

all installed transmission, distribution and service piping. The City may allow thirty (30) inches of cover where ductile iron piping is utilized.

2. Tracer Tape and Locate Wire. All pipes and services shall be installed with continuous tracer tape placed twelve to eighteen inches under the proposed finished subgrade. The tracer tape shall be of plastic non-biodegradable, metal core, or backing marked "WATER" that can be detected by a standard metal detector. In addition to tracer tape, toning wire shall be installed over all pipe and services. Toning wire shall be UL listed, type UF, 12-gauge solid coated (blue) copper wire, taped to the top of the pipe and laid loose enough to prevent stretching and damage before being brought up and tied off at the valve operating nut or valve box. If the operating nut is not easily accessible from the ground surface, the copper wire shall be tied off at the valve box in such a way that the wire is easily accessible from the ground surface. Two (2) feet of slack shall be provided to allow for connection to the locator. Toning wire shall be tested prior to acceptance of the pipe system. A written notice from the Contractor to the City must be received two (2) business days prior to when testing is required.

3. Connection to Existing Mains. The City shall be responsible for approving the scope of work for connection to existing watermains. The City shall be consulted regarding fittings or couplings required. It shall be the Contractor's responsibility to verify the location and depth of the existing main and the fittings required to make the connections to the existing main. All excavation, connections, piping, tapping valve fittings, services, anchors, blocking, bedding, backfill, compaction, restoration and other labor and materials required shall be furnished and placed by the Contractor. Tapping or connecting to an existing watermain shall be done in the presence of a City representative. The City shall be given five (5) business days advance notice of a watermain tap or connection to an existing main. Water mains shall not be shut down for taps under most conditions.

4.04 Service Interruption

- A. The Contractor shall notify the City five (5) business days prior to a utility shutdown. The City, at its discretion, may re-schedule shutdown and a City representative must be present at any utility shutdown. When shut downs require "field verification" of underground conditions, connection points will be exposed by the Contractor and work requirements shall be verified by the Contractor and the City two (2) business days prior to the shutdown notice. Customers involved with or affected by shutdowns will be notified by the Contractor at least forty-eight (48) hours in advance. Shutdowns will not be permitted on Fridays, weekends, or holidays without written authorization from the City.

- B. Shutdowns cannot be scheduled until a Water/Sewer/Stormwater Application has been approved and all applicable fees have been paid in full.

4.05 Hydrants

- A. Fire hydrants shall be installed in accordance with the Standard Specifications and the Standard Details.
1. The center of the lowest outlet of the hydrant shall be no less than 18-inches above finished grade. In addition, all hydrants shall be installed with a minimum of a 36-inch unobstructed radius around the hydrant. Hydrants shall be aligned so that pumper ports face toward the road or most probable route of access, if roads are not available, as determined by the appropriate local fire protection authority.
 2. When necessary, the City shall require hydrants to be protected by two or more posts, 4-inch diameter x 5 feet high made of either reinforced concrete or steel.
 3. Public fire hydrants shall be located within publicly owned easements and rights-of-way.
- B. The City, in conjunction with Lewis County Fire District No. 15 shall determine the required hydrant spacing. All hydrants shall be installed and placed in a manner that provides accessibility to Police and Fire Services and their equipment as determined by both departments. Unless otherwise required by the City, the following guidelines shall apply for hydrant number and location:
1. In general, hydrants shall be predicated on the location of street intersections wherever possible, and located to minimize the hazard of damage by traffic.
 2. Hydrants shall have an average nominal spacing of 600-feet. In no case shall hydrants be placed farther than 700-feet apart and no building shall be more than 350-feet from the nearest hydrant.
 3. More stringent spacing may be required if needed to meet specific building or fire code requirements.
 4. The spacing distance for hydrants shall be measured along the frontage street(s) and/or accessible side street(s) only. When determining the sufficiency of existing hydrants related to hydrant placement and spacing, hydrants located behind or on parallel streets or alleys, or hydrants with flows less than the minimum fire flows listed in Section 4.03A shall not be considered.
 5. When any portion of a proposed building is in excess of 150 feet from a water supply on a public street or right-of-way, privately owned on-site hydrants shall be required. Such hydrants shall be located per Winlock Police, Lewis County Fire District No. 15 and the International Fire Code. The hydrants shall be privately maintained and shall include the appropriate metering and backflow

prevention, as noted in these guidelines. A proposed maintenance schedule shall be submitted to the City for review prior to final approval of the engineering plans.

4.06 Valves

- A. Valves shall be installed in the distribution system at sufficient intervals to facilitate system repair and maintenance, but in no case shall there be less than one (1) valve every 400 feet in school, commercial or multi-family areas, or 800 feet in residential areas, where customers are being served. Generally, there shall be three (3) valves on each tee and four (4) valves on each cross. Specific requirements for valve spacing shall be made at the plan review stage. All existing valves are to be operated by City employees only.
- B. Gate Valves. Gate valves shall be used on all 2- to 12-inch lines. Resilient seated gate valves shall be manufactured and tested in accordance with AWWA C509 or C515 specifications. They shall be equipped with mechanical joints or flanged ends of Class 125 in accordance with ANSI B16-1. Gate valves, 3-inch and larger, shall be iron body, bronze-mounted, double disc and "O"-ring stem seal. Gate valves smaller than 3-inches shall be 125 psi, non-stem rising, wedge disc, all brass or bronze valves with screwed, soldered or flanged ends compatible with the connecting pipe. All valves shall open counterclockwise and, unless otherwise specified, shall be non-rising stem type equipped with standard AWWA 2-inch stem operating nuts. Gate valves shall be Mueller, M & H, Kennedy, Clow R/W or Waterous Series 500.
- C. Butterfly Valves. Butterfly valves shall be used on all lines fourteen (14) inches and larger. Butterfly valves shall conform to AWWA C504, Class 150B, with cast iron short body and O-ring stem seals. When installed, they shall have a position indicator which clearly shows position of the disc. All valves shall be equipped with an underground manual operator with AWWA 2-inch square operating nut and shall open with a counterclockwise rotation. Butterfly valves shall be Mueller, Linseal III, Kennedy, or Allis Chalmers.
- D. Valve Boxes. All valve boxes shall be in accordance with Standard Details.

4.07 Casing

- A. Steel casing pipe shall be schedule 20 steel or equal. Pipe spacers shall have 8-inch runners. Casting pipe and spacers shall be sized for pipe being installed with a minimum of three (3) spacers per section of pipe. The casing pipe shall then be sand-packed and sealed with flexible end seal material secured with stainless pipe bands.

4.08 Combination Air Valve

- A. Combination air valves shall be in accordance with the Standard Details. Combination air valves shall be set at high points of water mains. Where possible, pipes are to be graded to prevent the need for a combination air valve.

4.09 Blowoff Assembly

- A. A blowoff assembly shall be installed on all permanent dead-end runs and at the designated points of low elevation within the distribution system if a fire hydrant is not located in the immediate vicinity. On watermains that may be extended in the future, the valve that operates the blowoff assembly shall be the same size as the main and provided with a saddle block along the last length of the pipe preceding the valve, in lieu of a thrust block at the end. The blowoff assembly shall be installed in the utility right-of-way.

4.10 Backflow Prevention

- A. All water system connections serving buildings or properties with fire sprinklers, irrigations systems or other potential cross-connections as determined by the City, shall comply with the minimum backflow prevention requirements established by the Department of Health (DOH) and the City of Winlock Cross-Connection Control Program.
- B. All assemblies must be installed in accordance with the most recent versions of the City of Winlock Cross-Connection Control Program, DOH, UPC, and the PNWS/AWWA Cross-Connection Control Manual. In addition, all assemblies must be inspected and approved by the City's Cross-Connection Specialist (CCS).
- C. In-premise installation of backflow assemblies can be installed only with written permission by the City's CCS or may be mandated along with premises isolation when high health hazards are determined to exist by the CCS. All backflow assemblies (premises or in-premises) must be readily accessible to City personnel during regular working hours of 8:00 a.m. to 4:30 p.m. If there is a change of ownership of an in-premise backflow assembly and/or at any time all requirements are not met, the City has the right to enforce premises isolation and shall follow the procedures established in the City of Winlock Cross-Connection Control Plan. The City must be notified within two (2) business days of the completion of a backflow assembly installation. Upon notification, the City's CCS shall then inspect the installation to determine compliance with all applicable requirements.
- D. All backflow assembly installations are also required to be tested by a Washington State DOH-certified Backflow Assembly Tester (BAT) with an annual certificate of accuracy for their testing equipment on file with the City. The test results must be delivered to the City showing the backflow assembly having successfully passed the certified test. The property owner must schedule a backflow test annually thereafter.

The City shall release or issue a Certificate of Occupancy only after all backflow assemblies have passed a certified test. A list of approved testers may be obtained from the Washington Environmental Training Resource Center (WETRC) located in Auburn, Washington.

- E. All costs associated with purchase, installation, inspections, testing, replacement, maintenance, parts and repairs of a backflow assembly are the responsibility of the property owner/user.
- F. Failure on the part of any customer to correct all cross-connections in accordance with these guidelines is sufficient cause for the immediate discontinuance of public water service to the premises.

4.11 Service Connection

- A. Each customer shall have a separate metered service. Master meters may be allowed for service to a complex under single ownership and where multiple service meters is impractical. Types of facilities where master meters may be allowed shall be in accordance with WAC 246-290-496.
- B. Services shall be installed in accordance with the Standard Details. All service connection sizes used for new development shall be determined by the City and installed by the Developer at the time of mainline construction. After the lines have been constructed, tested and approved, the owner may request a water meter. The City shall install a water meter only after all applicable fees paid and the system inspected and approved. For 1½" or larger meters, the meter and gasket shall be supplied by the Contractor. The City shall lock off the setter after the Contractor has installed the meter.
- C. For new service to an existing parcel or new parcel fronting an existing main, an application must be submitted to the City. Upon approval of the application and payment of all applicable fees, the property owner shall hire a licensed Contractor to tap the main, and install the meter, box, and setter. The City shall supply the water meter and setter.

4.12 Watermain/Sanitary Sewer Crossings

- A. Transmission and distribution water piping shall be separated at least ten (10) feet horizontally from on-site waste disposal piping, drainfields, and/or gravity sewage pipes and force mains. The Contractor shall maintain a minimum of eighteen (18) inches of vertical separation between sanitary sewers and watermain crossings - with the watermains being at the higher elevation.
- B. The longest standard length of water pipe shall be installed so that the joints shall fall equidistant from any sewer crossing. In cases where minimum separation cannot be maintained, it may be necessary to utilize watermain-rated pipe for the

sewer line, or to encase the water pipe and/or sewer line in a casing or concrete. No concrete shall be installed unless specifically directed by the City.

- C. Additional guidelines to be considered for parallel and crossing installations of water and sewer lines are the DOH Water System Design Manual, DOE Sewage Works Criteria and the *"Recommended Standards for Water Works."* – Ten State Standards.

4.13 Irrigation

All irrigation systems shall be installed with a backflow prevention assembly in accordance with the City of Winlock Cross-connection Control Program. Irrigation sprinklers shall be situated so as to not wet any public street or sidewalk.

4.14 Staking

- A. All surveying and staking shall be performed by a surveying firm licensed in the State of Washington and capable of performing such work.
- B. The minimum staking of waterlines shall be as follows:
 - 1. Stake centerline alignment every one hundred (100) feet with cuts and/or fills to bottom of trench maintaining the minimum required depth of cover over pipe. Centerline cuts are not required when road grade is to finished subgrade elevation.
 - 2. Stake location of all fire hydrants, hydrant flange elevations, tees, water meters, setters and other fixtures with cut or fill to finished grade.

4.15 Construction Requirements

- A. Pipe placed in the trench shall be sealed with a watertight plug at the end of each day. More frequent use of a watertight plug may be required at the discretion of the City.
- B. Trenching and shoring operations shall be in conformance with Washington Industrial Safety and Health Administration (WISHA) and Office of Safety and Health Administration (OSHA) Safety Standards. The Contractor shall maintain the presence of a "competent person" as defined by the Washington State Department of Labor and Industries when any trench excavation and backfill work is being done at the project site.
- C. Backfilling shall not commence until the pipe installation has been inspected and approved by the City. Backfilling and surface restoration shall closely follow installation of pipe so that not more than 100 feet is left exposed during construction hours without approval of the City.

- D. Where governmental agencies other than the City have jurisdictions over roadways, the backfill and compaction shall be done to the satisfaction of the agency having jurisdiction, but in no case shall the backfilling or compaction be to a lower standard than that of the City.

4.16 Street Patching and Restoration

- A. See Chapter 2 of these guidelines for requirements regarding street patching and trench restoration.

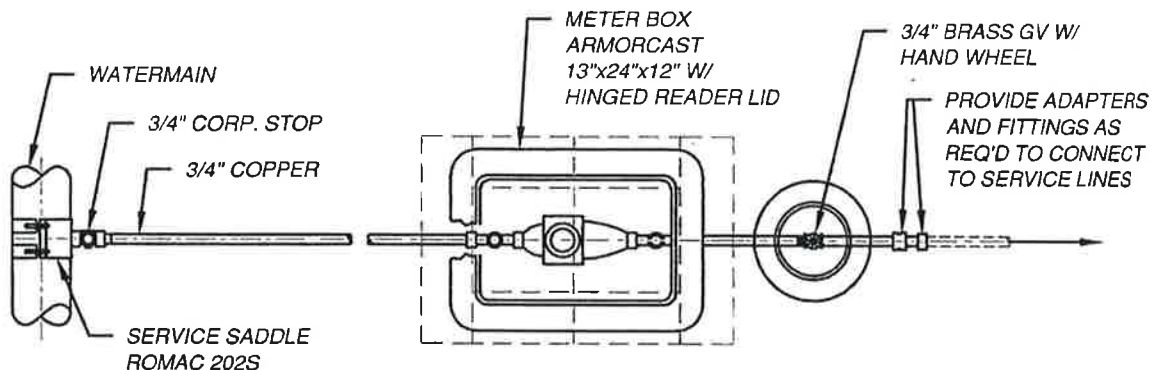
4.17 Hydrostatic Tests

- A. Prior to the acceptance of work, a hydrostatic and pressure leakage test shall be conducted by the Contractor on all newly-constructed water mains, fire lines, fire hydrants leads and stub-outs in accordance with Standard Specifications, and AWWA C600, unless specified otherwise by the City. All pumps, gauges, plugs, saddles, corporation stops, miscellaneous hose and piping, and measuring equipment necessary for performing the test shall be furnished and operated by the Contractor. Prior to calling the City to witness the pressure test, the Contractor shall have all equipment ready for operation and have successfully performed the test to ensure that the pipe is in satisfactory condition.
- B. Defective material or workmanship discovered, during a hydrostatic field test shall be replaced by the Contractor at no expense to the City. Whenever it is necessary to replace defective material or correct workmanship, the hydrostatic test shall be re-run at the Contractor's expense until a satisfactory test is obtained. Test pressure shall be maintained while the installation is inspected by the City.

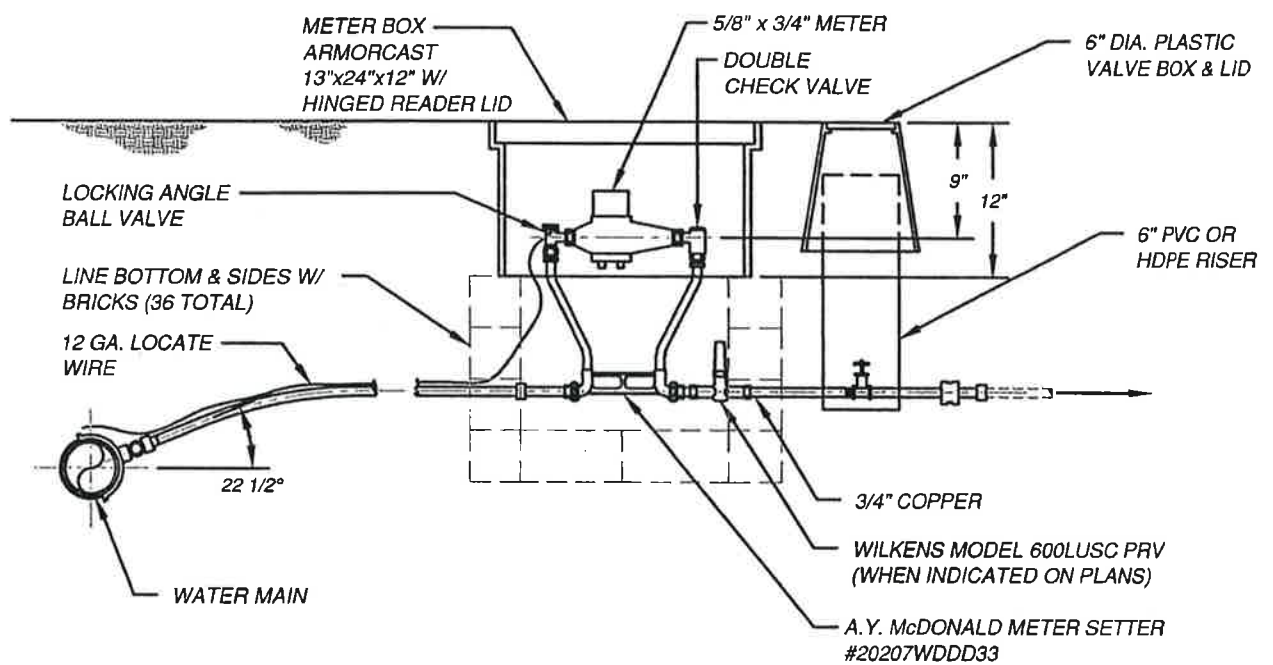
4.18 Sterilization and Flushing

- A. Sterilization of watermains shall be accomplished by the Contractor in accordance with the Standard Specifications. At no time shall chlorinated water from a new main be flushed into a body of water, including lakes, rivers, streams, drainage ways, and all waters where fish or other natural water life can be expected. Any discharge into a City sewer system must be approved in advance and in writing by the City. Sample collection should be scheduled with the City at least two (2) business days in advance. Samples can only be taken on Mondays, Tuesdays and Wednesdays.

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PLAN VIEW

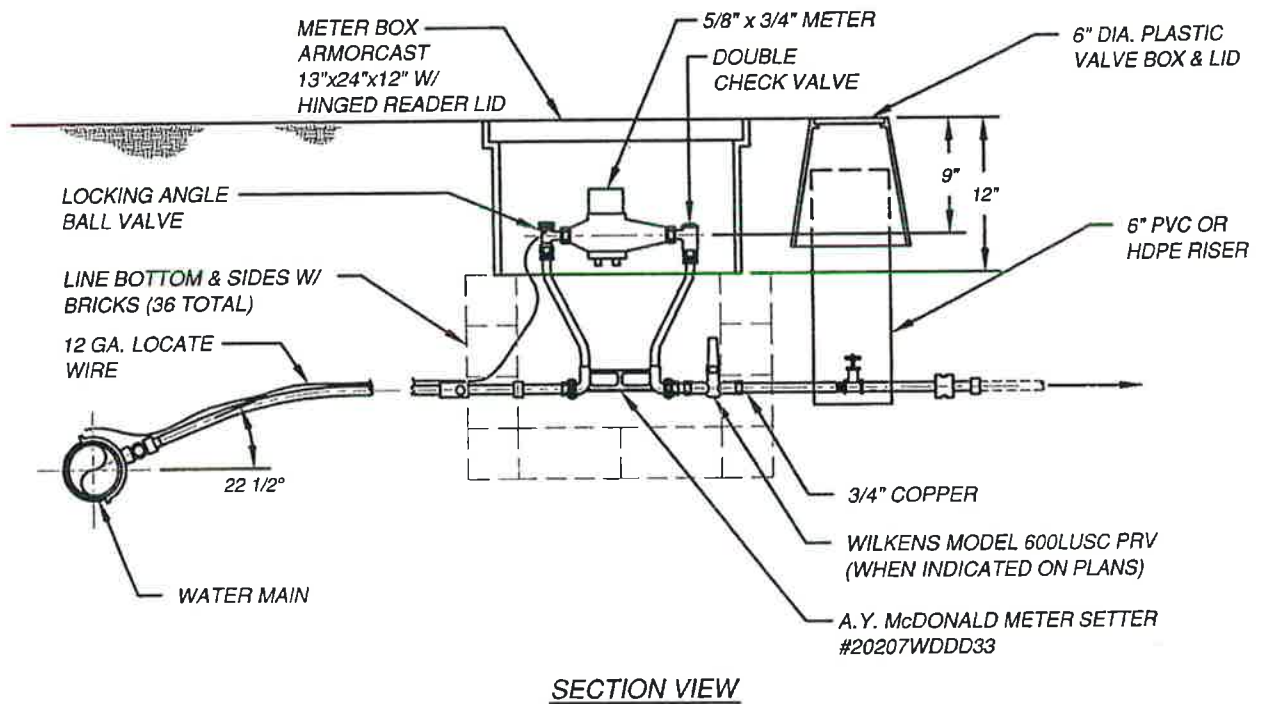
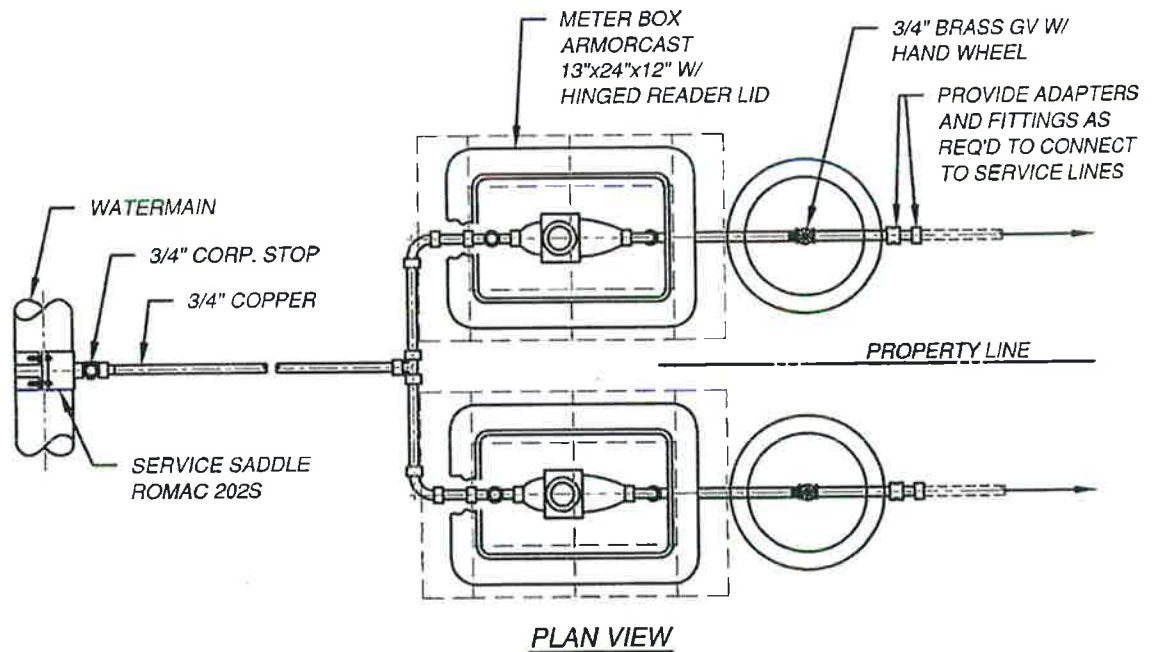


