tr>
<td><strong>Hazardous Waste Pick-up Information</strong></td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>206-477-4466</td>
</tr>
<tr>
<td><strong>Department of Assessments</strong></td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>206-296-7300</td>
</tr>
<tr>
<td>Local Water and Sewer Assessments Office</td>
<td>206-296-3913</td>
</tr>
<tr>
<td>Ana Schoenecker, Customer Service</td>
<td>206-296-4606</td>
</tr>
<tr>
<td><a href="mailto:Ana.schoenecker@kingcounty.gov">Ana.schoenecker@kingcounty.gov</a> Duty Officer 24 Hr</td>
<td></td>
</tr>
<tr>
<td><strong>Cities/Special Districts</strong></td>
<td></td>
</tr>
<tr>
<td><strong>City of Bellevue</strong></td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td>425-452-6800</td>
</tr>
<tr>
<td>Utilities O &amp; M and 24-hr Emergency Response</td>
<td>425-452-7840</td>
</tr>
<tr>
<td>Joe Harbour, Operations Manager</td>
<td>425-452-2014</td>
</tr>
<tr>
<td>Andrew Lee, Deputy Operations Director</td>
<td>425-452-7675</td>
</tr>
<tr>
<td><strong>City of Issaquah – Public Works</strong></td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>425-837-3400</td>
</tr>
<tr>
<td>Emergency: Police Dispatch (will contact water/sewer utilities)</td>
<td>425-837-3200</td>
</tr>
<tr>
<td><strong>City of Redmond – Public Works</strong></td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td>425-556-2800</td>
</tr>
<tr>
<td>Emergency: Police Dispatch (will contact water/sewer utilities)</td>
<td>425-556-2500</td>
</tr>
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</table>
### Table R-4 (cont.)
#### Area Agency/Institution Contact List

<table>
<thead>
<tr>
<th><strong>City of Sammamish Public Works</strong></th>
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</thead>
<tbody>
<tr>
<td>Main Office</td>
<td>425-295-0500</td>
</tr>
<tr>
<td>MOC Administrative Assistant: Colleen Rupke</td>
<td>425-952-2115</td>
</tr>
<tr>
<td>Public Works 24-hour response: emergency dispatch</td>
<td>425-295-0700</td>
</tr>
<tr>
<td>Emergency Manager: Andrew Stevens</td>
<td>425-295-0549</td>
</tr>
<tr>
<td>Public Works Internal Service Manager: Martin Bohanan</td>
<td>425-952-2116</td>
</tr>
<tr>
<td>Street/Stormwater Maintenance Supervisor: Dan Johnson</td>
<td>425-592-2118</td>
</tr>
<tr>
<td>Parks Maintenance Supervisor: Mike Keller</td>
<td>425-592-2122</td>
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<table>
<thead>
<tr>
<th><strong>Northeast Sammamish Sewer &amp; Water District</strong></th>
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<tbody>
<tr>
<td>Office</td>
<td>425-868-1144</td>
</tr>
<tr>
<td>Emergency/Laura Keough, Gen Manager</td>
<td></td>
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<table>
<thead>
<tr>
<th><strong>Ames Lake Water District</strong></th>
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<tbody>
<tr>
<td>Office</td>
<td>425-222-7003</td>
</tr>
<tr>
<td>Emergency: Jeremy Reier, Water Operator</td>
<td>425-864-3663</td>
</tr>
<tr>
<td>Emergency: Bob Pancoast, General Manager</td>
<td>206-819-4215</td>
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<table>
<thead>
<tr>
<th><strong>Overdale Water Association</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dale Timmons, Board of Trustees, <a href="mailto:dmtimmons@aritechnologies.com">dmtimmons@aritechnologies.com</a></td>
<td></td>
</tr>
<tr>
<td>H: 425-391-0437</td>
<td></td>
</tr>
<tr>
<td>C: 206-900-1613</td>
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<table>
<thead>
<tr>
<th><strong>Union Hill Water Association</strong></th>
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</thead>
<tbody>
<tr>
<td>Office/24 hr.</td>
<td>425-497-1812</td>
</tr>
<tr>
<td>Field Supervisor – Don Erickson</td>
<td>425-466-4289</td>
</tr>
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<table>
<thead>
<tr>
<th><strong>Cedar River Water</strong></th>
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<tbody>
<tr>
<td>Office – 24 Hr</td>
<td>425-255-6370</td>
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<thead>
<tr>
<th><strong>Washington Water Service Company</strong></th>
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<tbody>
<tr>
<td>Operations Field Office/Issaquah</td>
<td>877-408-4060</td>
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<thead>
<tr>
<th><strong>Dawnbreaker</strong></th>
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<tbody>
<tr>
<td>Water Association President - Brian Ott</td>
<td>425-788-6105</td>
</tr>
<tr>
<td>Water Operator: Kevin Odegard, NW Water Systems</td>
<td>360-876-0958</td>
</tr>
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