SECTION VIEW

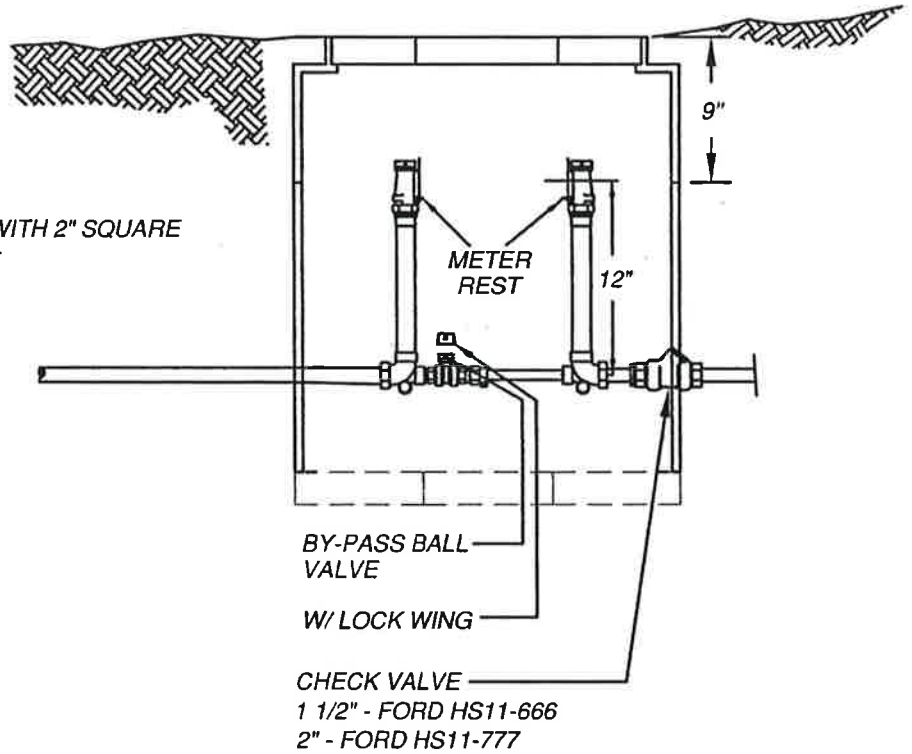
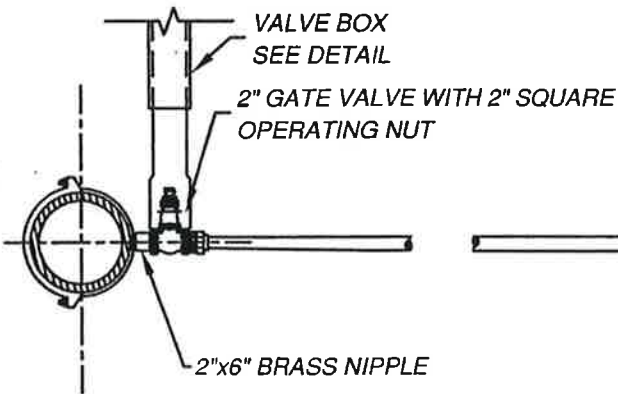
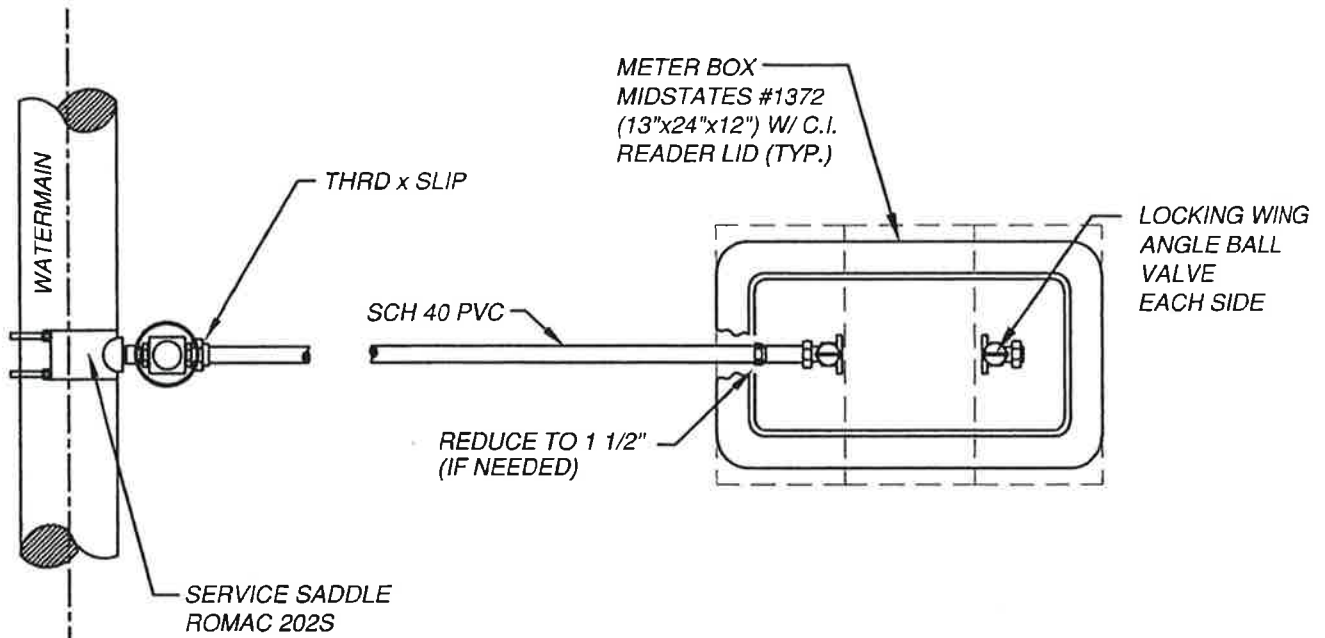


CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS	WATER DETAILS TYPE 1 WATER SERVICE	REVISED 08/20/2007	DRAWING NO. 4-1

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CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS	WATER DETAILS TYPE 2 WATER SERVICE	REVISED 08/20/2007	DRAWING NO. 4-2



NOTES:

1. COPPER SETTERS SHALL BE:
1 1/2" - FORD VVF76-12B-13-11-66
2" - FORD VVF77-12B-17-11-77

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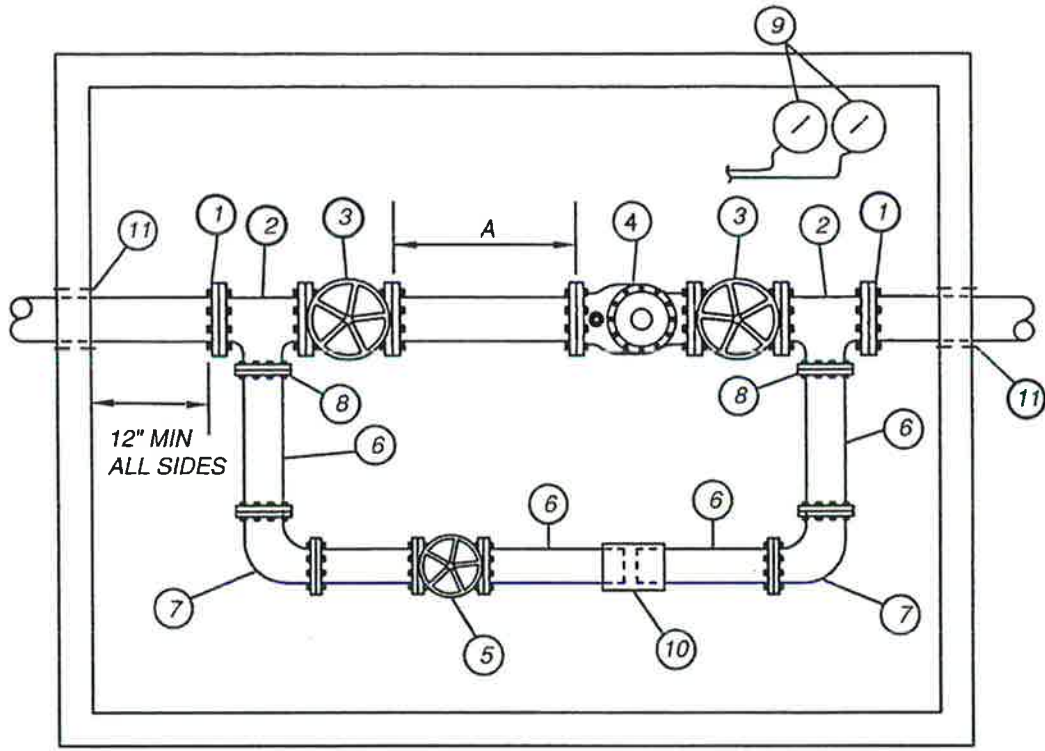


CITY OF WINLOCK
DEPARTMENT OF PUBLIC WORKS

WATER DETAILS
1 1/2" - 2" WATER SERVICE
WITH BYPASS

REVISED
08/20/2007

DRAWING
NO.
4-3



METER	MINIMUM DIMENSION "A"	DOOR SIZE	VAULT DEPTH	TEES
3" COMPOUND	15"	3' X 3'	5'0"	3"X1-1/2"
4" COMPOUND	20"	3' X 3'	5'0"	4"X2"
6" COMPOUND	30"	3' X 3'	5'0"	6"X4"
8" COMPOUND	40"	3' X 6'	5'0"	8"X6"

* VARIES, TO BE DETERMINED BASED ON SPECIFIC PARTS USED.

- ① RESTRAINED FLG ADAPTER (RFA)
- ② FLG TEE
- ③ FLG GATE VALVE W/ HAND WHEEL
- ④ COMPOUND METER
- ⑤ GATE VALVE W/HAND WHEEL
- ⑥ DUCTILE IRON SPOOL OR BRASS NIPPLES
- ⑦ 90° ELBOWS (MATERIAL TO BE SAME AS PIPE)
- ⑧ RFA OR BLIND FLG W/ THRD TAP
- ⑨ REMOTE READERS
- ⑩ MECHANICAL COUPLING OR UNION
- ⑪ SEAL ANNULAR SPACE W/ NON-SHRINK GROUT

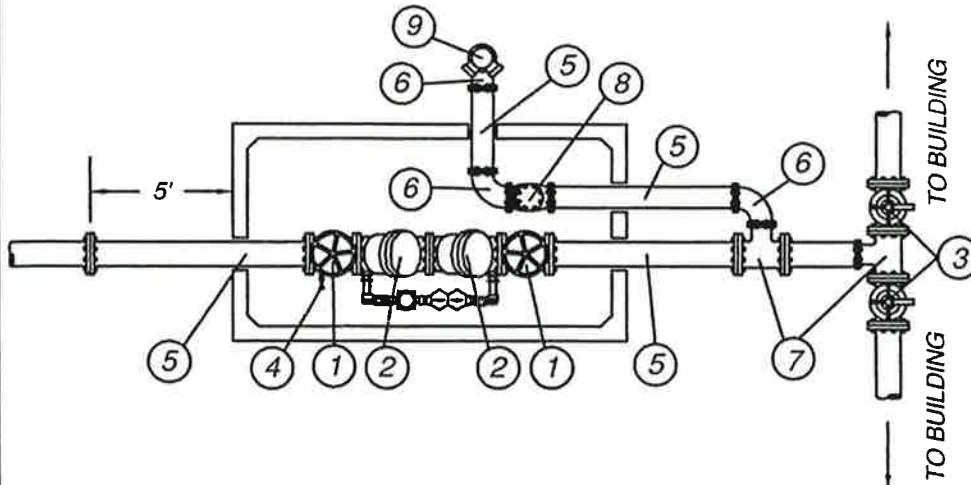
NOTES:

1. VAULTS SHALL BE THE STANDARD PRODUCTS AS MANUFACTURED BY UTILITY VAULT "LA" SERIES OR EQUAL. TOP SECTIONS SHALL INCLUDE HINGED LOCKING COVER (NO. 332P OR 2-332P) HINGED READER LID FOR REMOTE READERS.
2. PIPE AND FIXTURES TO BE SET ON VALVE STANDS INSTALLED ACCORDING TO MANUFACTURERS SPECS.
3. DRAINAGE MUST BE PROVIDED FOR THE VAULT.

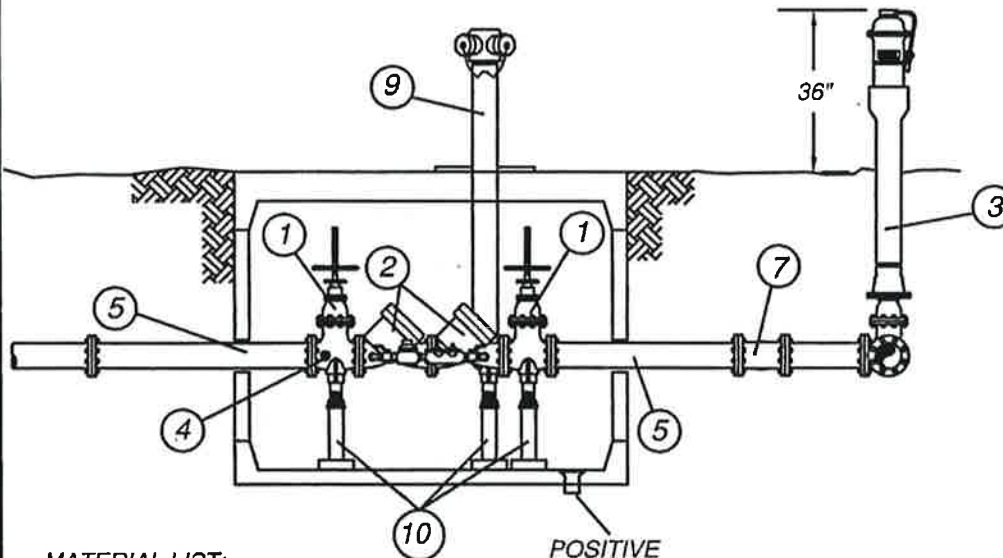


CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS	WATER DETAILS COMPOUND WATER METER WITH BYPASS FOR 3" - 8" WATER SERVICE	REVISED 08/20/2007	DRAWING NO. 4-4
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PLAN



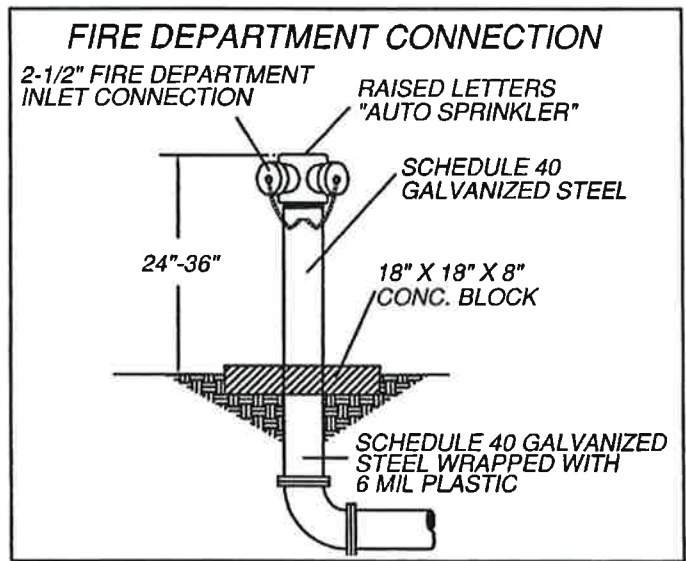
PROFILE

MATERIAL LIST:

1. FLG GATE VALVE W/ HANDWHEEL
2. DOUBLE CHECK DETECTOR ASSEMBLY
FLGxFLG (DOH APPROVED)
3. POST INDICATOR VALVE
4. 3/4" BALL VALVE (TEST COCK)
5. DI PIPE SPOOL
6. DI 90° FLG BEND
7. DI FLG TEE
8. SWING CHECK VALVE W/BALL DRIP ASSEMBLY
9. FIRE DEPARTMENT CONNECTION
10. VALVE STANDS
11. WHERE PIPING PASSES THROUGH CONCRETE
WALL PROVIDE 2" CLEARANCE W/ WATERPROOF
MASTIC OR FLEXIBLE SEALANT

GENERAL NOTES:

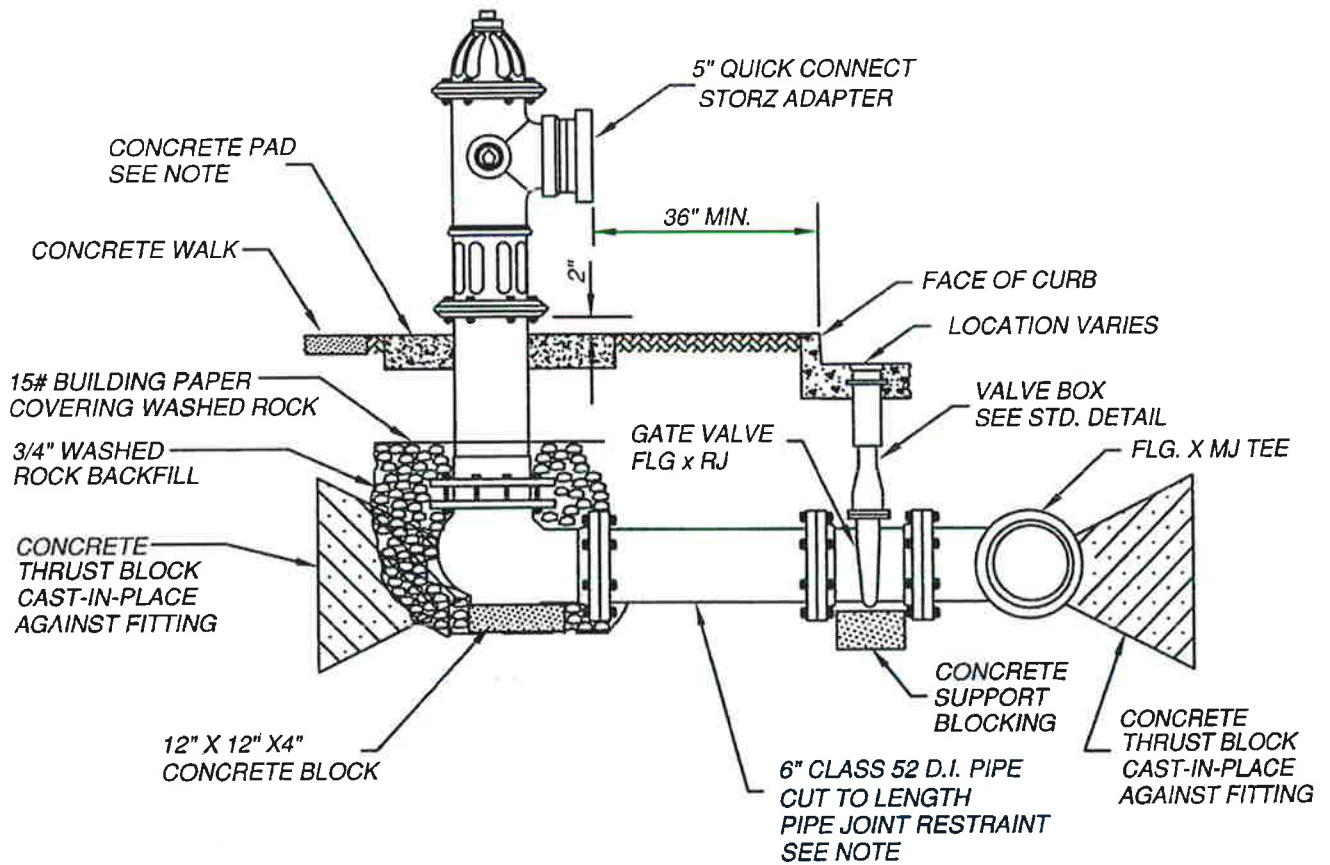
- A. PIPE FROM WATER MAIN TO BUILDING
SHALL BE CLASS 50 OR 52 DI.
- B. INSTALL PLUGS ON ALL TEST COCKS.
(FINGER TIGHT)
- C. ALL PIPING SHALL BE SIZED BY A LICENSED
FIRE SYSTEMS DESIGNER. (MINIMUM OF 4").



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CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS	WATER DETAILS FIRE DEPARTMENT CONNECTION WITH DCDA	REVISED 08/20/2007	DRAWING NO. 4-5
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NOTES

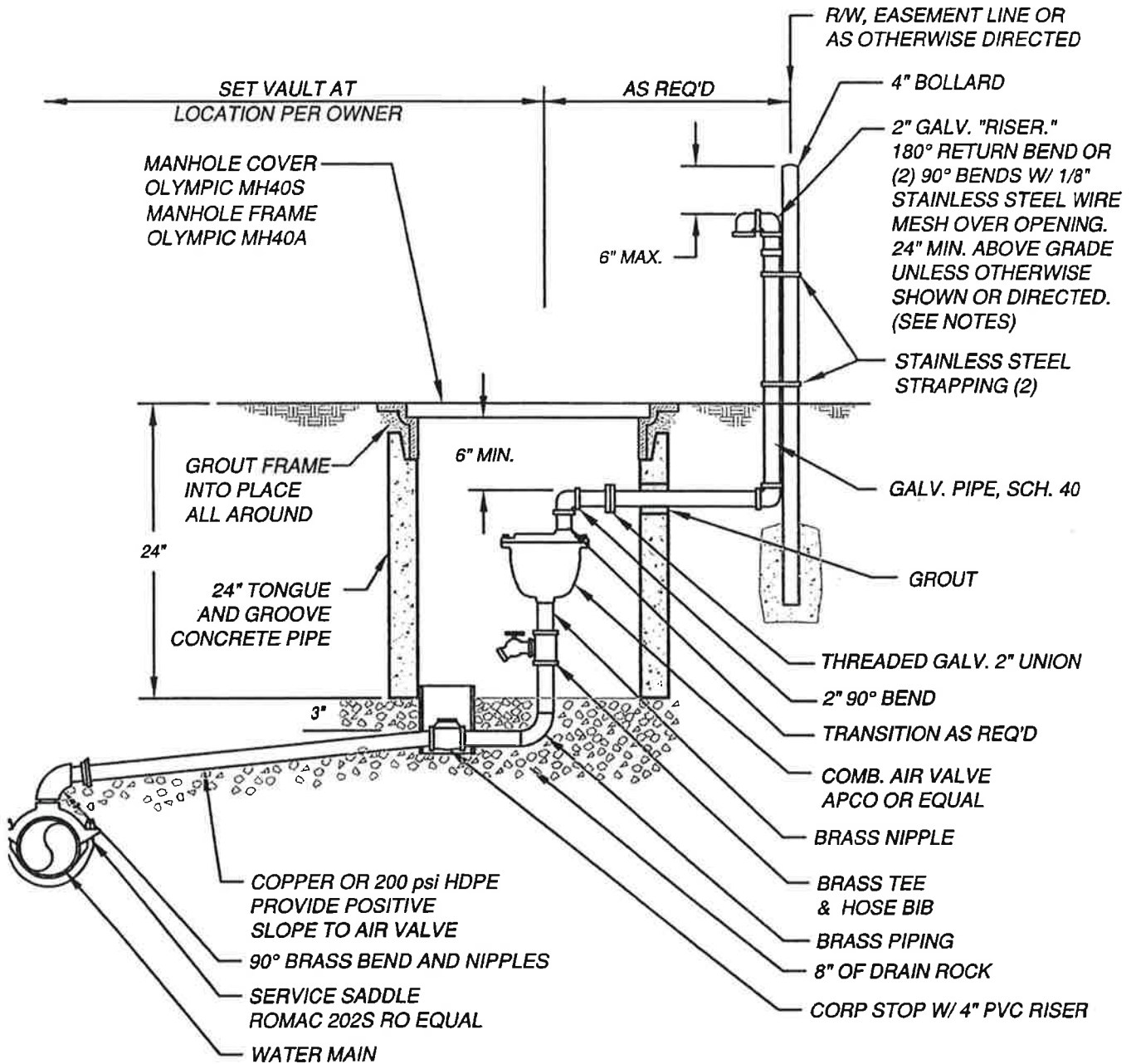
1. HYDRANTS SHALL BE LOCATED WITHIN THE STREET RIGHT-OF-WAY, WITH A MINIMUM THREE-FOOT RADIUS UNOBSTRUCTED WORKING AREA.
2. HYDRANT SHALL BE CLOW MEDALLION.
3. HYDRANT SHALL BE PAINTED SUNBURST YELLOW HIGH-GRADE ENAMEL AFTER INSTALLATION.
4. MECHANICAL PIPE JOINTS SHALL BE MEGALUG SERIES RESTRAINING GLANDS.
5. A 4' X 4' X 8" DEEP CONCRETE PAD WILL BE POURED AROUND THE HYDRANT. ENTEND PAD TO 2' BEYOND GATE VALVE WHEN VALVE IS OUTSIDE OF PAVEMENT.
6. MINIMUM HYDRANT BURY SHALL BE 30".
7. INSTALL 4 BOLLARDS AROUND HYDRANT (4' RADIUS) IN UN-PROTECTED LOCATIONS.



<p>CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS</p>	<p>WATER DETAILS FIRE HYDRANT</p>	<p>REVISED 08/20/2007</p>	<p>DRAWING NO. 4-6</p>
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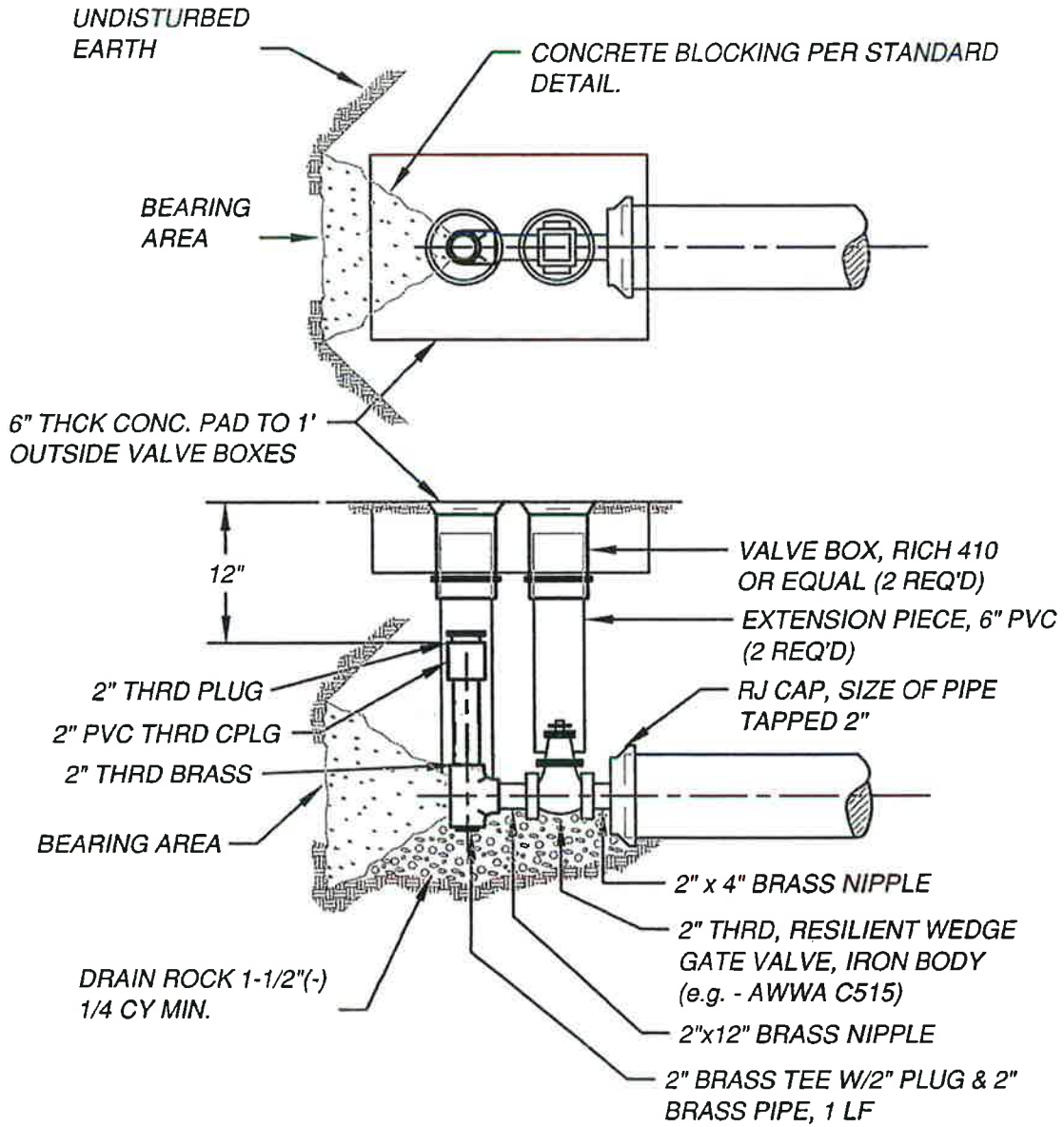
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COMBINATION AIR VALVE NOTE:
 1. DRAIN TO DAYLIGHT W/ 2" PVC IF APPLICABLE.
 2. TERMINATE EXHAUST INSIDE VAULT W/ 90° BEND (DOWN) AND WIRE MESH IF VAULT IS DRAINED TO DAYLIGHT.



CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS	WATER DETAILS	REVISED	DRAWING
	COMBINATION AIR VALVE	08/20/2007	NO. 4-7

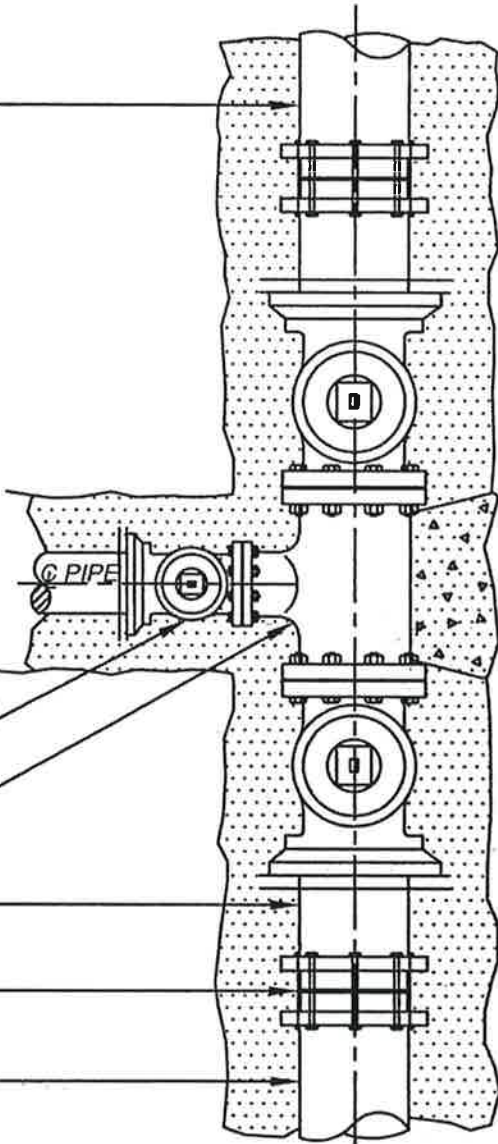


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CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS	WATER DETAILS BLOW OFF VALVE	REVISED 08/20/2007	DRAWING NO. 4-8

EX. WATER MAIN



GATE VALVE
FLG x MJ
TEE FLG x MJ

2' LONG PIPE SPOOL
(TYP.)

TRANS. CPLG
(TYP.)

EX. WATER MAIN

TEE

GATE VALVE
FLG x MJ

C PIPE

PIPE BEDDING

SUPPORT BLOCKS

CONCRETE THRUST BLOCK

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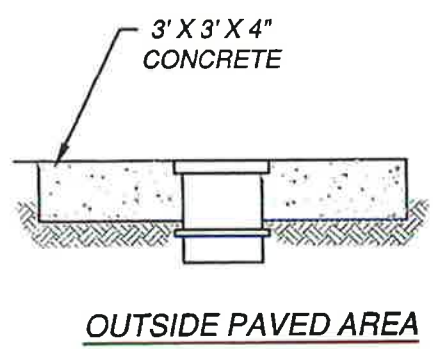
CITY OF WINLOCK
DEPARTMENT OF PUBLIC WORKS

WATER DETAILS
CUT-IN TEE

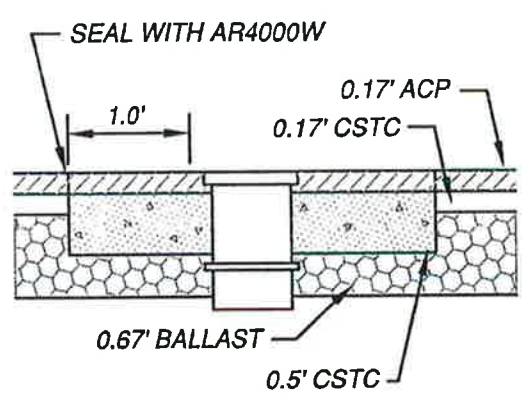
REVISED
08/20/2007

DRAWING
NO.
4-9

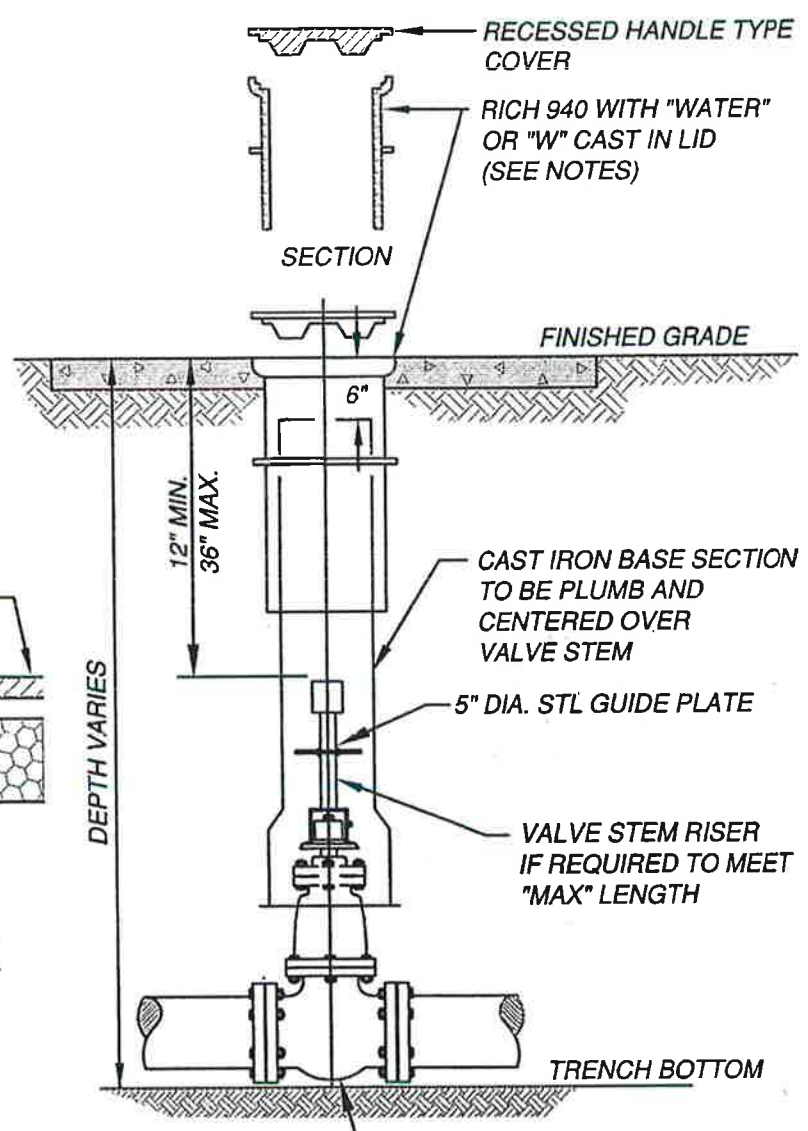
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OUTSIDE PAVED AREA



INSIDE PAVED ROADWAY



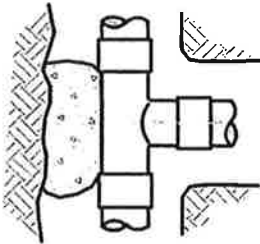
GATE VALVE SHOWN-SIMILAR INSTALLATION REQUIRED FOR BUTTERFLY VALVES.

NOTES:
1. ALIGN VALVE COVER EARS IN DIRECTION OF FLOW THROUGH VALVE.

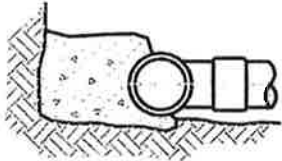


<p align="center">CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS</p>	<p align="center">WATER DETAILS VALVE BOX DETAIL</p>	<p align="center">REVISED 08/20/2007</p>	<p align="center">DRAWING NO. 4-10</p>
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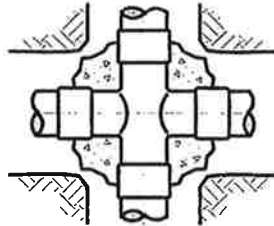


TOP VIEW

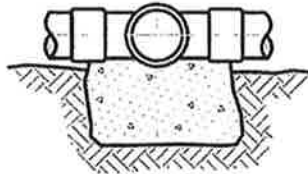


SIDE VIEW

TEE

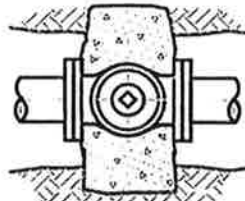


TOP VIEW

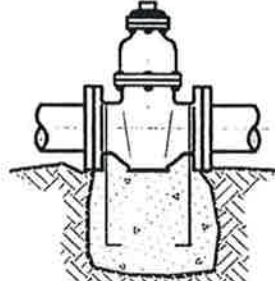


SIDE VIEW

CROSS

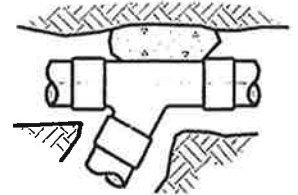


TOP VIEW



SIDE VIEW

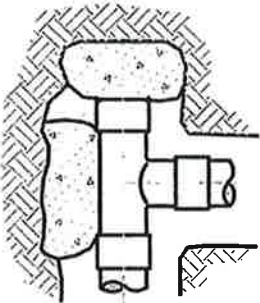
GATE VALVE



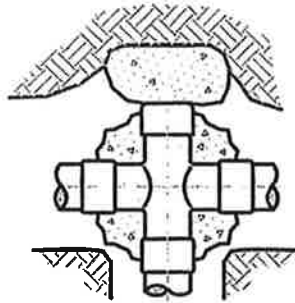
WYE



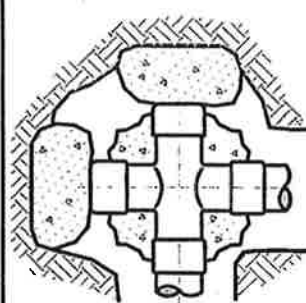
HORIZ. BEND



TEE WITH PLUG



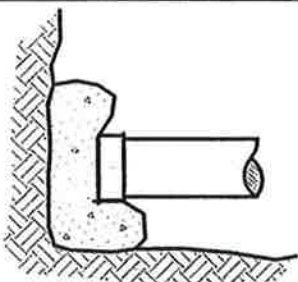
CROSS WITH PLUG



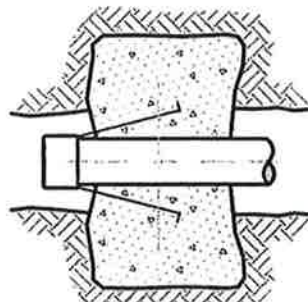
CROSS WITH PLUGS



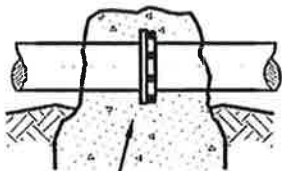
45° - 90° VERTICAL BEND



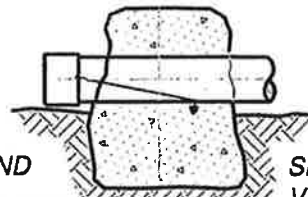
PLUG OR CAP



TOP VIEW



LOCKING RETAINER GLAND
ALTERNATIVE STRADDLE BLOCK



SIDE VIEW

DEAD-MAN THRUST BLOCKING

NOTES:

1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. PLASTIC BARRIER SHALL BE PLACED BETWEEN ALL THRUST BLOCKS AND PIPE AND/OR FITTINGS.
3. ANCHOR REBAR SHALL BE 5/8" MINIMUM DIAMETER.
4. CONCRETE DEAD-MAN THRUST BLOCKING MAY BE REQUIRED BY THE CITY, OR ALLOWED AT THE DISCRETION OF THE PUBLIC WORKS DIRECTOR.
5. ALL STANDARD BLOCKING AND THRUST CRITERIA, AS LISTED ON "STANDARD THRUST LOADS DETAIL", SHALL APPLY.



CITY OF WINLOCK
DEPARTMENT OF PUBLIC WORKS

WATER DETAILS
THRUST BLOCKING
DETAIL

REVISED
08/20/2007

DRAWING NO.
4-11a

THRUST LOADS

THRUST AT FITTINGS IN POUNDS AT 200 POUNDS PER SQUARE INCH OF WATER PRESSURE

PIPE DIAMETER	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND	DEAD END OR TEE
4"	3,600	2,000	1,000	500	2,600
6"	8,000	4,400	2,300	1,200	5,700
8"	14,300	7,700	4,000	2,000	10,100
10"	22,300	12,100	6,200	3,100	15,800
12"	32,000	17,400	8,900	4,500	22,700
14"	43,600	23,600	12,100	6,100	30,800
16"	57,000	30,800	15,700	7,900	40,300

NOTES:

1. BLOCKING SHALL BE COMMERCIAL CONCRETE POURED IN PLACE AGAINST UNDISTURBED EARTH. FITTING SHALL BE ISOLATED FROM CONCRETE THRUST BLOCK WITH PLASTIC OR SIMILAR MATERIAL.
2. TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (S.F.):
 EXAMPLE : 12" - 90° BEND IN SAND AND GRAVEL
 32,000 LBS 3000 LB/S.F. = 10.7 S.F. OF AREA
3. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZE, PRESSURES AND SOIL CONDITIONS.
4. BLOCKING SHALL BE ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

SAFE SOIL BEARING LOADS

FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET

SOIL	POUNDS PER SQUARE FOOT
MUCK, PEAT	0
SOFT CLAY	1,000
SAND	2,000
SAND & GRAVEL	3,000
SAND & GRAVEL CEMENTED WITH CLAY	4,000
HARD SHALE	10,000



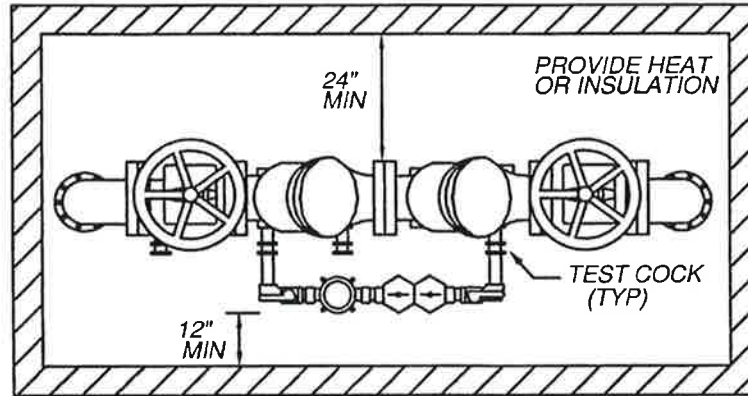
CITY OF WINLOCK
DEPARTMENT OF PUBLIC WORKS

WATER DETAILS
THRUST LOADS DETAIL

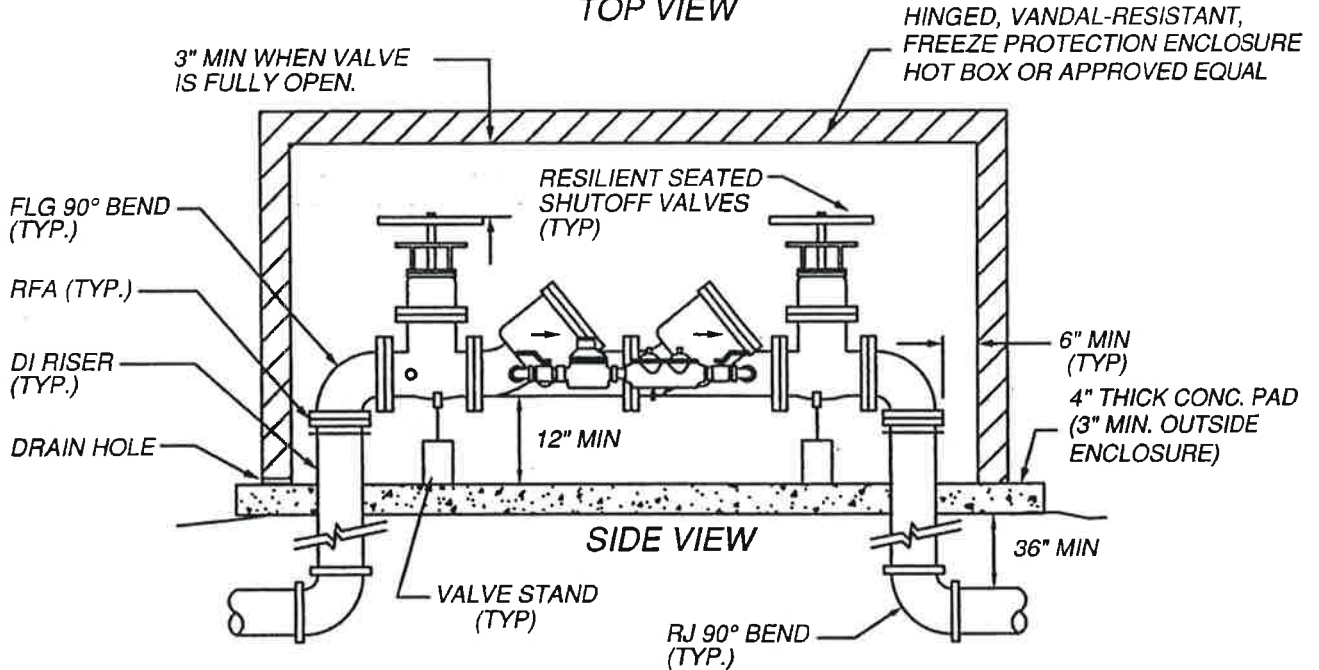
REVISED
08/20/2007

DRAWING NO.
4-11b

A CITY APPROVED VALVE IS REQ'D BETWEEN THE SUPPLY MAIN AND THE DCDA VALVE



TOP VIEW



ABOVE GROUND INSTALLATION

NOTES:

1. DOUBLE CHECK DETECTOR CHECK VALVE ASSEMBLY (DCDA) SHALL BE ON THE CURRENT WASHINGTON STATE DEPT. OF HEALTH APPROVED LIST AND SHALL BE EQUIPED WITH 4 TEST COCKS AND A RESILIENT SEATED SHUT OFF VALVE MOUNTED AT EACH END.
2. THE BACKFLOW ASSEMBLY SHALL BE TESTED AFTER INSTALLATION BY A CERTIFIED BACKFLOW ASSEMBLY TESTER.
3. ALL PIPE, VALVE, AND FITTING JOINTS FROM THE SUPPLY MAIN, SHALL BE FLANGED OR RESTRAINED.
4. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE BACKFLOW ASSEMBLY.
5. THE BACKFLOW ASSEMBLY SHALL BE PROTECTED FROM FREEZING AND FLOODING.
6. ALL ENCLOSURES SHALL BE PRE-APPROVED BY THE CITY, PRIOR TO INSTALLATION.
7. DCDA SHALL BE INSTALLED AT PROPERTY LINE OF OWNERS PROPERTY.
8. DCDA SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
9. VALVE STANDS SHALL BE INSTALLED ACCORDING TO MANUFACTURERS RECOMMENDATIONS.



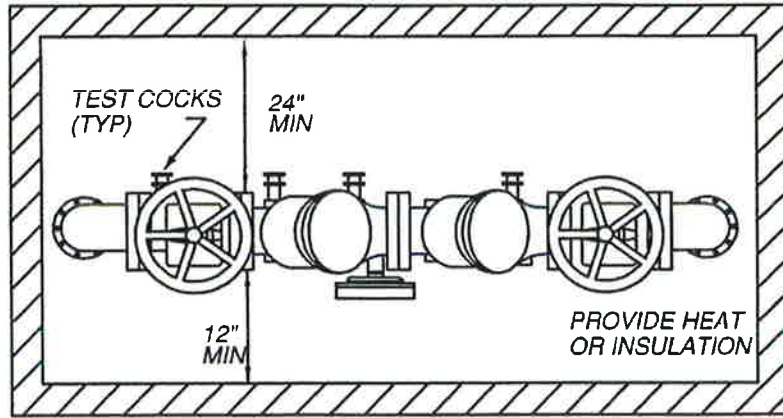
CITY OF WINLOCK
DEPARTMENT OF PUBLIC WORKS

WATER DETAILS
STANDARD DOUBLE
CHECK DETECTOR
ASSEMBLY 3" OR LARGER

REVISED
08/20/2007

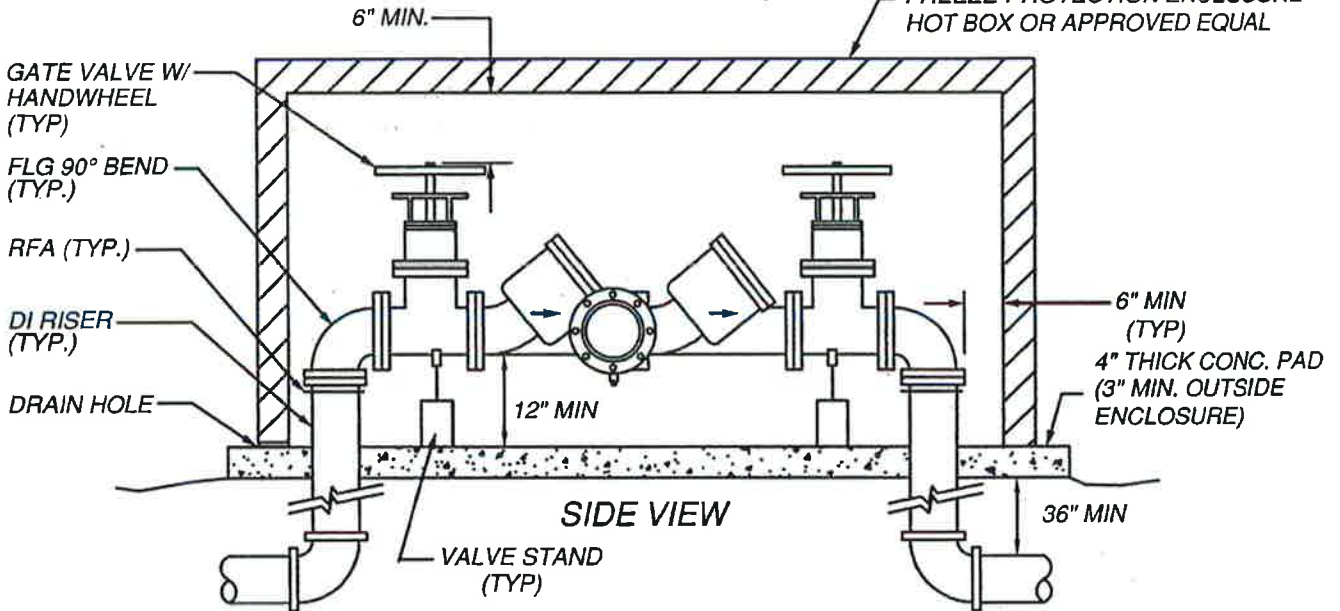
DRAWING
NO.
4-12

A CITY APPROVED VALVE IS REQ'D. BETWEEN THE SUPPLY MAIN AND THE RPBA VALVE



TOP VIEW

HINGED, VANDAL-RESISTANT, FREEZE PROTECTION ENCLOSURE HOT BOX OR APPROVED EQUAL



SIDE VIEW

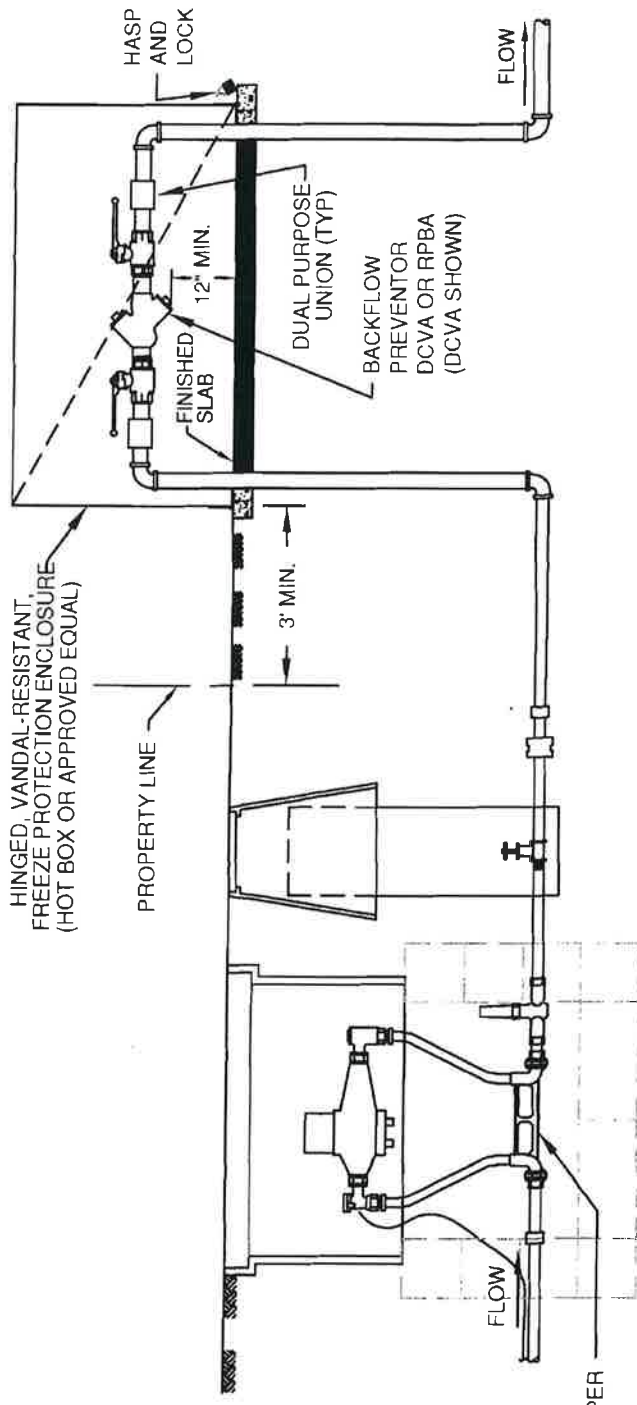
NOTES:

1. REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) SHALL BE ON THE WASHINGTON STATE DEPT. OF HEALTH APPROVED LIST.
2. RPBA SHALL LAY HORIZONTAL AND BE INSTALLED ABOVE GROUND ONLY.
3. RPBA SHALL BE TESTED AFTER INSTALLATION BY A CERTIFIED BACKFLOW ASSEMBLY TESTER.
4. ALL PIPE, VALVE AND FITTING JOINTS FROM THE SUPPLY MAIN, SHALL BE FLANGED OR RESTRAINED.
5. THE WATER LINE SHALL BE DISINFECTED, FLUSHED AND PRESSURE TESTED PRIOR TO INSTALLING THE BACKFLOW ASSEMBLY.
6. THE BACKFLOW ASSEMBLY SHALL BE PROTECTED FROM FREEZING AND FLOODING.
7. ALL ENCLOSURES SHALL BE PRE-APPROVED BY THE CITY, PRIOR TO INSTALLATION.
8. RPBA SHALL BE INSTALLED AT PROPERTY LINE ON OWNERS SIDE.
9. RPBA SHALL HAVE A MINIMUM OF 3' CLEARANCE FROM ALL STRUCTURES.
10. VALVE STANDS SHALL BE INSTALLED ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
11. TEST COCKS SHALL BE LOCATED SO AS TO FACILITATE ACCESS.



CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS	WATER DETAILS STANDARD REDUCED PRESSURE BACKFLOW ASSEMBLY 3" OR LARGER	REVISED 08/20/2007	DRAWING NO. 4-13

T:\CustomDetails\City of Winlock\Details-Water.dwg, 4:13RPBA, 8/20/2007 4:10:36 PM, D:\Fye, DW\F8 eP8u.pcd, Gibbs & Olson - Report A Sta (8.50 x 11.00 inches), T1, Gibbs & Olson, Inc.



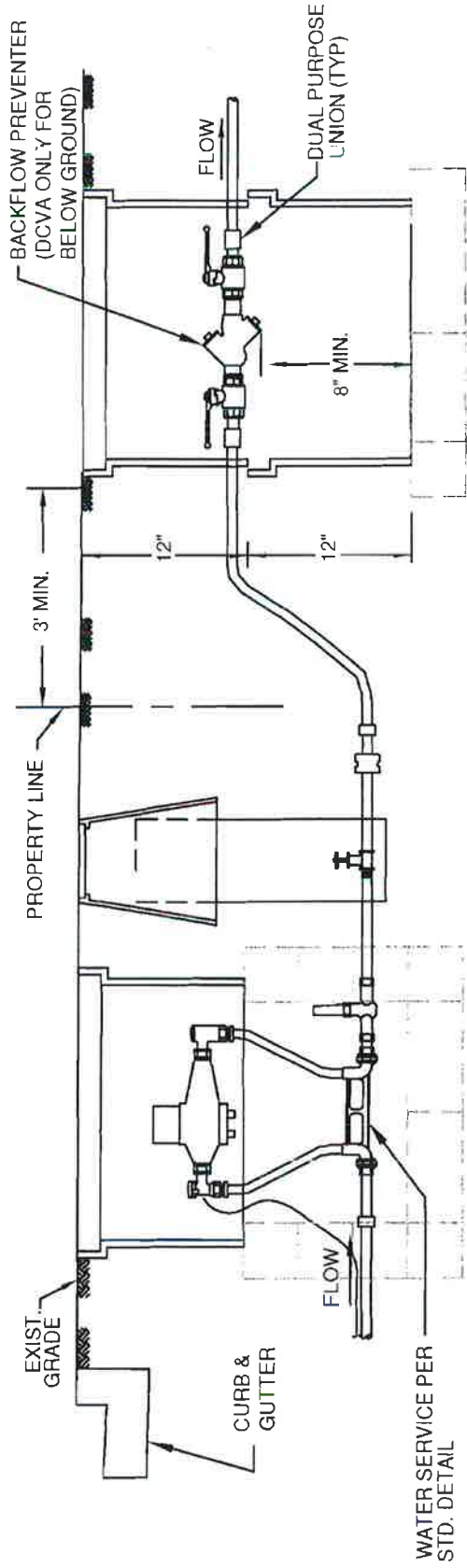
NOTES:

1. BACKFLOW ASSEMBLY SHALL BE A WA. STATE D.O.H. APPROVED MODEL.
2. ALL MATERIALS TO BE BRASS OR COPPER AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS.



CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS	WATER DETAILS 3" - 2" BACKFLOW PREVENTER ABOVE GROUND	REVISED 08/20/2007	DRAWING NO. 4-14b
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NOTES:

1. BACKFLOW ASSEMBLY SHALL BE A WA. STATE D.O.H. APPROVED MODEL.
2. ALL MATERIALS TO BE BRASS OR COPPER AS APPROVED BY THE CITY.



CITY OF WINLOCK DEPARTMENT OF PUBLIC WORKS	WATER DETAILS 3/4" - 2" BACKFLOW PREVENTER BELOW GROUND	REVISED 08/20/2007	DRAWING NO. 4-14a
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APPENDIX E

**WATER QUALITY MONITORING REQUIREMENTS AND
PLANS**



Water Quality Monitoring Schedule

System: WINLOCK CITY
Contact: Rodney G Cecil

PWS ID: 97500 C
Group: A - Comm

Region: SOUTHWEST
County: LEWIS

NOTE: To receive credit for compliance samples, you must fill out laboratory and sample paperwork completely, send your samples to a laboratory accredited by Washington State to conduct the analyses, AND ensure the results are submitted to DOH Office of Drinking Water. There is often a lag time between when you collect your sample, when we credit your system with meeting the monitoring requirement, and when we generate the new monitoring requirement.

Coliform Monitoring Requirements

	Sep 2017	Oct 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	Jun 2018	Jul 2018	Aug 2018
Coliform Monitoring Population	2467	2467	2467	2467	2467	2467	2467	2467	2467	2167	2167	2167
Number of Routine Samples Required	2	2	2	2	2	2	2	2	2	2	2	2

- Collect samples from representative points throughout the distribution system.
- Collect required repeat samples following an unsatisfactory sample. In addition, collect a sample from each operating groundwater source.
- For systems that chlorinate, record chlorine residual (measured when the coliform sample is collected) on the coliform lab slip.

Chemical Monitoring Requirements

Distribution Monitoring

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Lead and Copper	10	Jan 2017 - Dec 2019	standard - 3 year	07/03/2016	Jul 2019
Asbestos	0	Jan 2011 - Dec 2019	waiver - 9 year		
Total Trihalomethane (THM)	1	Jan 2017 - Dec 2017	reduced - 1 year	09/15/2016	Sep 2017
Halo-Acetic Acids (HAA5)	1	Jan 2017 - Dec 2017	reduced - 1 year	09/15/2016	Sep 2017



Water Quality Monitoring Schedule

Notes on Distribution System Chemical Monitoring

- For Lead and Copper:**
- Collect samples from the COLD WATER side of a KITCHEN or BATHROOM faucet that is used daily.
 - Before sampling, make sure the water has sat unused in the pipes for at least 6 hours, but no more than 12 hours (e.g. overnight).
 - If you are sampling from a faucet that has hot water, make sure cold water is the last water to run through the faucet before it sits overnight.
 - If your sampling frequency is annual or every 3 years, collect samples between June 1 and September 30.

For Asbestos: Collect the sample from one of your routine coliform sampling sites in an area of your distribution system that has asbestos concrete pipe.

For Disinfection Byproducts (HAAs and THM): Collect the samples at the locations identified in your Disinfection Byproducts (DBP) monitoring plan.

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S01	EUREKA #1 AFM908		Well	Use - Permanent	Susceptibility - High	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year		10/06/2016	Oct 2017	
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		05/13/2010	May 2019	
Iron	1	Jan 2017 - Dec 2019	standard - 3 year		05/13/2010	Aug 2019	
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year		08/13/2015	Aug 2018	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year		08/04/2009	Aug 2018	
Pesticides	0	Jan 2017 - Dec 2019	waiver - 3 year		08/04/2009		
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year				
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year		05/12/2016		
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year		05/12/2016		
Source S05	WELL #603 AFM907		Well	Use - Permanent	Susceptibility - High	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year		10/06/2016	Oct 2017	
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year		10/06/2016		
Volatile Organics (VOC)	1	Jan 2017 - Dec 2019	standard - 3 year		09/11/2014	Oct 2017	



Water Quality Monitoring Schedule

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S05	WELL #603 AFM907	Well	Use - Permanent	Susceptility - High
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u> <u>Next Sample Due</u>
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	06/14/2012 Jun 2021
Pesticides	0	Jan 2017 - Dec 2019	waiver - 3 year	11/17/2000
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	08/13/2015
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	08/13/2015

Source S08	EUREKA #3 AFM904	Well	Use - Permanent	Susceptility - Moderate
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u> <u>Next Sample Due</u>
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year	05/04/2017
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	04/07/2016
Iron	1	Jan 2017 - Dec 2019	standard - 3 year	04/07/2016 Sep 2019
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year	06/08/2017
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year	04/05/2012 Apr 2021
Pesticides	0	Jan 2017 - Dec 2019	waiver - 3 year	09/24/2001
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year	
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year	08/13/2015
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year	08/13/2015

Source S09	BAICHTEL #2 AET197	Well	Use - Permanent	Susceptility - Moderate
<u>Test Panel/Analyte</u>	<u># Samples Required</u>	<u>Compliance Period</u>	<u>Frequency</u>	<u>Last Sample Date</u> <u>Next Sample Due</u>
Nitrate	1	Jan 2017 - Dec 2017	standard - 1 year	10/06/2016 Oct 2017
Complete Inorganic (IOC)	1	Jan 2011 - Dec 2019	waiver - 9 year	10/06/2016



Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers.
- We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S09	BAICHTEL #2 AET197	Well	Use - Permanent	Susceptibility - Moderate	Last Sample Date	Next Sample Due
Test Panel/Analyte	# Samples Required	Compliance Period	Frequency			
Volatile Organics (VOC)	1	Jan 2014 - Dec 2019	waiver - 6 year		05/12/2016	
Herbicides	1	Jan 2014 - Dec 2022	waiver - 9 year		05/23/2013	May 2022
Pesticides	0	Jan 2017 - Dec 2019	waiver - 3 year		12/03/2004	
Soil Fumigants	0	Jan 2017 - Dec 2019	waiver - 3 year			
Gross Alpha	1	Jan 2014 - Dec 2019	standard - 6 year		08/11/2016	
Radium 228	1	Jan 2014 - Dec 2019	standard - 6 year		09/03/2015	



Water Quality Monitoring Schedule

Other Information

<i>Other Reporting Schedules</i>	<i>Due Date</i>
Measure chlorine residuals and submit monthly reports if your system uses continuous chlorination:	monthly
Submit Consumer Confidence Report (CCR) to customers and ODW (Community systems only):	07/01/2017
Submit CCR certification form to ODW (Community systems only):	10/01/2017
Submit Water Use Efficiency report online to ODW and to customers (Community and other municipal water systems only):	07/01/2017
Send notices of lead and copper sample results to the customers sampled:	30 days after you receive the laboratory results
Submit Certification of customer notification of lead and copper results to ODW:	90 days after you notify customers

Special Notes

None

Southwest Regional Water Quality Monitoring Contacts

For questions regarding chemical monitoring:

Sophia Petro: (360) 236-3046 or sophia.petro@doh.wa.gov

For questions regarding DBPs:

Sophia Petro: (360) 236-3046 or sophia.petro@doh.wa.gov

For questions regarding coliform bacteria and microbial issues:

Southwest Office: (360) 236-3030 or SWRO.Coli@doh.wa.gov

Additional Notes

The information on this monitoring schedule is valid as of the date in the upper left corner on the first page. However, the information may change with subsequent updates in our water quality monitoring database as we receive new data or revise monitoring schedules. There is often a lag time between when you collect your sample and when we credit your system with meeting the monitoring requirement.

We have not designed this monitoring schedule to display all compliance requirements. The purpose of this schedule is to assist water systems with planning for most water quality monitoring, and to allow systems to compare their records with DOH ODW records. Please be aware that this monitoring schedule does not include constituents that require a special monitoring frequency, such as monitoring affiliated with treatment.

Any inaccuracies on this schedule will not relieve the water system owner and operator of the requirement to comply with applicable regulations.

If you have any questions about your monitoring requirements, please contact the regional office staff listed above.

**City of Winlock
Coliform Monitoring Plan**

SECTION I

SAMPLE COLLECTION



Introduction

In general, a CMP consists of three parts: 1) a narrative description of the water system or a copy of the most current Water Facilities Inventory (WFI) form; 2) Routine and Repeat sample information; and 3) a map or schematic of the water system showing the location of Routine and Repeat sample sites. Other information with regard to sample collection and public notification should be included in the CMP. DOH publications/references are also helpful during the development and use of a CMP. For copies of DOH publications, call 1-800-521-0323. Publications are also available on the Internet at: www.doh.wa.gov/ehp/dw

General Sampling Information

Repeat samples are required if the Routine sample(s) is unsatisfactory. **For systems collecting TWO OR MORE Routine samples per month**, a total of **THREE REPEAT** samples are required from the following locations:

1. The same tap as the original unsatisfactory Routine sample.
2. An active service within five active connections upstream from where the original unsatisfactory sample was taken.
3. An active service within five active connections downstream from where the original unsatisfactory sample was taken.

Careful attention should be paid to the selection of sample taps. Use of both customer service connections and dedicated sampling stations are acceptable. When selecting sites, keep in mind that samples taken from a customer's service tap may be affected by conditions existing on the customer's premises and may not accurately reflect the conditions that exist in the distribution system.

Note: During Routine and Repeat sampling, a site may be determined not to represent the conditions within the distribution system. It is advised to remove that sampling site from the CMP and replace it with a site that better represents the conditions within the distribution system.

CMP Preparation and Maintenance

A person knowledgeable of the system's distribution facilities and characteristics should maintain the CMP. A fundamental knowledge of coliform bacterial monitoring is also necessary. Once the plan is completed, it must be maintained in the water system's files and available to all system personnel involved with coliform monitoring. The CMP should be updated to reflect any system or monitoring changes.

Month Following Unsatisfactory Samples

In the month following an unsatisfactory sample(s), a minimum of five Routine samples is required.

When selecting sample taps avoid the following:

- Swivel faucets
- Hot/cold "mixing faucets" (i.e., faucets with a single lever)
- Drinking fountains
- Janitorial sinks
- Frost-free hose bibs
- Leaking or spraying faucets
- Faucets below ground or near ground level
- Faucets served by home filters or other home treatment systems

Call DOH staff (360-236-3030) in the event of any positive sample result

Coliform Monitoring Plan for: City of Winlock

A. System Information

Water System Name WINLOCK CITY WATER	County LEWIS	System I.D. Number 97500C
Attach copy of current WFI		
Number of Routine Samples Required Monthly by Regulation: 2	Number of Sample Sites Needed to Represent the Distribution System: 2	

B. Routine and Repeat Sample Locations

Location/Address for <u>Routine</u> Sample Sites	Location/Address for <u>Repeat</u> Sample Sites
S1. Winlock WWTP - Lab Sink 1209 SW Mayer ST.	R1-1. 1205 SW Mayer St. (Vaughn) R1-2. 1214 SW Mayer St. (Johnson) S1. Winlock WWTP
S2. Winlock PW Shop - Bathroom Sink 712 NW Dexter St.	R2-1. 703 NW Dexter (Regino) R2-2. 408 NW Columbia (Dueber) S2. Winlock PW Shop
S3. Sample Station - St. Helens Way At SW Corner of 603 Tank Site	R3-1. 218 St. Helens Way R3-2. 328 Cedar Ct. S4. Sample Station - NE 2nd Street
S4. Sample Station - NE 2nd Street South of North Street on West Side	R4-1. 706 2nd Street NE R4-2. 712 2nd Street NE S3. Sample Station - St. Helens Way
S5. Cardinal Glass - Tank Supply Tank fill line in control vault at base of tank	R5-1. Tank Outlet Pipe in Same Vault R5-2. Winolequa Park Caretaker House S4. Sample Station - NE 2nd Street

If the number of Routine samples needed to cover the distribution system requires that more than three Routine sites are needed, attach additional sheets as needed.

Call DOH staff in the event of any positive sample result

Routine Sample Rotation Schedule

Month	Routine Site(s)	Month	Routine Site(s)
January	S1, S2	July	S3, S4
February	S3, S4	August	S5, S1
March	S5, S1	September	S2, S3
April	S2, S3	October	S1, S4
May	S1, S4	November	S5, S2
June	S2, S5	December	S3, S4

C. Month Following Unsatisfactory Samples

Description of Sample Collection Locations for Month Following Unsatisfactory Samples
S1 and S2 plus the repeat locations for the area where the unsatisfactory sample was collected and a sample from the nearest active well for that period.
Note: Beginning Jan. 09, - Sampling at wells may be required

D. Preparation Information

System Name Winlock City Water	Date Plan Completed 3-22-04	Dates Modified 6/22/04, 10/11/07, 7/18/08
Name of Plan Preparer Mike Olden	Position Consultant	Daytime Phone # (360) 352-1120
State Reviewer	Date Last Review	

E. System Map

(See attached)

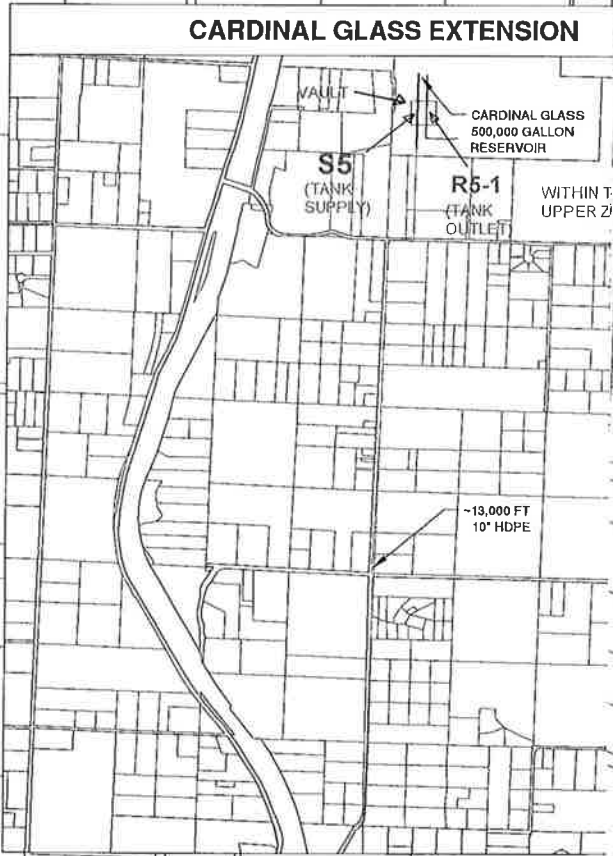
F. Notification Language

(See Section II)

LEGEND

- LESS THAN 2"
- 2"
- 3"
- 4"
- 6"
- 8"
- 10"
- 12"
- 14"
- DUCTILE IRON (DI) / CAST IRON (CI)
- ASBESTOS CEMENT (AC)
- PVC
- PE / HDPE
- GAL. / STL. / OTHER
- ????
- FIRE HYDRANT
- ◁ PRESSURE REDUCING VALVE
- VALVE

CARDINAL GLASS EXTENSION



-13,000 FT
10" HDPE



GIBBS & OLSON INC.
 Engineers • Planners • Surveyors
 LONGVIEW • OLYMPIA
 WASHINGTON

CITY OF WINLOCK
COLIFORM MONITORING PLAN
COLIFORM SAMPLE SITES

1. Plans prepared by or for the City of Winlock, Washington. The City of Winlock is the owner of the project. The City of Winlock is responsible for the accuracy of the information provided. The City of Winlock is responsible for the accuracy of the information provided. The City of Winlock is responsible for the accuracy of the information provided.



WATER FACILITIES INVENTORY (WFI) FORM

ONE FORM PER SYSTEM

Quarter: 1
Updated: 04/21/2005
Printed: 12/27/2005
WFI Printed For: On-demand
Submission Reason: Other

RETURN TO: Southwest Regional Office, PO Box 47823, Olympia, WA, 98504

1. SYSTEM ID NO. 97500.C		2. SYSTEM NAME WINLOCK CITY		3. COUNTY LEWIS		4. GROUP A		5. TYPE Comm	
6. PRIMARY CONTACT NAME & MAILING ADDRESS GARY LACY [MANAGER] PO BOX 777 WINLOCK, WA 98596 STREET ADDRESS IF DIFFERENT FROM ABOVE ATTN ADDRESS 323 NE FIRST ST CITY WINLOCK STATE WA ZIP 98596					7. OWNER NAME & MAILING ADDRESS WINLOCK, CITY OF GARY LACY PO BOX 777 WINLOCK, WA 98596 STREET ADDRESS IF DIFFERENT FROM ABOVE ATTN ADDRESS CITY STATE ZIP			8. Owner Number: 006696 TITLE: WATER - SEWER OPER	
9. 24 HOUR PRIMARY CONTACT INFORMATION					10. OWNER CONTACT INFORMATION				
Primary Contact Daytime Phone: (360) 785-4565					Owner Daytime Phone: (360) 785-4565				
Primary Contact Mobile/Cell Phone: (360) 520-5589					Owner Mobile/Cell Phone: (360) 520-5589				
Primary Contact Evening Phone: (360) 785-4858					Owner Evening Phone: (360) 785-4858				
Fax: (360) 785-4378		E-mail: wincity@toledotel.com			Fax:		E-mail: wincity@toledotel.com		
WAC 246-290-420(9) requires that water systems provide 24-hour contact information for emergencies.									
11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)									
<input checked="" type="checkbox"/> Not applicable (Sko to #12) <input type="checkbox"/> Owned and Managed SMA NAME: _____ SMA Number: _____ <input type="checkbox"/> Managed Only <input type="checkbox"/> Owned Only									
12. WATER SYSTEM CHARACTERISTICS (mark ALL that apply)									
<input type="checkbox"/> Agricultural <input checked="" type="checkbox"/> Commercial / Business <input type="checkbox"/> Day Care <input checked="" type="checkbox"/> Food Service/Food Permit <input checked="" type="checkbox"/> 1,000 or more person event for 2 or more days per year <input type="checkbox"/> Hospital/Clinic <input checked="" type="checkbox"/> Industrial <input checked="" type="checkbox"/> Licensed Residential Facility <input type="checkbox"/> Lodging <input type="checkbox"/> Recreational / RV Park <input checked="" type="checkbox"/> Residential <input checked="" type="checkbox"/> School <input type="checkbox"/> Temporary Farm Worker <input checked="" type="checkbox"/> Other (church, fire station, etc.): _____									
13. WATER SYSTEM OWNERSHIP (mark only one)							14. STORAGE CAPACITY (gallons)		
<input type="checkbox"/> Association <input checked="" type="checkbox"/> City / Town <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Investor <input type="checkbox"/> Private <input type="checkbox"/> Special District <input type="checkbox"/> State							596,000		

--- SEE NEXT PAGE FOR A COMPLETE LIST OF SOURCES ---

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO. 97500 C	2. SYSTEM NAME WINLOCK CITY	3. COUNTY LEWIS	4. GROUP A	5. TYPE Comm
------------------------------------	---------------------------------------	---------------------------	----------------------	------------------------

15 Source Number	16 SOURCE NAME LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	17 INTERTIE INTERTIE SYSTEM ID NUMBER	18 SOURCE CATEGORY										19 USE			20 TREATMENT					22 DEPTH	23	24 SOURCE LOCATION				
			WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN INTERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4-1/4 SECTION	SECTION NUMBER	TOWNSHIP
S01	EUREKA # 1		X											X	Y	X						55	133	NE SE	28	12N	02W
S02	InAct 04/01/1990 EUREKA # 2		X									X				X						160	33	NE SE	28	12N	02W
S03	ASH STREET		X								X			Y	X							56	70	NW NE	33	12N	02W
S05	WELL # 603		X								X			Y	X							119	250	NE NW	27	12N	02W
S07	BAICHAL #1		X								X			Y	X							116	200	NW NW	34	12N	02W
S08	EUREKA #3		X								X			Y	X							150	33	NW SE	28	12N	02W
S09	BAICHAL #2 AET197		X								X			Y	X							138	130	NW NW	34	12N	02W

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO. 97500 C	2. SYSTEM NAME WINLOCK CITY	3. COUNTY LEWIS	4. GROUP A	5. TYPE Comm
------------------------------------	---------------------------------------	---------------------------	----------------------	------------------------

<i>Lines 25, 29, 35 and 36 are required to be completed (other lines are optional).</i>	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY APPROVED
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)	0	449	Unspecified
A. Full Time Single Family Residences (Occupied 180 days or more per year)	449		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	0		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	0		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services (Campsites, RV Sites, Spigots, etc.)	0	0	
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	100	100	
28. TOTAL SERVICE CONNECTIONS		549	

29. FULL-TIME RESIDENTIAL POPULATION	1127
A. How many residents are served by this system 180 or more days per year?	

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												

31. TEMPORARY & TRANSIENT USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?	11160	11160	11160	11160	11160	11160	11160	11160	11160	11160	11160	11160
B. How many days per month is water accessible to the public?	30	30	30	30	30	30	30	30	30	30	30	30

32. REGULAR NON-RESIDENTIAL USERS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. If you have schools, daycares, or businesses connected to your water system, how many students/daycare children and/or employees are present each month?												
B. How many days per month are they present?												

33. ROUTINE COLIFORM SCHEDULE * Requirement is exception from WAC 246-290	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	2	2	2	2	2	2	2	2	2	2	2	2

35. Reason for Submitting WFI:

Update - Change
 Update - No Change
 Inactivate
 Re-Activate
 Name Change
 New System
 Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____ DATE: _____
 PRINT NAME: _____ TITLE: _____

COLIFORM SAMPLING (FROM DOH) PROCEDURE

This brochure provides general information on how to collect a coliform sample. The State Department of Health recommends that you collect your sample using the following steps. If instructions from your laboratory are different, you should follow the steps listed here.

Generally the sample kit contains:

- A sample bottle
- A lab form
- A rubber band

The general sampling procedure for coliform monitoring is as follows:

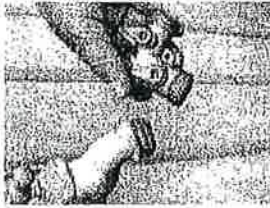
STEP ONE

Routine and repeat samples should be collected from sites throughout the distribution system in accordance with your Coliform Monitoring Plan.

Choose a sample tap that represents the water in your distribution system. Avoid poor sample sites such as swivel faucets, hot and cold mixing faucets (with a single lever), leaky or spraying faucets, drinking fountains, janitorial sinks, frost-free hose bibs, and faucets below or near ground level.

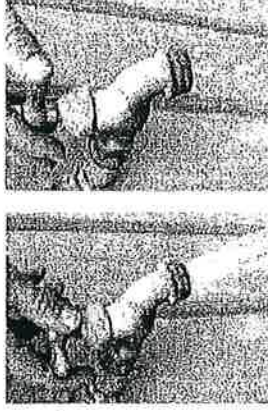
STEP TWO

Remove any attachments from the faucet, including aerators, screens, washers, hoses, and water filters. If you choose to disinfect the sample site prior to sample collection, be sure to thoroughly flush until all disinfectant is removed.



STEP THREE

Turn on the cold water only and let it run with a steady stream for at least five minutes. Before collecting the sample, turn the water down to a thin stream (about the width of a pencil), then let the water run one minute. If the system is chlorinated, measure the chlorine residual and note the results on the lab slip. Water conservation tip: The flushed water may be saved in a bucket to be used later.

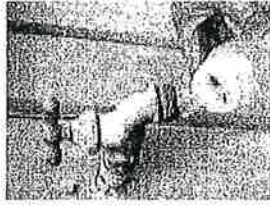


STEP FOUR

There may be some liquid or powder in the sample bottle to neutralize any chlorine that may be present. Do not rinse it out.

STEP FIVE

To avoid contamination while taking the sample, hold the bottle near the bottom with one hand, hold the top of the cap with the other, and then unscrew the cap. Do not set the cap down, touch any part of the cap that touches the bottle, or let anything touch the rim or inside of the cap.



STEP SIX

Hold the bottle under the stream of water, being careful not to let the bottle touch the sample tap. Fill the bottle to the neck or indicated fill line, but do not allow it to overflow. Remove the bottle from the water flow and replace the cap.

STEP SEVEN

Complete the lab slip. If there was anything unusual about the sample collection, note it on the lab slip.

Laboratory forms vary, but the following information is very important to complete:

- Water System ID number
- Water System name
- Collection date and time the sample was taken
- Type of sample
- Sample location (street address or other type of location identifier)
- System type (i.e., Group A or B)



STEP EIGHT

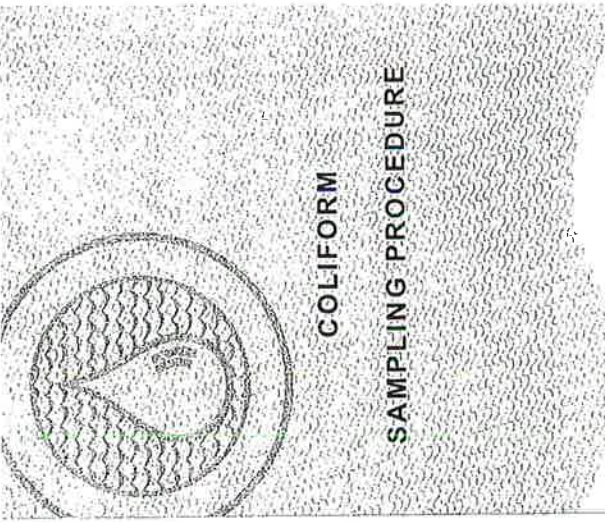
Secure the lab slip to the bottle with the rubberband. Deliver the sample to a certified lab or to a designated drop-off location for the lab as soon as possible. Lab analysis must begin within 30 hours of sample collection.

If you have questions about coliform sampling collection procedures, contact your regional office:

SW Regional Office:
(360) 753-5090

NW Regional Office:
(253) 395-6775

Eastern Regional Office:
(509) 456-2788

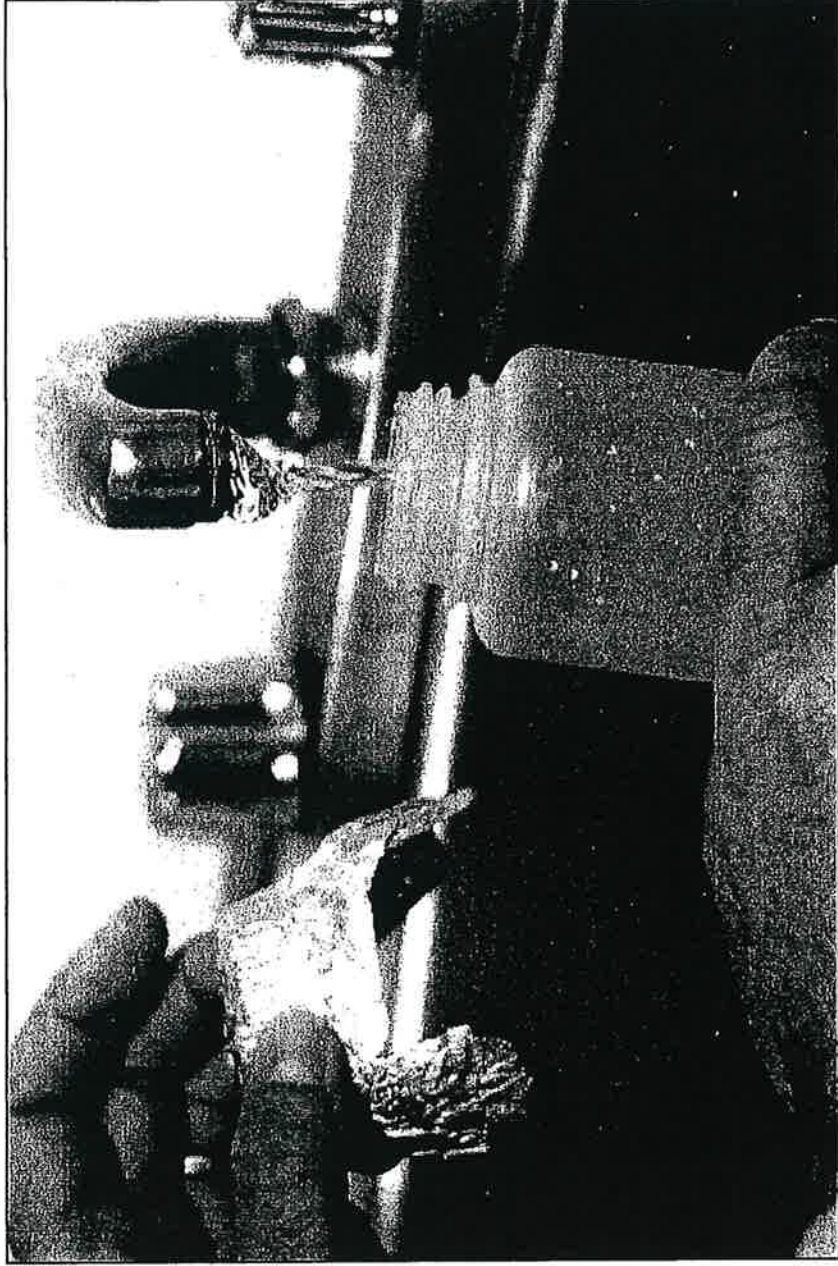


The Department of Health is an equal opportunity agency. If you need this publication in an alternative format, call 800-525-0127 (voice) or 800-833-6388 (TDD relay service). For additional copies of this publication, call 800-521-0323. This and other publications are available at www.doh.wa.gov/dp/dw.

Appendix B (From EPA)

Sample Collection Techniques

Adapted From EPA's "Pocket Sampling Guide for Operators of Small Water Systems"
(EPA 814-B-92-001)



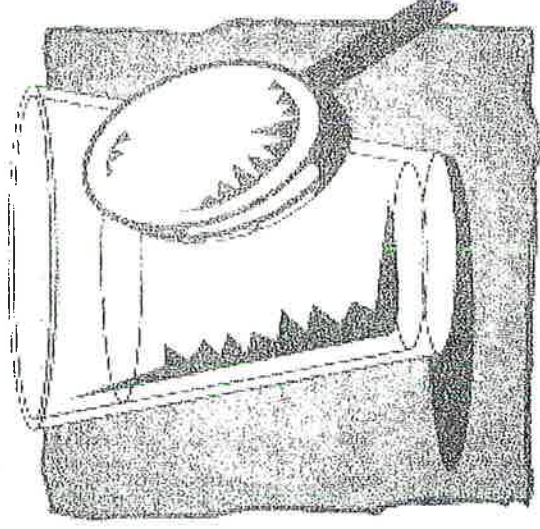
Sample Procedure

The lab that supplies the sampling containers normally provides instructions with the kit for the type of monitoring you are doing. Refer to those instructions when provided.

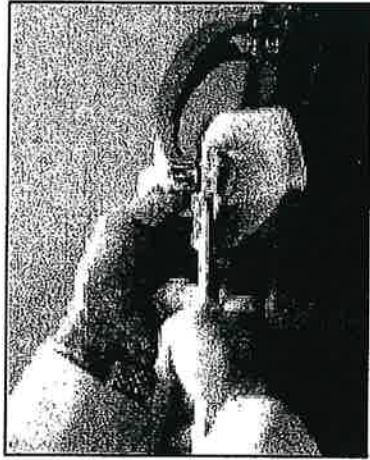
The following instructions and photos illustrate the general sampling procedures for collecting coliform analysis monitoring samples.

1. **Assemble all of the sampling supplies before you begin.** A dechlorinating agent is needed and may need to be furnished (if not already supplied with the containers) when sampling chlorinated waters (such as those found in the distribution system). The containers are sterilized, so handle them carefully. **Wash your hands thoroughly before handling supplies.**

2. **Go to the sampling location(s) specified in the sampling plan.** Representative sampling locations are located in the distribution system and are accessible during normal business hours. Examples may include hospitals, city buildings, pump stations, and restaurants. The tap should be clean, free of attachments (hoses, etc.), and in good repair (no leaks). If possible, avoid drinking fountains and faucets that have swivel necks.



3. If possible, remove any aerators, strainers, or hoses that are present, because they may harbor bacteria. (You may not be able to remove the aerator or find a non-swivel faucet.)

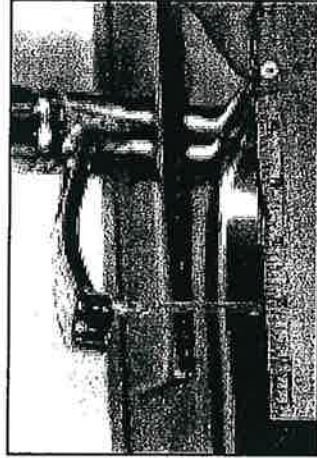


4. Open the cold water tap for about 2 to 3 minutes before collecting the sample. (You may want to time this step—3 minutes is a long time.) This clears the service line.

5. Fill out label, tag, and lab form in waterproof ink. Make sure the label is dry before writing on the label.



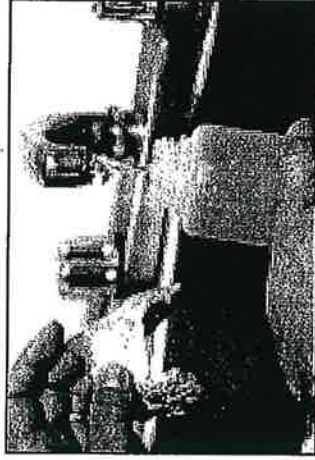
6. Adjust the flow to about the width of a pencil. Check for steady flow. Do not change the water flow once you have started sampling. It could dislodge microbial growth.



The following steps describe collection procedures using both the bottle and the bag.

7. Remove the bottle cap (stopper, etc.), or open the plastic bag. Be careful not to touch the inside with your fingers.

Then position the bottle or bag under the water flow. Hold the bottle in one hand and the cap in the other.



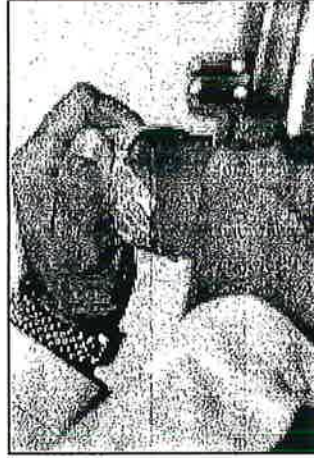
Do not lay the cap down or put it in a pocket! Also, take care not to contaminate the sterile bottle (or bag) or cap with your fingers or permit the faucet to touch the inside of the bottle or bag.

DO NOT RINSE OUT THE BOTTLE OR BAG BEFORE COLLECTING THE SAMPLE!

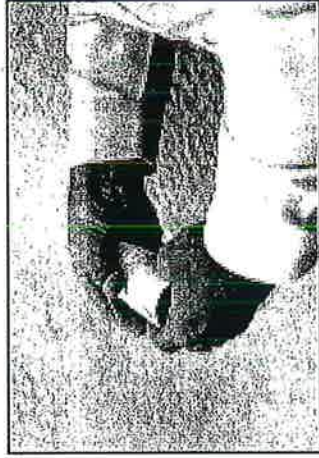
- 8. Fill the bottle to the shoulder or to about 1/4 inch from the top. If using a plastic bag sampling container, fill it to the marked fill line.**



- 9. Place the cap on the bottle and screw it down tightly. If using a plastic bag, pull the wire tabs and whirl the bag three times for a tight seal. Samples should be iced immediately, if possible.**



- 11. Check that the information on the label is correct.**



- 12. Complete any additional lab forms that came with the sample bottle, including the chain-of-custody form (if required), with the necessary information.**



- 10. Turn the tap off. Replace the aerator, strainer, or hose.**



13. The samples must reach the laboratory within 30 hours of collection. It is recommended that all samples be refrigerated or iced using "blue" ice (cooled to about 4° to 10° C). All samples received in the laboratory must be analyzed on the day of receipt.



Fact Sheet

Troubleshooting Checklist for Coliform Contamination

September 2002

331-180

Coliform bacteria in a water system are generally either a result of a failure to maintain a "closed" water system and/or a treatment failure. Visually inspect the system for "openings" and/or treatment equipment failures: Look for areas of the system where soil, leaves, insects, birds, sewage, or animal wastes could possibly get into your water system.

Check the following:

WELLS

- Well casing is above the floor or ground and the area around the well is clean.
- Well has a watertight seal and has a U-shaped, inverted, screened (minimum 24 mesh) vent.
- There are **no** openings in the well cap or casing, including around the electrical wires.
- There is no standing water around the source.
- The well is at least 100 feet from sources of contamination, such as septic tanks, drain fields, sewers, manure, or garbage.
- The well has been effectively disinfected following any well or pump repairs.
- A dug well has a watertight lid with overhanging edge and a neoprene-type seal between the lid and the well casing.

SPRINGS

- The collection box and the hatch or lid are watertight. The hatch should have an overhanging edge and a neoprene-type seal.
- Vents are covered with an insect-proof non-corroding screen (minimum 24 mesh).
- Overflow and drain lines are screened or protected with an angle-flap valve.
- Surface water is directed away from the spring collection area by a diversion ditch.
- The spring is at least 200 feet from sources of contamination, such as septic tanks, drain fields, sewers, manure, or garbage.

TREATMENT

- Chlorine residual is measured and levels are adequate.
- UV system is operating correctly.

HYDROPNEUMATIC and BLADDER TANKS

- Tank(s) are not waterlogged.
- Sediment has not accumulated in the tank.
- Bladders are intact and functional.





Fact Sheet

Follow-up to an Unsatisfactory Coliform Sample

What is an unsatisfactory sample?

A sample is unsatisfactory when coliform bacteria are present.

What action must be taken?

When an unsatisfactory sample result is received, a set of repeat samples must be collected within 24 hours. The purpose of the repeat samples is to confirm the presence of coliform bacteria in the system and to determine possible causes of contamination. **Do not** shock chlorinate the system before collecting repeat samples without prior approval by Department of Health (DOH).

Review your sampling procedure to assure that samples are taken correctly. (Refer to Coliform Sample Collection Method fact sheet.)

The number of routine samples collected monthly for your system determines the number of repeat samples you need to collect. Your system will follow one of the two examples below:

For systems collecting ONE routine sample per month, a total of FOUR REPEAT samples are required from the following locations:

1. The same tap as the original unsatisfactory routine sample.
2. An active service within five active connections upstream from where the original unsatisfactory sample was taken.
3. An active service within five active connections downstream from where the original unsatisfactory sample was taken.
4. Another location, such as at the source or right after the storage tank, that will provide useful information for determining a source of contamination. If you do not have a tap at the source or storage tank, choose another active service.

For systems collecting TWO OR MORE routine samples per month, a total of THREE REPEAT samples are required from the following locations:

1. The same tap as the original unsatisfactory routine sample.
2. An active service within five active connections upstream from where the original unsatisfactory sample was taken.



HELPING TO ENSURE SAFE AND RELIABLE DRINKING WATER

3. An active service within five active connections downstream from where the original unsatisfactory sample was taken.

If you cannot sample as outlined above or if any repeat samples are unsatisfactory, contact DOH.

Thoroughly inspect the water system: Try to identify potential sources of contamination, such as "openings" in the system and/or treatment equipment failure. Make any needed repairs to your system. (Refer to Troubleshooting Checklist for Coliform Contamination.)

In the month following an unsatisfactory sample, a minimum of FIVE ROUTINE samples is required. If you routinely take five or more samples each month, follow your regular schedule. If any of these samples are unsatisfactory, further investigation and more repeat samples are required.

For more information:

Northwest Regional Office – Kent

Coliform Program: 253-395-6775 Main Office: 253-395-6750

Southwest Regional Office – Olympia

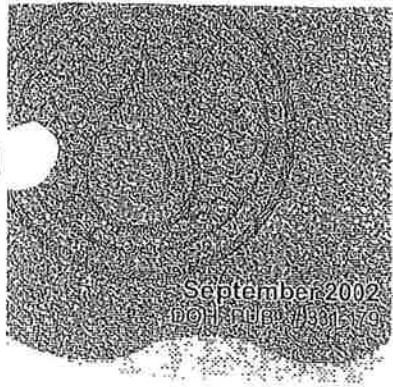
Coliform Program: 360-753-5090 Main Office: 360-664-0768

Eastern Regional Office – Spokane

Coliform Program: 509-456-2788 Main Office: 509-456-3115

SECTION II
NOTIFICATION





Questions & Answers

Public Health Advisory: Coliform

Why must I boil my water?

Recent testing shows that your water system is contaminated with organisms that could cause illness.

Who can be affected? Can I become ill?

Anyone who drinks contaminated water may become ill. Infants, young children, the elderly, and people with severely compromised immune systems are more at risk of illness.

Who are people with compromised immune systems?

People who are on chemotherapy, organ or bone marrow recipients, those with HIV or AIDS, malnourished children, infants, and some of the elderly have compromised or weakened immune systems. An infection from a disease-causing organism may lead to very serious health problems for these people.

Can these diseases be spread in ways other than drinking the water?

Yes. Many of these disease-causing organisms are shed in the feces of infected people. In fact, some infected people do not have any symptoms but still shed these organisms. Childcare workers, young children who attend childcare, and caregivers for people who are sick and shedding these organisms are at the greatest risk of becoming ill. Washing hands with soap and water after using the toilet and before preparing food prevents the spread of diseases to others.

What are the symptoms to watch for?

What should I do if I think I have a waterborne illness?

Disease-causing organisms in water can cause diarrhea, stomach cramps, bloating, gas, fatigue, weight loss, nausea, vomiting, and/or fever. Symptoms may appear as early as a few hours to several days after infection and may last more than two weeks. If you are ill with these symptoms, contact your health care provider.

How can I make the water safe?

Boiling is the best way to ensure water is free of illness-causing organisms. Bring the water to a rolling boil for 3-5 minutes. When it cools, refrigerate the water in clean covered containers. If you don't want to boil your water, you can disinfect the water using household bleach. Do not use bleach that contains perfume, dyes, or other additives. Use 1/8-teaspoon bleach per gallon of water, mix thoroughly, and then let stand for 60 minutes before using.



HELPING TO ENSURE SAFE AND RELIABLE DRINKING WATER

Can I use bottled water?

You can use purchased bottled water. If you choose to use bottled water, the Department of Health recommends that you use water that has been:

- Reverse-osmosis treated, or
- Distilled, or
- Filtered through an “absolute” one micron or smaller filter

Carbonated water in cans or bottles is usually filtered or heated to remove illness-causing organisms.

During a health advisory, can I use tap water for...?

Drinking	No
Ice cubes	No
Brushing teeth	No
Baby’s formula	No
Washing vegetables/fruits	No
Preparing food	No
Coffee or tea	No
Showers/Baths	Yes
Washing clothes	Yes
Baby’s bath	See below
Washing dishes	See below

Can I bathe my baby or child using tap water?

Yes, as long as they do not drink any of the water. Don’t let babies suck on a washcloth, as they will be ingesting some of the water.

Can I wash dishes?

You can use your dishwasher if you use the sanitizing/heat cycle and a commercial dishwashing detergent. You can hand wash your dishes, then rinse them in a diluted bleach solution—one teaspoon household bleach to one gallon of water—and then let dishes air dry.

What must be done to fix the problem?

Fixing the problem could be different in each situation depending on whether the problem is at the water source or in the water lines. Usually, in every case the water lines will need to be flushed and the whole system will need to be disinfected using chlorine. The water will then be tested to make sure it is free of coliform bacteria.

How long will this health advisory be in effect?

This health advisory will remain in effect until the water is tested and results show that it meets public health drinking water standards. Your water system will notify you when that occurs.

For more information:

Personal medical questions: Contact your health care provider (physician, nurse consultant, etc.)

Call your local health department or district with general questions about infectious disease, communicable disease transmission, symptoms, causes and prevention of waterborne disease

DRINKING WATER WARNING

The _____ Water System, ID _____, located in _____ County is contaminated with fecal coliform/ *E. coli* bacteria.

Fecal coliform/ *E. coli* bacteria were detected/confirmed in the water supply on _____. These bacteria can make you sick and are a particular concern for people with weakened immune systems.

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil 3 – 5 minutes, and let it cool before using. Boiled or purchased bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and food preparation until *further notice*. Boiling kills bacteria and other organisms in the water.

Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care provider.

What happened? What is the suspected or known source of contamination?

The following is being done to correct the problem:

We have consulted with the Washington State Department of Health about this incident. We will notify you when you no longer need to boil the water. We anticipate resolving the problem by _____.

For more information, please contact _____ at () _____ - _____ or at _____.
(owner or operator) (phone number) (address)

Please share this notice with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distribution copies by hand or mail.

This notice is sent to you by _____ Water System on ____/____/____

IMPORTANT NOTICE ABOUT YOUR WATER SYSTEM
Coliform Maximum Contaminant Level (MCL) Exceeded: Non-Acute MCL

The _____ water system, ID # _____ in _____ County routinely monitors for the presence of total coliform bacteria and in _____ this type of bacteria was detected. Although this incident was not an emergency, as our customer, you have a right to know what happened and what we did or are doing to correct the situation.

Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems. The samples that showed the presence of coliform were further tested to see if other bacteria of greater concern, such as fecal coliform or E.coli were present. None of these bacteria were found.

You do not need to boil your water. People with severely compromised immune systems, infants, and some elderly may at be an increased risk and may want to contact their health care provider for additional guidance.

What happened? What is the suspected or known source of contamination?

At this time:

The problem is resolved. Additional samples collected were found to be free of coliform bacteria.

We anticipate resolving the problem by ____/____/____.

Other _____.

For more information, please contact _____ at () ____-____ or at _____.
(owner or operator) (phone number) (address)

Please share this notice with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is sent to you by _____ Water System on ____/____/____

(This section must be completed by Water System. Signature below indicates notice contained all required elements.)

Complete the following items (check all that apply):

Notice mailed to all water customers on ____/____/____.

Notice hand delivered to all water customers on ____/____/____.

Notice published in newspaper (attach copy)

Notice posted at _____ on ____/____/____. *(By Department Approval Only)*

Signature of owner or operator

Position

Date

Send copy of completed notification and certification to: Southwest Drinking Water Operations, PO Box 47823, Olympia WA 98504 or fax to (360) 664-8058.

PUBLIC NOTICE CERTIFICATION

Within 10 days of notifying your customers, you must send a copy of each type of notice you distribute (hand-delivered notices, press releases, newspaper articles, etc.) to your Regional Office of the Division of Drinking Water. Also complete and send this form, which certifies that you have met all the public notification requirements. If the boil water advisory remains in effect more than three months, you must notify your water users again and provide another Public Notice Certification to the Department of Health. With this certification, you are also stating that you will meet future requirements for notifying new billing units of the violation or situation.

Water System: _____ ID # _____ County: _____

Violation Date: ____ / ____ / ____ Violation Type: _____

This public water system certifies that public notice has been given to water users, following state and federal requirements for delivery, content, and deadlines.

Complete the following items:

Yes No

- Distribution was completed on ____ / ____ / ____ . Check all that apply:
- Hand delivery,
 - Press release (TV, radio, newspaper, etc.),
 - Posting at _____ (by DOH approval only),
 - Other _____ (by DOH approval only).
- Were the water users notified within 24 hours?

Signature of owner or operator

Position

Date



Northwest Regional Office: 20435 72nd Ave. S., Suite 200, Kent WA 98032
Jennifer Prodzinski and Carol Stuckey: (253) 395-6775 Fax: (253) 395-6760
Southwest Regional Office: 2411 Pacific Ave., PO Box 47823, Olympia WA 98504
Sandy Brentlinger: (360) 753-5090 Fax (360) 664-8058
Eastern Regional Office: 1500 West Fourth Ave., Suite 305, Spokane WA 99204
Pat McCaffery: (509) 456-2788 Fax: (509) 456-2997

Your logo or
company name here.

News Release

For Immediate Release: <DATE>

Contact: Water purveyor/system contact name and telephone number

<Water System> announces boil water advisory for all customers in <area>

CITY NAME — The <SYSTEM NAME> is advising all water customers to boil their drinking water after recent samples showed the presence of <fecal coliform, E. coli, total coliform>. The Washington State Department of Health (DOH) has been notified and <SYSTEM NAME> is working closely with the Division of Drinking Water to find the source of contamination and fix the problem, which may include disinfecting the system. The boil water advisory will remain in effect until further notice.

<System spokesperson quote> (e.g. "We are doing all we can to eliminate the bacteria from the water system. Safe and reliable drinking water is critical to good health and responding to this kind of emergency is our highest priority," said system spokesperson.)

<NUMBER or NO> illnesses related to the community's drinking water have been reported. To correct the problem <WHAT IS BEING DONE> (e.g. Chlorine was applied to the entire system on DATE.)

The boil water advisory includes several precautionary steps that customers should take. These include using purchased treated bottled water or boiled water for any water that might be consumed: drinking, brushing teeth, dishwashing, preparing food and making ice. Water should be boiled for 3-5 minutes, then allowed to cool before using.

The advisory will remain in effect until <SYSTEM NAME> and DOH are confident there is no longer a threat of illness to their customers. Once satisfactory results are reported, customers will be notified that the advisory has been lifted.

If you have any questions, please call us at <TELEPHONE NUMBER>.

###

Your logo or
company name here

News Release

For Immediate Release: <DATE>

Contact: Water purveyor/system contact name and telephone number

<Water System Name> Boil Water Advisory Rescinded

CITY NAME – The <SYSTEM NAME> is advising all its water customers that it is no longer necessary to boil their drinking water. Recent test samples show the absence of <fecal coliform, E. coli, total coliform> bacteria.

<SYSTEM SPOKESPERSON QUOTE> (e.g. “Working with the Washington State Department of Health over the last <NUMBER OF > days, we have completed inspections, water quality sampling, disinfection, and flushing to resolve the contamination problem,” stated <NAME OF WATER SYSTEM MANAGER>. “We’re pleased to be able to lift the boil water advisory.”

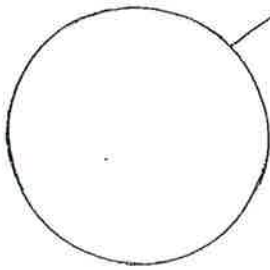
The inspection of the water system indicated <DESCRIPTION OF SOURCE OF CONTAMINATION, if known, and what will be done to maintain good water quality>

If you have shut off or not used fixtures, water fountains, ice machines, soda machines, and/or other equipment over the past several days, flush the fixture or equipment until there is a change in water temperature before putting it back into service.

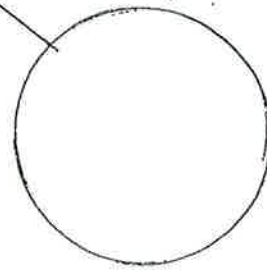
The <SYSTEM NAME> encourages customers with questions to call <TELEPHONE NUMBER>.

###

FRONT



BACK



WARNING:

Do not drink tap water without boiling it first!

- Fecal coliform
- E. coli bacteria
- Other: _____

were detected in the water supply on:
(date) _____

Boiling kills bacteria and other organisms in the water:

- Bring water to a boil
- Continue boiling for 3-5 minutes
- Let water cool before using

To avoid possible illness: use boiled or purchased bottled water for drinking, making ice, brushing teeth, washing dishes, and food preparation until further notice.

Contact your doctor, if you experience one or more of these symptoms: nausea, cramps, diarrhea, jaundice, headache and/or fatigue. People with chronic illnesses, infants and the elderly may be at higher risk and should seek medical advice.

Water System: _____

I.D. # _____ County: _____

Contact: _____

Phone: _____

Date notice distributed: _____

See reverse side for more information.

What is fecal coliform and E. coli?

Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

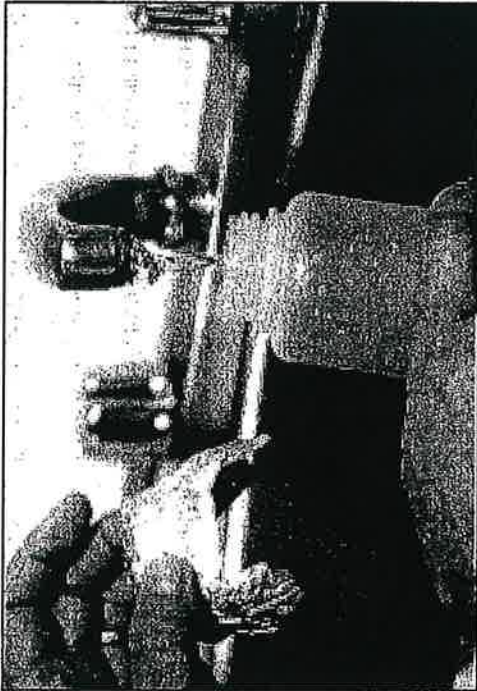
How long will this warning be in effect?

We will consult with the Washington State Department of Health about this incident. We will notify you when you no longer need to boil the water.

DOOR HANGER NOTICE
EXAMPLE

SECTION III
GENERAL INFORMATION

The Total Coliform Rule



Samples to be analyzed for the presence of coliforms must be collected according to a written Sample Siting Plan.

The Total Coliform Rule (TCR) is the Federal regulation that sets maximum contaminant levels (MCLs*) and monitoring requirements for coliforms in drinking water. It requires every regulated system to periodically collect samples and analyze them for coliforms. The number of routine samples required each month depends on system size (see chart below). Samples must be collected according to a written "Sample Siting Plan." Appendix A describes how to develop a sample siting plan. Appendix B describes sample collection techniques.

Population Served	Routine Samples per Month
25 - 1,000	1
1,001 - 2,500	2
2,501 - 3,300	3

*The maximum permissible level of a contaminant in water delivered to any user of a public water system. MCLs are enforceable standards.

As mentioned previously, the presence of total coliforms is a warning sign that your system is vulnerable to contamination. It does not necessarily mean that your system is fecally contaminated.

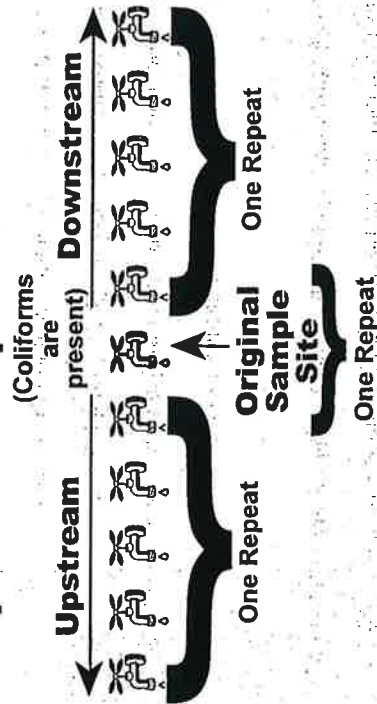
If any of your routine samples test positive for the presence of total coliforms, you must:

- Immediately collect a set of repeat samples per positive routine sample to assess the extent of the problem, and
- Collect 5 routine samples the next month.

For every total coliform-positive sample, a set of repeat samples must be collected **within 24 hours** of the system being notified of the positive result. The minimum number of repeat samples required is based on the number of routine samples collected. See the table below to determine the number needed.

Population Served	Repeat Samples per Positive Routine Sample
25 - 1,000	4
1,001 - 2,500	3
2,501 - 3,300	3

Repeat Samples

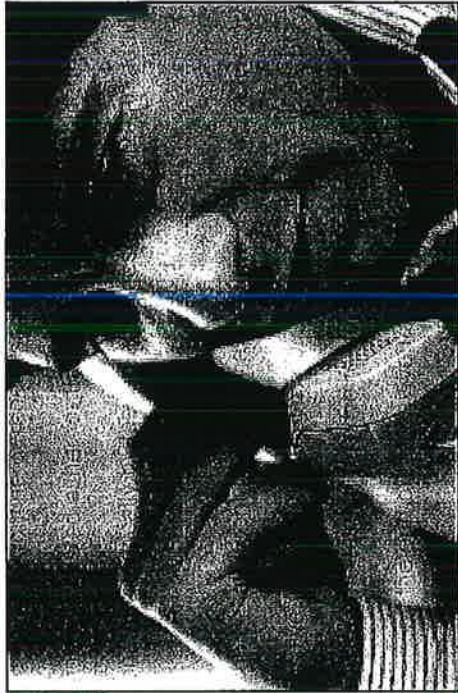


- One must be at same site as the routine sample.
- One must be within 5 service connections upstream.
- One must be within 5 service connections downstream.
- If a fourth repeat sample is required, the system should take the sample wherever it feels it will help identify the area of contamination.

Repeat Sample Locations

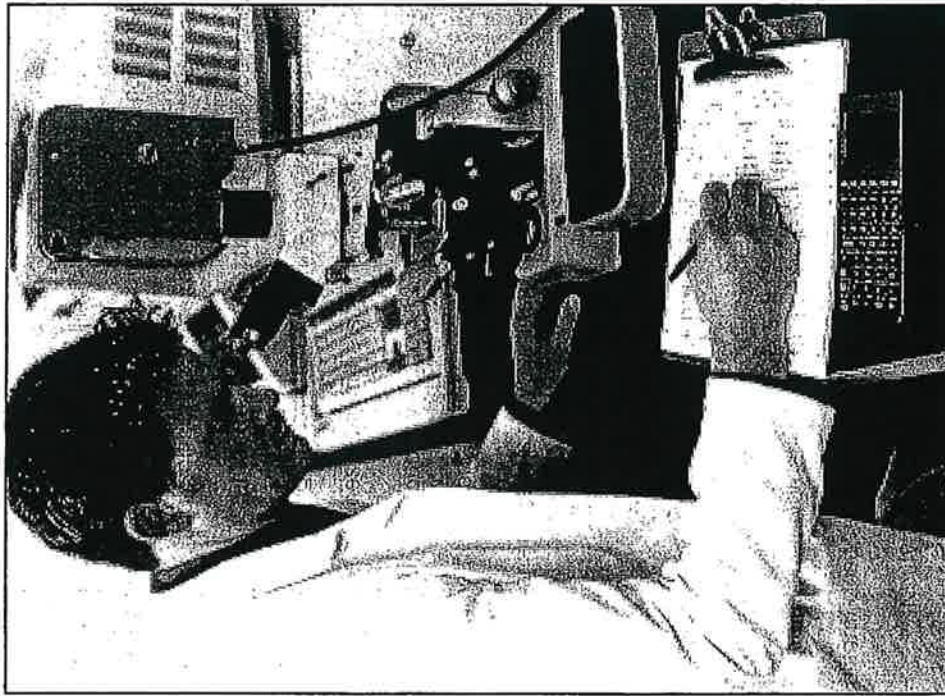
One of the repeat samples must be collected from the original sample site; 1 within 5 service connections upstream; 1 within 5 service connections downstream; and for systems serving 25-1,000 persons a fourth repeat sample is required and should be collected from wherever the system believes it would best help identify the source or area of contamination.

The main reason for this repeat sampling is to determine whether the contamination is in the plumbing of an individual building or in the distribution system itself. If a repeat sample is total coliform-positive at the same service connection, but negative at upstream and downstream service connections, the State may investigate to determine if it is appropriate to waive the total coliform-positive sample as being a plumbing system problem in the individual building.



Note: If any routine or repeat sample is total coliform-positive, the positive sample is tested either for the presence of fecal coliforms or *E. coli*. The test is done automatically by the lab and does not require an additional sample.

A potential urgent health risk exists if any sample, routine or repeat, tests positive for fecal coliform/*E. coli*. When you are notified by your laboratory of any sample testing positive for fecal coliforms or *E. coli*, you must notify the State by the end of the day you are notified, or before the end of the next business day if the state office is closed.



Acute MCL

If you have a total coliform-positive routine sample followed by a fecal coliform or *E. coli*-positive repeat sample (or a fecal coliform or *E. coli*-positive routine sample followed by a total coliform-positive repeat sample), this is a serious potential health risk. This creates an acute violation of the MCL and you must:

- Notify the State by the end of the day you are notified, or before the end of the next business day if the state office is closed.
- Notify the public within 24 hours by television, radio, hand delivery, or other methods approved by the State.*
- Consider advising your customers to boil their water.

Monthly MCL

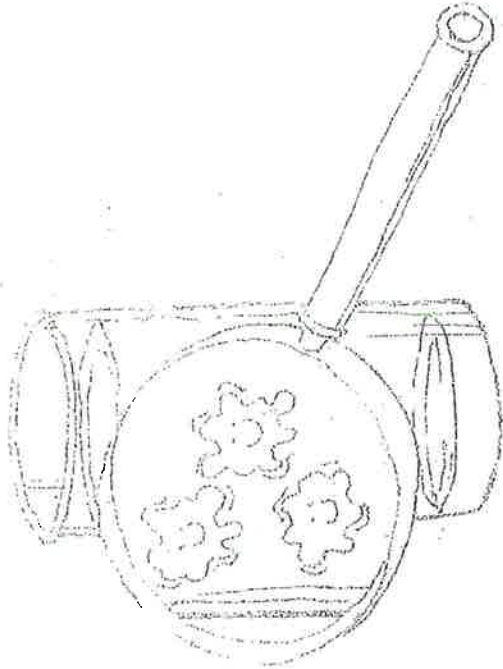
A less serious but still significant potential health risk exists if more than one sample (routine and/or repeat) in a month is total coliform positive. This creates a monthly MCL violation. When you are notified by your laboratory of the repeat or second routine total coliform-positive sample results, you must:

- Notify the State by the end of the next business day.
- Notify the public within 30 days by mail, hand delivery, or other methods approved by the State.*

*This guide contains information that reflects new U.S. EPA public notification requirements. See *Public Notification Requirements: A Quick Reference Guide* (document number EPA 816-F-00-023) for more information.

In the month following detection of total coliforms in any routine or repeat sample, you are required to collect five routine samples. If none of these tests positive for the presence of total coliforms, you may resume collecting your usual number of routine samples the next month.

A total coliform-positive sample is cause for concern. However, if a set of repeat samples that month and five routine samples the next month are all negative, and your other multiple barriers to contamination are in good shape, you can have confidence that your water is safe.



There Are Exceptions to Every Rule!!

The Total Coliform Rule provides States with flexibility to alter certain requirements, on a case-by-case basis, in response to local circumstances. This guide is not designed to provide exhaustive detail on all the potential exceptions to the basic requirements we have thus far described. However, as a small system operator, you should be aware of the most significant possible exceptions.

- 1. Invalidation of Total Coliform-Positive Samples.** Under certain limited and specific circumstances, the State may invalidate a sample. You should not interpret this flexibility to mean that total coliform-positive samples are not a serious matter! Rather, this flexibility exists to allow the State to invalidate a sample in those rare instances when it is justified to do so.
- 2. Reduced Monitoring.** Systems serving 25-1,000 persons may, under very specific conditions, be allowed to collect 1 sample per quarter rather than 1 sample per month. States may only allow this reduced monitoring if a system has no history of coliform contamination and if it is supplied solely by a protected ground water source and is free of sanitary defects.

September 2002
331-181

Coliform Bacteria and Drinking Water

Water systems are required to deliver safe and reliable drinking water to their customers 24 hours a day, 365 days a year. However, if the water supply becomes contaminated with disease-causing bacteria, viruses or protozoa, many people can become seriously ill. Fortunately, many steps are taken to ensure the public is provided with safe drinking water. One of these steps is to test water for coliform bacteria.

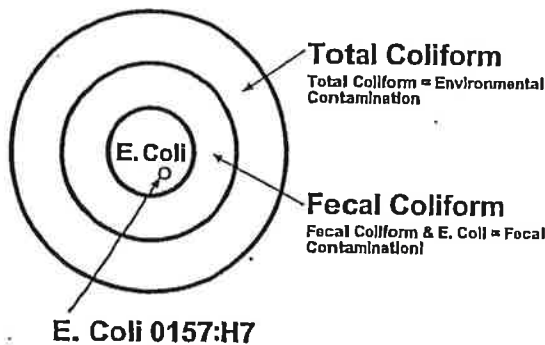
What are coliform bacteria?

Coliform bacteria are organisms that are present in the feces of all warm-blooded animals and humans. Many of the organisms that can contaminate water supplies and cause disease also come from feces. Testing drinking water for all these organisms would be very complex, time-consuming and expensive. However, it is relatively quick and easy to test water for the presence of coliform bacteria, which is the best way to tell if drinking water is contaminated.

Types of coliform bacteria

The term "coliform bacteria" refers to a large collection of many kinds of bacteria. There are three groups of coliform that are used as measures of drinking water quality: total coliform, fecal coliform, and *Escherichia coli* (*E. coli*).

TOTAL COLIFORM, FECAL COLIFORM AND E. COLI



Total coliform: a group of bacteria present in feces of all warm-blooded animals and humans. They can also sometimes grow in soil, lakes or rivers.

Fecal coliform: a sub-group of total coliforms, which are able to grow well at body temperature. Fecal coliforms are more likely to be from fecal contamination.

***E. coli*:** a sub-group of fecal coliform bacteria, which are almost always from fecal contamination.

***E. coli* 0157:H7:** a specific species of *E. coli*, which has been responsible for waterborne and food-borne disease outbreaks.





Fact Sheet

Emergency Water Supply Guidelines

Restaurants - Food Stores – Schools
Institutions - Convenience Stores

September 2002
331-182

These guidelines are for establishments that provide food service to the public. State law (WAC 246-315-120) requires that food service establishment (FSE) owners ensure that their water supply is from a source approved by the Washington State Department of Health (WAC 246-290).

Procedures During Boil Water Advisory

When a boil water advisory is issued to a water system that supplies a food service establishment, the FSE may only remain open with the authorization of the local health department or district.

Minimum Requirements

Shut off:

- Ice machines
- Drinking fountains
- Produce misters
- Bottled water refill machines

Discard:

- Ice made with contaminated water
- Beverages made with contaminated water

Ice: Use packaged ice from approved source

Use boiled or bottled water for:

- Drinking
- Cooking
- Food preparation
- Washing produce

Hand washing:

- Use antibacterial soap

Dishwashing options:

- Commercial high temperature or chemical dishwasher
- Three compartment sink
 1. Hot soapy water
 2. Hot water rinse
 3. Sanitizing rinse – cool water with bleach solution (1 teaspoon bleach per 1 gallon water) – followed by air drying completely

Employee Information:

- Develop a plan to notify and educate employees about emergency procedures
- Post signs or copies of the water system's health advisory

The local health department or district may impose additional requirements to protect against health hazards during the boil water advisory, such as modifying food preparation steps or prohibiting some menu items.

These procedures should be followed until notified by the local health department or district, or the state Department of Health.

The Department of Health is an equal opportunity agency. If you need this publication in an alternative format, please call 1-800-527-0127 (voice) or 1-800-833-6388 (TDD relay service). For additional copies of this publication, call 1-800-521-0323. This and other publications are available on the Internet: www.doh.wa.gov/ehp/dw



A note about *E. coli*: A number of *E. coli* outbreaks have occurred which have received much media coverage. Most of these outbreaks were related to food contamination and were caused by a specific strain of *E. coli* known as *E. coli O157:H7*. When a drinking water sample is reported as "*E. coli* present" it does not mean that this specific strain is present. However, this does indicate that fecal contamination IS present and that the source of contamination needs to be identified and corrected. When water is treated with a disinfectant or boiled, all forms of *E. coli*, including *O157:H7*, are destroyed.

What happens if coliform is found in my water?

Finding coliform bacteria in the drinking water is a signal that your water system might be contaminated. If only total coliform bacteria are found, further investigation of your water system is necessary to make certain disease-causing organisms are not present. Usually more water samples will be taken. If fecal coliforms or *E. coli* are found in drinking water, then it is more likely that disease-causing organisms could be present. If fecal coliform or *E. coli* are found, you will probably be advised to boil water for 3-5 minutes before drinking it, or to purchase bottled water. More sampling and other investigations will be carried out to find and eliminate any possible sources of contamination.

What is a water distribution system?

A water distribution system consists of pipes that deliver water to households and businesses. When present in a distribution system, coliform bacteria tend to cluster and are not evenly dispersed. Clusters of bacteria can break up and migrate to other parts of the distribution system. This explains why two samples taken a few minutes apart can have very different results: one sample might have coliform bacteria while the other does not.

For more information:

Northwest Regional Office – Kent

Coliform Program: 253-395-6775 Main Office: 253-395-6750

Southwest Regional Office – Olympia

Coliform Program: 360-753-5090 Main Office: 360-664-0768

Eastern Regional Office – Spokane

Coliform Program: 509-456-2788 Main Office: 509-456-3115

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RESERVOIRS and STORAGE TANKS

- There are no openings that allow entry of surface water, debris, insects, etc.
- The access hatch has an overlapping, watertight cover and a neoprene-type seal.
- Vents are clean, directed downward, and screened (minimum 24 mesh).
- Overflow and drain lines are protected with screens or angle-flap valves and discharge above ground. The drainpipe should not be submerged in non-potable water.
- There are no signs of dirt, insects, growth, sediment or debris inside the tank.
- There are no cracks, leaks, or vegetative growth on the outside of the tank.

DISTRIBUTION SYSTEM

- There are no obvious leaks or breaks.
- The system has been effectively disinfected following any construction or repair work.
- There have been no low pressure or water outage incidents.
- Non-looped, dead-end sections are regularly flushed.
- System is free of possible cross connections.

AFTER INSPECTING SYSTEM

- Make needed repairs and improvements.
- Disinfect and flush the system according to DOH guidelines.
- Install sample taps at source and storage facilities, if needed.
- Establish or improve preventative maintenance program (routine sanitary control area inspection, storage tank inspection, and distribution system flushing).

FOR MORE INFORMATION

Northwest Regional Office – Kent

Coliform Program: 253-395-6775 Main Office: 253-395-6750

Southwest Regional Office – Olympia

Coliform Program: 360-753-5090 Main Office: 360-664-0768

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www.doh.wa.gov/ehp/dw

Summary of Draft Rule Changes
Group A—Revised Total Coliform Rule
Chapter 246-290 WAC



November 2015

Background

The Office of Drinking Water is revising the Group A rule to incorporate the federal Revised Total Coliform Rule (RTCR). The RTCR applies to all Group A public water systems. The purpose of the rule is to increase public health protection by eliminating pathways for fecal contamination to enter a distribution system. Some key provisions of RTCR include:

- Eliminates the total coliform maximum contaminant level (MCL), maintains the existing *E. coli* MCL, and defines coliform treatment technique violations.
- Sets new requirements for Level 1 and 2 assessments, and corrective action when monitoring results show that the system is contaminated.
- Sets new seasonal system requirements for start-up procedures if the system depressurizes during the off-season.
- Changes to reporting and recordkeeping requirements.
- Changes to public notification and consumer confidence reporting requirements.
- Technical edits for clarity.

**Group A Rule
 Draft Revisions**

Our Group A rule includes many different topics. For this revision we are looking at four separate topics: RTCR, planning requirements, disinfection, and emergency sources.

This informal comment period, which goes from November 19 until December 18, is **only for RTCR**. It isn't for the other topics that were discussed at the beginning of 2015.

For more information about the Group A rule revision, including the rule timeline, see our rule making website at www.doh.wa.gov/odwrulemaking

Summary of Draft Changes

Section Number	Section Title	Draft Changes
010	Definitions, abbreviations, and acronyms	<ul style="list-style-type: none"> • Adds definitions for: <ul style="list-style-type: none"> – Clean compliance history – Level 1 and level 2 assessments – Sanitary defect – Seasonal system
025	Adoption by reference	<ul style="list-style-type: none"> • Incorporates numerous code of federal regulation references • Updates the Office of Drinking Water's URL
060	Variance, exemptions, and waivers	<ul style="list-style-type: none"> • Changes the variance and exemption MCL references from total coliform to <i>E. coli</i>

Section Number	Section Title	Draft Changes
300	Monitoring requirements	<ul style="list-style-type: none"> • Updates the coliform monitoring plan requirements including: <ul style="list-style-type: none"> – Sampling sites and sampling schedule – Monitoring locations and frequency – Routine and repeat sampling criteria, sites and minimum number of samples • Special purpose coliform samples and invalidation conditions • Seasonal system start-up procedures and monitoring • Repeat monitoring and frequency • <i>E. coli</i> testing when routine or repeat samples are coliform-positive • Triggered and assessment source water monitoring for groundwater systems, public notice, and corrective actions
310	MCLs and MRDLs	<ul style="list-style-type: none"> • Identifies <i>E. coli</i> as an acute MCL and associated violations
320	Follow-up actions	<ul style="list-style-type: none"> • Identifies coliform treatment technique triggers and associated Level 1 and Level 2 assessment requirements to identify the possible presence of sanitary defects • Sets criteria for who can conduct assessments and timing • Sets minimum assessment elements for Levels 1 and 2 • Completed assessments must describe corrective actions for department review • Identifies best technologies, treatment techniques or other means to achieve compliance with the <i>E. coli</i> MCL • Systems may consult with the department during assessments or corrective action phases • Identifies treatment technique violations
415	Operations and maintenance	<ul style="list-style-type: none"> • Identifies operations and maintenance elements for seasonal system start-up procedures • Identifies that a treatment technique violation occurs when a seasonal system fails to complete the start-up procedure
416	Sanitary surveys	<ul style="list-style-type: none"> • Adds new criteria for community water systems to qualify for a five year survey cycle: <ul style="list-style-type: none"> – No <i>E. coli</i> MCL violations – No coliform treatment technique violations due to a failure to conduct an assessment or take corrective actions

Section Number	Section Title	Draft Changes
451	Disinfection of drinking water	<ul style="list-style-type: none"> • Requires systems to provide continuous disinfection if the system has: <ul style="list-style-type: none"> - <i>E. coli</i> MCL or coliform monitoring violations - Level 1 or 2 assessment treatment technique triggers - Failure to complete a level 1 or 2 assessment - Failure to complete corrective actions - Facility failures that threaten to degrade water quality
480	Recordkeeping and reporting	<ul style="list-style-type: none"> • Systems must keep level 1 and 2 assessment documentation including corrective actions for no less than 5 years • Consecutive systems must keep documentation of notice to the wholesale system of total-coliform positive samples for no less than 5 years • Seasonal systems must report that it has complied with start-up procedures • Seasonal systems must report treatment technique triggers no later than the end of the next business day
664	Monitoring for filtered systems	<ul style="list-style-type: none"> • Changes a reference for measuring residual disinfectant concentration for routine and repeat coliform samples to align with changes in section -320
690	Criteria to remain unfiltered	<ul style="list-style-type: none"> • Replaces 'total-coliform' with '<i>E. coli</i>' to align with RTCR requirements
694	Monitoring for unfiltered systems	<ul style="list-style-type: none"> • Removes 'total-coliform' and replaces it with '<i>E. coli</i>' to align with RTCR requirements • Changes references to other sections to align with RTCR requirements
72004	Report contents-Definitions	<ul style="list-style-type: none"> • Adds definitions for level 1 and 2 assessments to the annual consumer confidence report
72005	Report contents-Information on detected contaminants	<ul style="list-style-type: none"> • Adds <i>E. coli</i> to list of detected regulated contaminants • Replaces total coliform samples with <i>E. coli</i> analytical results and references section -300
72012	Regulated contaminants	<ul style="list-style-type: none"> • Updates 'total coliform bacteria' and '<i>E. coli</i>' contaminant information • Makes a technical correction to the Arsenic contaminant information

We want your feedback on the draft rule

We are taking your comments electronically. Send your comments to theresa.phillips@doh.wa.gov no later than **December 18, 2015**.

When you comment on the draft rule, please use the following format for suggested changes:

WAC Citation	Suggested Revised Language	Reason for Suggested Change
Example:		
246-290-XXX	The rule should read...	Provide a brief explanation

For more information:

To learn more about how RTCR will affect your water system, we dedicated an H2Ops edition to RTCR. If you didn't receive it in the mail, you can go to <http://www.doh.wa.gov/Portals/1/Documents/4200/H2Ops-Nov2015.pdf>

Contacts:

Northwest Regional Office, Kent

Coliform Program: 253-395-6775

Main Office: 253-395-6750

Southwest Regional Office, Tumwater

Coliform Program: 360-236-3044

Main Office: 360-236-3030

Eastern Regional Office, Spokane Valley

Coliform Program: 509-329-2134

Main Office: 509-329-2100

For more information about ODW rule making:

- Questions: Contact theresa.phillips@doh.wa.gov (360) 236-3147
- To see other rule-making activities, visit our [rule-making website](#)
- Sign up for our [rules email list](#) to keep up-to-date on rule-making activities

Our publications are online at <https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm>



For people with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TDD/TTY call 711)

Helpful Hints

- Good sample collection technique can reduce the possibility of having a total coliform-present sample.
- Make sure to collect every routine and repeat sample.
- Find and fix any sanitary defects as soon as you are aware of them.
- Remember to send us your completed Level 1 and Level 2 assessment documentation.
- If you are a seasonal water system, remember to follow your start-up procedure before providing water to the public at the beginning of each new season.

For more information

Call our regional office:

Eastern Region: Spokane Valley
509-329-2100

Northwest Region: Kent
253-395-6750

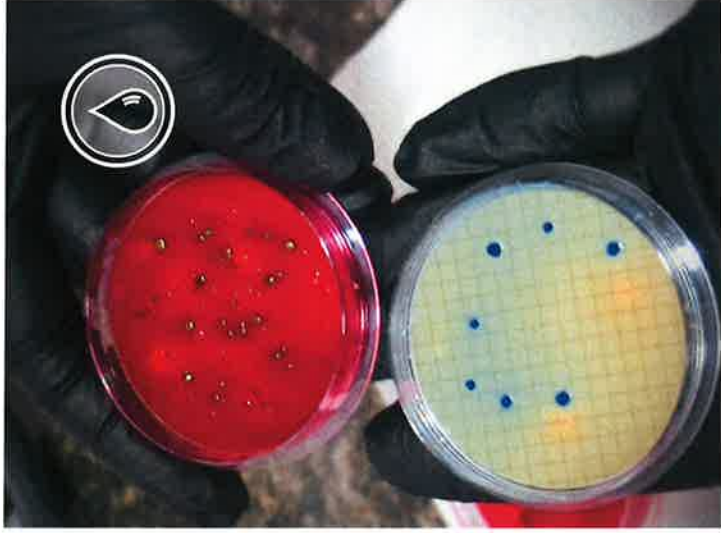
Southwest Region: Tumwater
360-236-3030

You can also visit our website at www.doh.wa.gov/CommunityandEnvironment/DrinkingWater



DOH-PUB #331-556
December 2015

If you need this publication in an alternative format, call 800-525-0127 (TDD/TTY call 711). This and other publications are available at www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/PublicationsandForms.



The Revised Total Coliform Rule (RTCR)

will replace the Total Coliform Rule on April 1, 2016. EPA expects the RTCR to protect public health better by requiring systems vulnerable to microbial contamination to “find and fix” problems that allow contamination to enter a water system.

We have always required water systems to look for any maintenance or operational defects that could allow contamination to enter a system. RTCR formalizes the process and requires water systems to submit a water system assessment report to us any time they have total coliform-present sample results.

RTCR Introduces the *E. coli* MCL

RTCR calls the acute Maximum Contaminant Level (MCL) an “*E. coli* MCL.” An *E. coli* MCL violation can occur four ways:

- A total coliform-present repeat sample follows an *E. coli*-present routine sample.
- An *E. coli*-present repeat sample follows a total coliform-present routine sample.
- The lab fails to test a total coliform-present repeat sample for *E. coli*.
- New. A system fails to take 3 repeat samples following an *E. coli*-present routine sample.

Required Routine Monitoring

Water systems will continue to collect the same number of routine samples at the same frequency as they do now. See your Water Facilities Inventory (WFI) form for your system’s monitoring schedule.

RTCR requires all water systems to collect 3 repeat samples for every total coliform-present routine sample. Systems that collect 1 sample a month will collect 3 repeats instead of 4. Systems that collect 2 or more routine samples will continue to collect 3 repeats. If a system fails to collect 3 repeat samples for every total coliform-present routine sample, RTCR will require it to conduct a water system assessment.

RTCR does not allow any system to use a source sample as both a repeat sample and a groundwater source sample. Instead, it will require all systems to collect a raw water sample from each groundwater source that was in use on the day they collected the routine sample.

RTCR requires water systems to collect their normal number of routine samples the month after a total coliform-present routine sample. Systems that serve 4,100 or fewer people no longer have to collect 5 routine samples.

“Sanitary Defects” and “Defects”

RTCR distinguishes between “sanitary defects” and “defects.” Either might cause a total coliform-present sample, which triggers the assessment requirement.

Sanitary defect: A pathway for contaminants to enter the water system or the failure or imminent failure of an existing barrier.

Defect: An issue identified during an assessment that could have caused total coliform-present samples, such as using an improper sample collection technique.

Assessment

Elements

Evaluate anything that might affect water quality in the distribution system, or indicate that quality is impaired, such as:

- Atypical events.
- Changes in distribution system operation and maintenance, including water storage.
- Source and treatment considerations.
- Existing water quality data.
- Inadequate sample sites, sample protocols, or sample processing.
- Others, depending on the size and complexity of the system.

Level 1 Assessment

A basic water system evaluation an owner, manager, or other knowledgeable person can do. A Level 1 treatment technique trigger occurs any time a water system:

- Collects fewer than 40 routine samples a month and has 2 or more total coliform-present results the same month.
- Collects 40 or more routine samples a month and has total coliform-present results in more than 5 percent of its routine and repeat samples.
- Fails to collect 3 repeats for every total coliform-present routine sample.

Level 2 Assessment

A complex evaluation that only a person with state-required qualifications can do. A Level 2 treatment technique trigger occurs when a water system has:

- An *E. coli* MCL violation.
- A second Level 1 treatment technique trigger within a rolling 12-month period.

Seasonal Water Systems

RTC recognizes a new noncommunity seasonal water system. RTC's seasonal system doesn't operate year-round, totally depressurizes the water lines at the end of each operating season, and has at least one month when it serves no people.

Complete system shutdown creates opportunities for contamination to enter or spread through the distribution system. Therefore, all seasonal water systems must:

- Have a state-approved start-up procedure by March 31, 2016.
- Follow the procedure before opening for the season each year.
- Send us a certificate declaring that they followed the procedure before serving water to the public.

Failure to do so is a treatment technique violation, which requires public notification to water system customers.



Treatment Technique Violations

RTC requires public notification within 30 days when a:

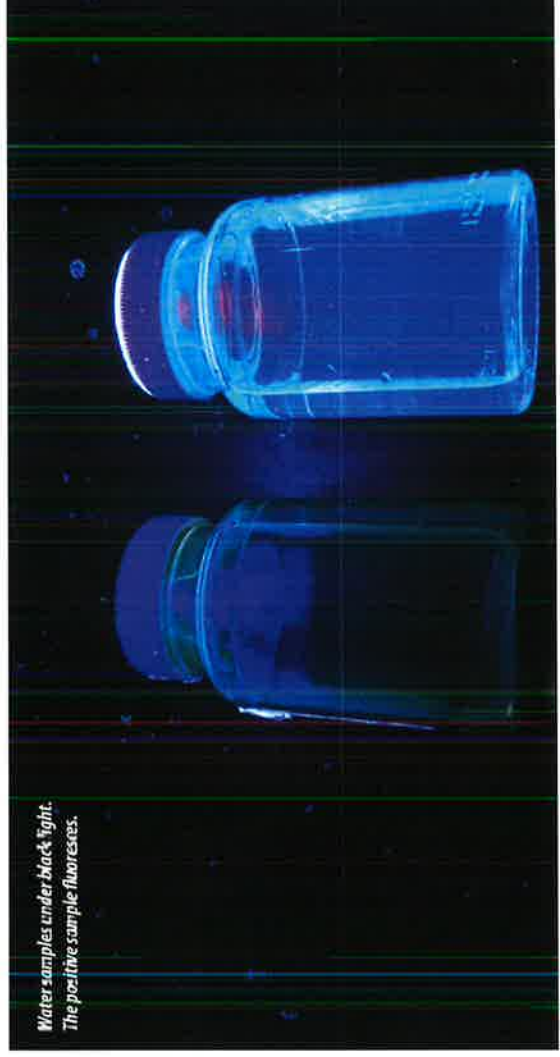
- Water system fails to conduct a required Level 1 or Level 2 assessment within 30 days of learning about the treatment technique trigger.
- Water system fails to correct a sanitary defect identified in a Level 1 or Level 2 assessment within 30 days of learning about the treatment technique trigger.
- Seasonal system fails to complete state-approved startup procedures before providing water to customers.

Monitoring Violations

- A water system fails to collect every routine sample.
- A lab fails to test a total coliform-present routine sample for *E. coli*.

Reporting Violations

- Water system fails to submit a monitoring report or completed assessment report in a timely manner.
- Water system fails to notify us of an *E. coli*-present sample in a timely manner.
- Seasonal system fails to submit certification of completion of approved start-up procedure.



Water samples under black light. The positive sample fluoresces.

Treatment Techniques Trigger Assessments

A treatment technique trigger is a situation that requires a water system to take action. RTC requires water systems to conduct an assessment to "find and fix" any sanitary defects whenever a treatment technique trigger occurs. There are two assessment levels. Both evaluate the entire system from the sample collection point to the source of supply.

You can anticipate that a treatment technique trigger might occur any time you collect routine and repeat samples. Therefore, you should be ready to start a system evaluation as soon as the lab notifies you of total coliform-present results, which trigger the assessment requirement.

Don't wait to hear from us. You must complete a Level 1 and Level 2 assessment within 30 days after the treatment trigger occurs.



Revised Total Coliform Rule



On April 1, 2016, the federal Revised Total Coliform Rule (RTCR) will replace the 1989 Total Coliform Rule (TCR). The RTCR will continue to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbial contamination. Like the TCR, RTCR is the only drinking water rule that applies to all water systems. EPA expects the RTCR to better protect public health by requiring systems vulnerable to microbial contamination to “find and fix” problems that allow contamination to enter a water system.

We always required water systems with microbial contamination to look for any maintenance or operational defects that can allow contamination to enter the system. We also required them to correct any defects they found. RTCR formalizes this process and requires water systems to submit a water system assessment report to us any time they have unsatisfactory coliform sample results. It also assigns violations to water systems that fail to complete these tasks.

Facilitating your transition to RTCR

If your March 2016 routine sample is total coliform-positive, you must collect all the repeats the TCR requires. Therefore, we recommend that you collect your March 2016 routine samples early in the month so you also can collect any required repeat samples in March.

If you collect routine samples late in March and your repeat samples in April, you also must take any routine samples the RTCR requires in April.

Routine Monitoring

Water systems will continue to collect the same number of routine samples and at the same frequency as they do now. See your *Water Facilities Inventory* (WFI) form for your monitoring schedule.

Repeat Samples

The RTCR requires all water systems to collect three repeat samples for every total coliform-positive routine sample. Systems that collect one sample a month will collect three repeats instead of four. Systems that collect two or more routine samples will continue to collect three repeats. If a water system fails to collect three repeat samples for every total coliform-positive repeat sample, the rule will require it to conduct an assessment to find and fix any sanitary defect that allowed the contamination to occur.

E. coli MCL

RTCR calls the acute MCL an “*E. coli* MCL.” There are four ways a water system can have an *E. coli* MCL:

1. A total coliform-positive repeat sample follows an *E. coli* positive routine sample.
2. An *E. coli* positive repeat sample follows a total coliform-positive routine sample.
3. The lab fails to test a total coliform-positive repeat sample for *E. coli*.
4. **New.** The system fails to take three repeat samples following an *E. coli* positive routine sample.

A water system with an *E. coli* MCL must notify water users within 24 hours. See public notification requirements on page 3.

High 5 Award

By Mark Steward, Eastern Regional Office

This month we salute Mark Nelson, manager of the Evergreen Valley Utilities Satellite Management Agency near Cle Elum. Mark is the certified operator for a wide array of water systems—including community systems, farmworker housing units, and other transient noncommunity systems—in Kittitas, Grant, Chelan, Franklin and Okanogan counties.

Some of these systems have nitrate treatment and, when nitrate issues come up, Mark is very responsive and acts on our recommendations for a good resolution to the issue.

We had chronic problems with one system until Mark took over as operator. He brought a level of stability and accountability that makes it easier for us to do our work and achieve our public health mission.

We enjoy Mark's sense of humor but, when it comes to his work, he knows his job is important to public health. He has a "can do" attitude, is attentive to his responsibilities, and never hesitates to ask us for assistance and offer suggestions. We are glad to have Mark overseeing so many systems in the Eastern Region. We can always count on him to get the job done!



Danielle Russell from our Eastern Regional Office congratulates our newest High 5 award winner, Mark Nelson, manager of the Evergreen Valley Utilities Satellite Management Agency near Cle Elum.

Seasonal Water Systems

The RTCR recognizes a new type of noncommunity seasonal water system. RTCR's seasonal water system doesn't operate year-round, totally depressurizes the water lines at the end of each operating season, and has at least one month when it serves no people.

A complete system shut down presents opportunities for contamination to enter or spread throughout the distribution system. Therefore, by April 1, 2016, all seasonal water systems must have a state-approved start-up procedure. They must follow the procedure before opening up for the season each year. In addition, they must send us a certificate declaring that they followed the approved start-up procedure before serving water to the public. Failure to do so is a treatment technique violation, which requires public notification for water system customers.

Most start-up procedures include activating the source, disinfecting and flushing the distribution system, cleaning and disinfecting storage facilities, inspecting the water system, and collecting a coliform sample with a satisfactory result.

Many traditional seasonal water systems, such as ski resorts, campgrounds, RV parks, and temporary farmworker housing, won't meet RTCR's criteria for a seasonal system because they don't depressurize their entire water distribution system when they shut down. Even if only one caretaker is receiving water from the distribution system, it doesn't qualify as a seasonal system under the RTCR.

Shutdown procedures are also important. Implementing best practices during system shutdown can save money in repairs and keep contamination out of your water system. Typical best practices include inspecting the system, turning off the power, draining all components that may freeze, draining internal plumbing, and closing all taps.



Coliform Monitoring Plans

Group A water systems must still have a written Coliform Monitoring Plan (CMP) identifying routine and repeat sample sites representative of water throughout the distribution system. You may need to update your CMP to include RTCR requirements.

Options for Selecting Repeat Sample Sites

RTCR requires all water systems to collect three repeat samples for every unsatisfactory routine sample. This is a change for water systems now required to collect four repeat samples a month.

All water systems have two options for choosing repeat sample sites:

Option 1

Take repeats at all the following locations:

- The site of the unsatisfactory routine sample.
- A site within five active connections upstream of the routine site.
- A site within five active connections downstream of the routine site.

Option 2

You may propose repeat sites that better represent a pathway for contamination to enter the distribution system. You may specify either:

- Alternative fixed repeat locations.

- A standard operating procedure defining criteria for selecting repeat sites on a case-by-case basis, subject to our review and revision.

You may choose a combination of these options. You can use Option 1 for some routine sites and one of the choices in Option 2 for others.

Month after a Total Coliform-Positive Routine Sample

The RTCR will require you to collect your usual number of routine samples the month after an unsatisfactory routine sample. **Systems that serve 4,100 or fewer people** will no longer have to collect five routine samples.

Groundwater Rule (GWR)

The GWR requires water systems with one or more groundwater sources to collect a sample from each source that was “in use” when an unsatisfactory routine RTCR sample was collected. RTCR will not allow any system to use a source sample as both a repeat sample and a groundwater source sample.



Public Notification Requirements

E. coli MCL violation—Issued within 24 hours (Tier 1)

- Routine total coliform-positive; repeat *E. coli*-positive.
- Routine *E. coli*-positive; repeat total coliform-positive.
- Routine *E. coli*-positive; system fails to take all repeat samples.
- Repeat total coliform-positive; sample not tested for *E. coli*.

Treatment technique violation—Issued within 30 days (Tier 2)

- System fails to conduct a required assessment within 30 days of the treatment technique trigger.
- System fails to correct a sanitary defect within required timeframe.
- Seasonal system fails to complete state-approved start-up procedure prior to serving water to the public.

Monitoring violation—Issued within one year (Tier 3)

- System fails to collect all required routine samples.
- Routine total coliform-positive; sample not tested for *E. coli*.

Reporting violation—Issued within one year (Tier 3)

- System fails to submit a monitoring report or completed assessment form in a timely manner.
- System fails to notify us of an *E. coli*-positive sample in a timely manner.
- Seasonal system fails to submit certification of completion of approved start-up procedure.

Assessments and treatment technique triggers

When a “treatment technique trigger” occurs, water systems must conduct an assessment to “find and fix” any sanitary defects. There are two assessment levels; both evaluate the entire water system from the point of sample collection to the source of supply.

A **Level 1 assessment** is a basic water system evaluation that an owner, certified operator, or other knowledgeable person can do. The RTCR requires a Level 1 assessment when one of these treatment technique triggers occurs:

- A water system that collects fewer than 40 routine samples a month has two or more total coliform-positive samples in the same month.
- A water system that collects 40 or more routine samples has coliform-positive results in more than 5 percent of the routine and repeat samples.
- A water system fails to collect three repeat samples for every total coliform-positive routine sample.

A **Level 2 assessment** is a more complex assessment that only a person with state-required qualifications, such as an engineer, certified operator (WDM2 or higher), or state or local health staff can do. While state and local health staff are qualified to do Level 2 assessments, their availability may be limited to *E. coli* events. RTCR requires a Level 2 assessment when one of these treatment technique triggers occurs:

- A water system has an *E. coli* MCL violation (see definition on page 1).
- A water system has a second Level 1 treatment technique trigger within a rolling 12-month period.

A treatment technique trigger could occur any time you collect routine and repeat samples. You should be ready to start a system evaluation as soon as the lab notifies you of positive results that trigger the assessment requirement. We recommend that you sample early in the month, so you can complete the assessment and repeat sampling before you collect samples the following month. We will be available for consultation.

3 parts of an assessment

Investigation: Identify any sanitary defects that allowed coliform to enter the distribution system or a failure or imminent failure of an existing barrier.

Discussion: Evaluate what you identified during the assessment that might have allowed the contamination to occur and the corrective action needed to fix it.

Corrective action: Record the steps you took or will take to fix the sanitary defect that allowed the contamination to occur.



Staff at Marysville Utilities, (from left) Billy Gilbert, Kari Chennault, and Brad Zahnow, open and inspect a spring collector to ensure there are no sanitary defects.

Don't wait for us to send you written notification of the event.

You must complete the assessment within 30 days after the trigger occurs. Start by identifying the individual or entity responsible for doing the assessment and reporting the findings to us. We will review the assessment report to ensure the evaluation was adequate and determine whether the assessor identified the likely cause of the contamination. (In some cases, the assessor won't find the cause.)

If you have a Level 1 treatment technique trigger in two consecutive months, the RTCR will require you to complete a Level 1 assessment the first month and a Level 2 assessment the second month. The worst-case scenario would be two *E. coli* MCL violations triggering two Level 2 assessments.

Templates for both assessment levels will be online in January. You may use them or develop your own. If you develop your own, please be sure to include all the required elements.

Corrective Actions

Sanitary Defects and Defects

RTCR distinguishes between “sanitary defects” and “defects.” Either might result in a positive coliform sample that triggers the assessment requirement. The assessment includes taking or identifying corrective actions to fix sanitary defects and recommendations for responding to defects. (See *assessments on page 4*)

Sanitary defect is a pathway for contaminants to enter the water system or failure or imminent failure of an existing barrier. A sanitary defect may be as simple as a missing reservoir vent screen or a poorly sealed reservoir hatch, or as substantial as a failing reservoir.

Corrective action for a sanitary defect could be as simple as installing a new screen on a reservoir vent or replacing the seal on a reservoir hatch, or as substantial as building a new water tank or installing new water pipe.

Defects are issues identified during an assessment that could have caused positive coliform samples. A defect might be as simple as an improper sampling technique, such as rinsing out a bottle before collecting a sample.

Corrective action for a defect might be as simple as training on correct sampling techniques for the person who collects water samples. RTCR won't enforce correction of defects but, if uncorrected, they may trigger additional assessments, or require a system that doesn't disinfect to begin providing disinfection.

If you can't correct a sanitary defect before the 30-day deadline, you must submit an assessment with a Corrective Action Plan to us for review and approval. Your Corrective Action Plan must describe the uncorrected sanitary defect and your timeline for correcting it. Because a sanitary defect or defect still exists, some water systems that don't disinfect may need to install disinfection as an interim corrective measure.

Your Corrective Action Plan should include any proactive action you intend to take to correct defects and prevent positive coliform samples in the future. For example, it isn't enough to say you repaired the water main break that contaminated the water system. Instead, you must summarize the procedures you or your staff followed to repair the break and the procedures you will use to decrease future risk of contamination.

How we will review your assessment report

We will strive to review assessment reports within two weeks after receipt. Level 2 assessments will receive priority. Assessment reports should cover all the elements identified in our templates, thoroughly discuss any issues found during the assessment, and identify appropriate corrective actions. If the assessment is incomplete, we will return it to the system with a request to resubmit a completed assessment within 30 days. Failure to submit a complete assessment is a treatment technique violation with a Tier 2 public notice requirement.

In addition to reviewing assessment reports for completeness, the RTCR requires us to answer the following questions:

1. Did the assessment identify the source of contamination?
2. Did the assessment identify a sanitary defect (pathway or failed barrier) for contamination to enter the distribution system?
3. Did the assessment identify the driving force that brought the contamination into the distribution system?

Experience suggests that many assessments won't identify the likely cause of the coliform incident. Your assessment may not reveal the cause of the contamination, but the learning that occurs during the process should lead to better operational practices.



Sammamish Plateau Water Superintendent, John Anderson (right), explains why air/vacuum release valves need screening material on discharge piping during a recent visit with Derek Pell from our Northwest Regional Office.



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For people with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TDD/TTY call 711).

**RTCR Informal
Comment Period**

The informal comment period
for the Revised Total Coliform
Rule is from **November 19 until
December 18, 2015.**

More information is available at
www.doh.wa.gov/odwrulemaking

Have you met your
professional growth
requirement? Visit
www.wacertservices.org
to check your
transcript and your
status.

Help us celebrate 2016 Drinking Water Week
by nominating an operator or system
that deserves recognition.

The deadline is January 29, 2016.

<https://fortress.wa.gov/doh/opinio/s?s=9295>



Coliform program staff



Mark Steward
Eastern Region
509-329-2134

Sandy Brentlinger
Southwest Region
360-236-3044



Carol Stuckey and Ingrid Salmon
Northwest Region
253-395-6775

Coliform Monitoring Plan for: City of Winlock

A. System Information

Plan Date: 6-14-19

Water System Name Winlock City	County Lewis	System I.D. Number 97500C
Name of Plan Preparer Jon Hinton, PE	Position Consultant	Daytime Phone 360-292-7481
Sources: DOH Source Number, Source Name, Well Depth, Pumping Capacity	<u>See Attached Source Table</u>	
Storage: List and Describe	<u>See attached Storage Table</u>	
Treatment: Source Number & Process	<u>All sources are disinfected with chlorine</u>	
Pressure Zones: Number and name	<u>See attached Pressure Zone Table</u>	
Population by Pressure Zone	<u>See attached Pressure Zone Table</u>	
Number of Routine Samples Required Monthly by Regulation:	<u>2</u>	
Number of Sample Sites Needed to Represent the Distribution System:	<u>5</u>	
*Request DOH Approval of Triggered Source Monitoring Plan?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

*If approval is requested a fee will be charged for the review.

B. Laboratory Information

Laboratory Name Water Management Laboratory Inc	Office Phone 253-531-3121 After Hours Phone 253-531-3121
Address <u>1515 80th Street E., Tacoma, WA 98404</u>	Cell Phone - - Email _____
Hours of Operation <u>Mon - Fri: 8:00 AM - 5:00 PM, Saturday: 9:00 AM - 12:00 PM, Closed Sunday</u>	
Contact Name _____	
Emergency Laboratory Name _____	Office Phone - - - After Hours Phone - - -
Address _____	Cell Phone - - Email _____
Hours of Operation _____	
Contact Name _____	

C. Wholesaling of Groundwater

	Yes	No
We are a consecutive system and purchase groundwater from another water system.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If yes, Water System Name: Contact Name: Telephone Numbers Office - - After Hours - -		
We sell groundwater to other public water systems.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If yes, Water System Name: Contact Name: Telephone Numbers Office - - After Hours - -		
If yes, Water System Name: Contact Name: Telephone Numbers Office - - After Hours - -		
If yes, Water System Name: Contact Name: Telephone Numbers Office - - After Hours - -		
If yes, Water System Name: Contact Name: Telephone Numbers Office - - After Hours - -		
If yes, Water System Name: Contact Name: Telephone Numbers Office - - After Hours - -		

D. Routine, Repeat, and Triggered Source Sample Locations*

Location/Address for <u>Routine</u> Sample Sites	Location/Address for <u>Repeat</u> Sample Sites	Groundwater Sources for <u>Triggered Sample Sites**</u>
X1. Winlock WWTP Lab Sink 1209 SW Mayer St.	1-1. 1205 SW Mayer St. (Vaughn)	S-01
	1-2. 1214 SW Mayer St. (Johnson)	S-05
	1-3. Winlock WWTP	S-08
		S-09
X2. Winlock PW Shop Bathroom Sink 712 N. Dexter St.	2-1. 703 NW Dexter St. (Regino)	S-01
	2-2. 408 NW Columbia (Deuber)	S-05
	2-3. Winlock PW Shop	S-08
		S-09
X3. Shell Station at 223 State Route 505.	3-1. 218 St. Helens Way	S-01
	3-2. 328 Cedar Street	S-05
	3-3. Sample Station – NE 2 nd Street	S-08
		S-09
X4. Sample Station – NE 2 nd Street South side of street on West Side	4-1. 706 2 nd Street NE	S-01
	4-2. 712 2 nd Street NE	S-05
	4-3. Sample Station St. Helens Way	S-08
		S-09
X5. Cardinal Glass Tank Supply Tank Fill Line in Control vault at based of tank	5-1. Tank Outlet Pipe in Same Vault	S-01
	5-2. Winolequa Park Caretaker House	S-05
	5-3. Sample Station NE 2 nd Street	S-08
		S-09

*NOTE: If you need more than three routine samples to cover the distribution system, attach additional sheets as needed.

** When you collect the repeats, you must sample every groundwater source that was in use when the original routine sample was collected.

Important Notes for Sample Collector:

1. Routine Sample Sites are collected on the first Tuesday of each month.
2. Check the sample tap before filling the bottle to make sure there is no reason to invalidate the sample result.

E. Reduced Triggered Source Monitoring Justification (add sheets as needed):

F. Routine Sample Rotation Schedule

Month	Routine Site(s)	Month	Routine Site(s)
January	X1, X2	July	X3, X4
February	X3, X4	August	X5, X1
March	X5, X1	September	X2, X3
April	X2, X3	October	X1, X4
May	X1, X4	November	X5, X2
June	X2, X5	December	X3, X4

G. Level 1 and Level 2 Assessment Contact Information

Name Rodney G. Cecil	Office Phone 360-520-5589 After Hours Phone 360-520-3966
Address PO Box 777 Winlock, WA 98596	Email winws@toledotel.com
Name	Office Phone - - After Hours Phone - -
Address	Email

H. *E. coli*-Present Sample Response

Distribution System <i>E. coli</i> Response Checklist				
Background Information	Yes	No	N/A	To Do List
We inform staff members about activities within the distribution system that could affect water quality.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We document all water main breaks, construction & repair activities, and low pressure and outage incidents.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We can easily access and review documentation on water main breaks, construction & repair activities, and low pressure and outage incidents.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Our Cross-Connection Control Program is up-to-date.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We test all cross-connection control devices annually as required, with easy access to the proper documentation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We routinely inspect all treatment facilities for proper operation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We identified one or more qualified individuals who are able to conduct a Level 2 assessment of our water system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have procedures in place for disinfecting and flushing the water system if it becomes necessary.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We can activate an emergency intertie with an adjacent water system in an emergency.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have a map of our service area boundaries.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have consumers who may not have access to bottled or boiled water.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There is a sufficient supply of bottled water immediately available to our customers who are unable to boil their water.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have identified the contact person at each day care, school, medical facility, food service, and other customers who may have difficulty responding to a Health Advisory.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have messages prepared and translated into different languages to ensure our consumers will understand them.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have the capacity to print and distribute the required number of notices in a short time period.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Policy Direction	Yes	No	N/A	To Do List
We have discussed the issue of <i>E. coli</i> -present sample results with our policy makers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If we find <i>E. coli</i> in a routine distribution sample, the policy makers want to wait until repeat test results are available before issuing advice to water system customers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Cont.)				

Distribution System *E. coli* Response Checklist

Potential Public Notice Delivery Methods	Yes	No	N/A	To Do List
It is feasible to deliver a notice going door-to-door.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have a list of all of our customers' addresses.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have a list of customer telephone numbers or access to a Reverse 9-1-1 system.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have a list of customer email addresses.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We encourage our customers to remain in contact with us using social media.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
We have an active website we can quickly update to include important messages.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Our customers drive by a single location where we could post an advisory and expect everyone to see it.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We need a news release to supplement our public notification process.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Distribution System *E. coli* Response Plan

If we have *E. coli* in our distribution system we will immediately:

1. Call DOH.
2. Issue a Health Advisory unless directed otherwise by DOH.
3. Collect repeat and triggered source samples per Part D. Collect additional investigative samples as necessary.
4. Inspect our water system for proper operation.
5. Review any new construction activities, water main breaks, and power outages that may have occurred during the previous month.
6. Review Cross-Connection Control status.
7. Discuss with DOH whether to issue a new Health Advisory based on the findings of steps 3-6.

***E. coli*-Present Triggered Source Sample Response Checklist –
All Sources**

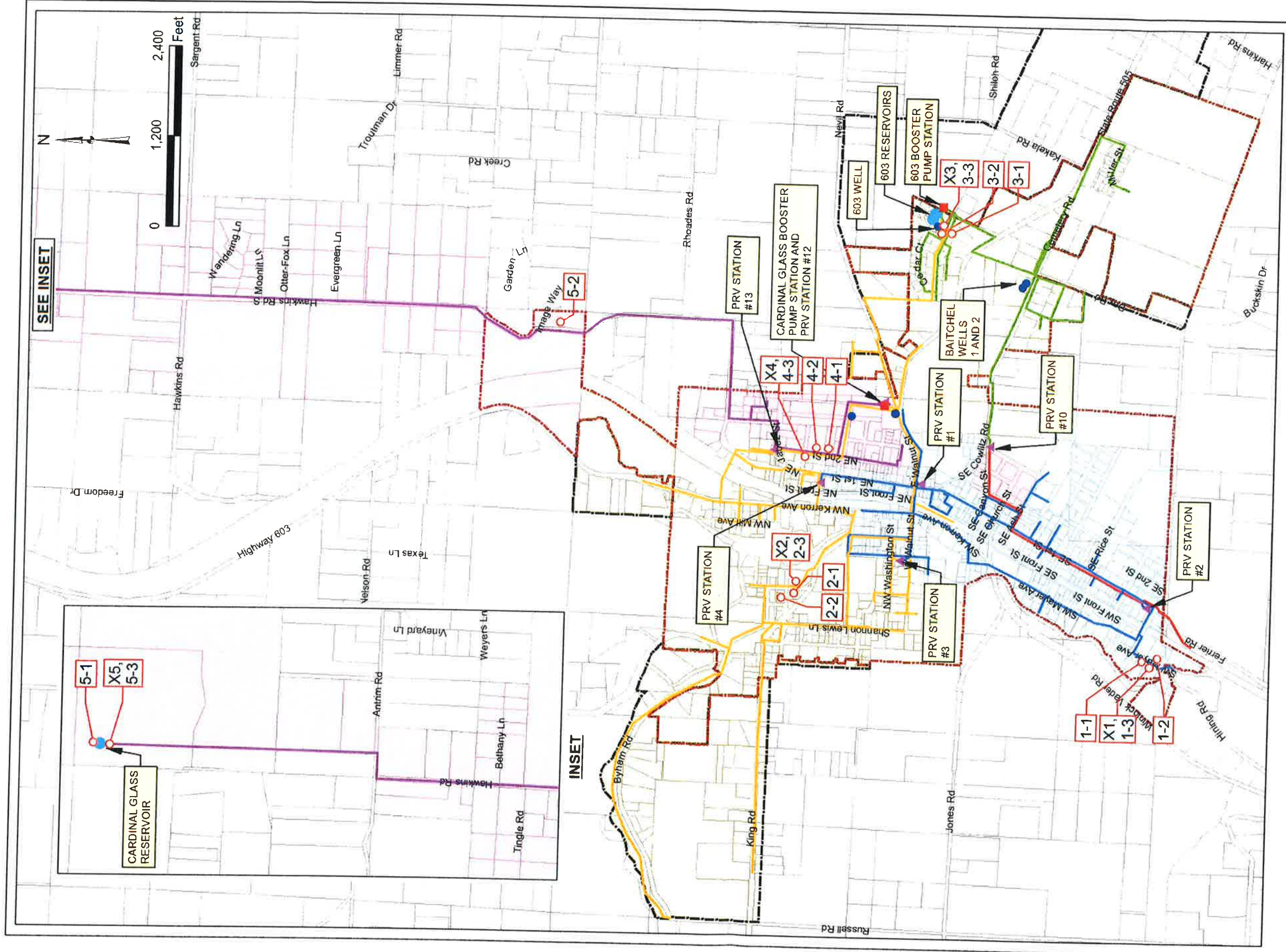
Background Information	Yes	No	N/A	To Do List
We review our sanitary survey results and respond to any recommendations affecting the microbial quality of our water supply.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We address any significant deficiencies identified during a sanitary survey.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There are contaminant sources within our Wellhead Protection Area that could affect the microbial quality of our source water, and If yes, we can eliminate them.	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
We routinely inspect our well site(s).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have a good raw water sample tap installed at each source.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After we complete work on a source, we disinfect the source, flush, and collect an investigative sample.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public Notice	Yes	No	N/A	To Do List
We discussed the requirement for immediate public notice of an <i>E. coli</i> -present source sample result with our water system's governing body (board of directors or commissioners) and received direction from them on our response plan.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We discussed the requirement for immediate public notice of an <i>E. coli</i> -present source sample result with our wholesale customers and encouraged them to develop a response plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
We have prepared templates and a communications plan that will help us quickly distribute our messages.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<i>E. coli</i>-Present Triggered Source Sample Response Checklist – Source S__*				
Alternate Sources	Yes	No	N/A	To Do List
We can stop using this source and still provide reliable water service to our customers.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We can provide bottled water to all or part of the distribution system for an indefinite period.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We can quickly replace our existing source of supply with a more protected new source.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporary Treatment	Yes	No	N/A	To Do List
This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer. If yes, at what concentration? <u>varies by source</u> mg/L	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We can reduce the production capacity of our pumps or alter the configuration of our storage quantities (operational storage) to increase the amount of time the water stays in the system before the first customer to achieve CT = 6.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We can alter the demand for drinking water (maximum day or peak hour) through conservation messages to increase the time the water is in the system prior to the first customer in order to achieve 4-log virus treatment with chlorine.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*NOTE: If your system has multiple sources, you may want to complete a separate checklist for each source.

<i>E. coli</i>-Present Triggered Source Sample Response Plan – Source ____
<p>If we have <i>E. coli</i> in Source ____ water we will immediately:</p> <ol style="list-style-type: none"> 1. Shut down source well and isolate source supply line from distribution system. 2. Call DOH. 3. Issue a Health Advisory unless directed otherwise by DOH. 4. Take additional sample to confirm the present of <i>E. coli</i> in source water. 5. Open hydrant nearest contaminated source and back flush system for 15 minutes. 6. Take samples at hydrant and two blocks downstream of hydrant. 7. Discuss with DOH whether to issue a new Health Advisory based on findings of steps 4 through 6. 8. Repeat steps 5 and 6 until no <i>E. coli</i> is present in samples.

I. System Map



Legend

PRESSURE ZONES:

- ZONE 1 - 603 GRAVITY
- ZONE 2 - EAST SIDE BOOSTED
- ZONE 3 - SOUTHEAST REDUCED
- ZONE 4 - DOWNTOWN REDUCED
- ZONE 5 - NORTH SIDE

PRESSURE ZONE IDENTIFICATION:

- 603 RESERVOIR GRAVITY ZONE (ZONE 1)
- SOUTHEAST BOOSTED PRESSURE ZONE (ZONE 2)
- SOUTHEAST REDUCED PRESSURE ZONE (ZONE 3)
- DOWNTOWN REDUCED PRESSURE ZONE (ZONE 4)
- CARDINAL GLASS PRESSURE ZONE (ZONE 5)

- PRV STATION
- WELL
- RESERVOIR
- BOOSTER PUMP STATION
- CITY LIMITS
- UGA

CITY OF WINLOCK
Coliform Monitoring Plan Map

Gray & Osborne, Inc.
CONSULTING ENGINEERS

J. Source Table

DOH Source Number	Source Name	Well Depth, feet	Open Interval, feet	Pumping Capacity
S-01	Eureka 1	55	Unknown	210
S-02	Eureka 2	260	18 – 60	Inactive
S-03	Ash Street	62	45 – 60	Inactive
S-05	Well 603	166	101 – 155	200
S-07	Baichtel 1	151	112 – 136	Inactive
S-08	Eureka 3	150	114 – 122	50
S-09	Baichtel 2	238	178 – 278	29

K. Storage Table

Name	Location	Diameter, feet	Height, feet	Overflow Elevation, ft. MSL ⁽¹⁾	Nominal Capacity, gallons ⁽²⁾	Effective Capacity ⁽³⁾
603 Reservoir 1	Well 603 Site	26	75	533.5	298,000	131,000
603 Reservoir 2	Well 603 Site	26	75	533.5	298,000	131,000
Cardinal Glass Reservoir	Cardinal Glass	50	40	629.75 ⁽⁴⁾	120,000 ⁽⁵⁾	118,000
Totals					696,000	380,000

(1) MSL refers to elevation above Mean Sea Level.

(2) Nominal capacity is the size of the reservoir used for reference purposes, and is approximately the total volume of the reservoir from floor to top of wall.

(3) Effective capacity of the reservoirs has been calculated in the current water system plan based on operating levels of the reservoir.

(4) Plans for the Cardinal Glass Reservoir provided by Cardinal Glass indicate a maximum water elevation of 629.75 feet. It is assumed that maximum water elevation refers to the reservoir overflow elevation.

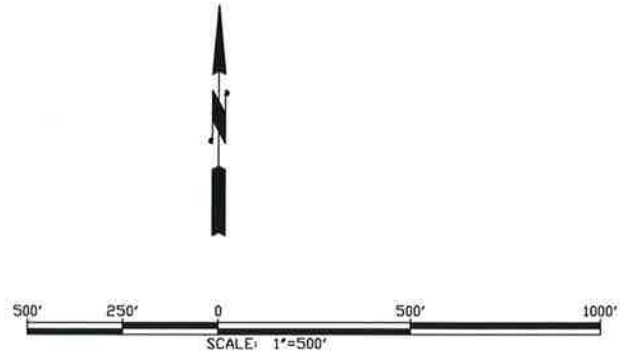
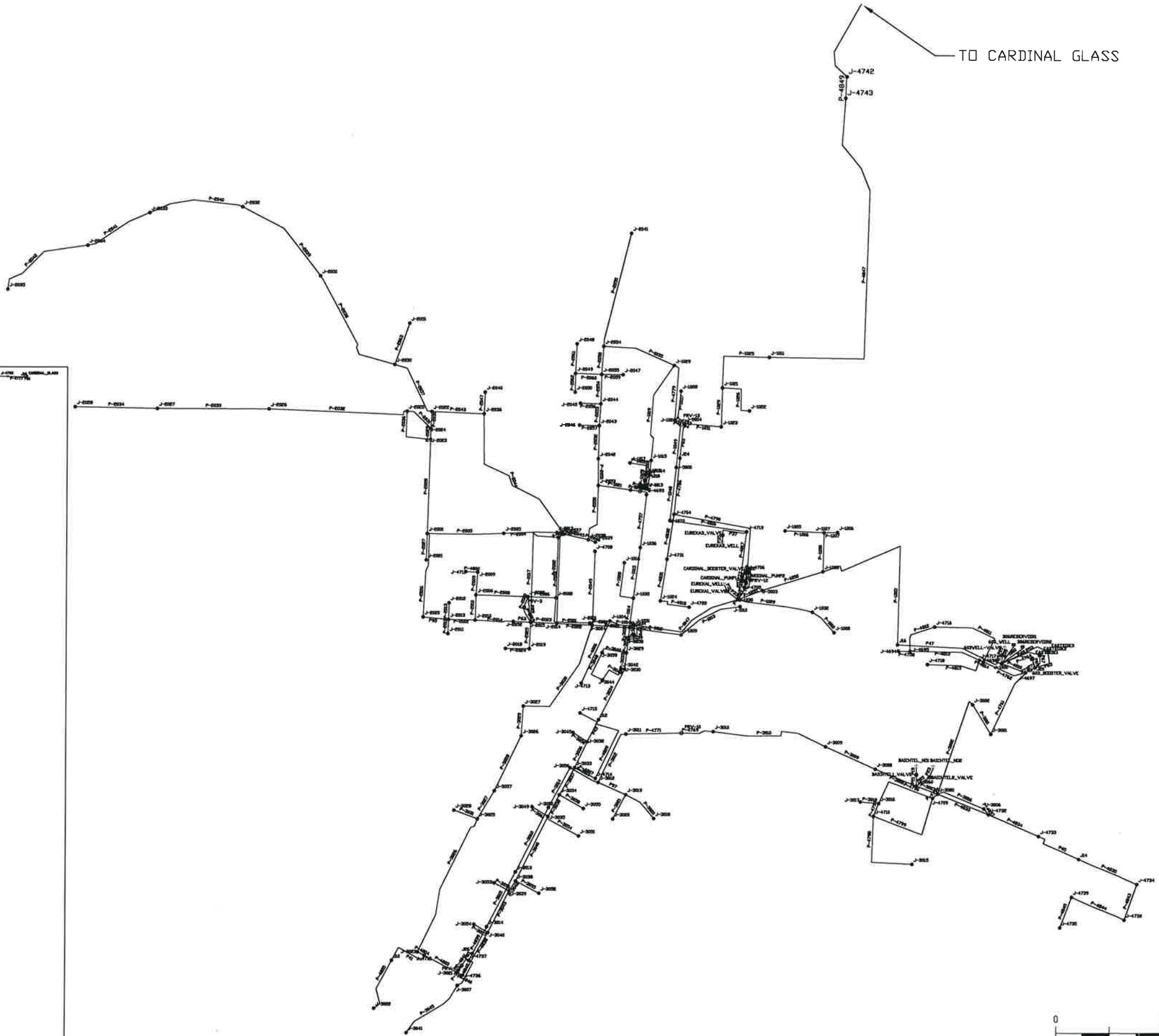
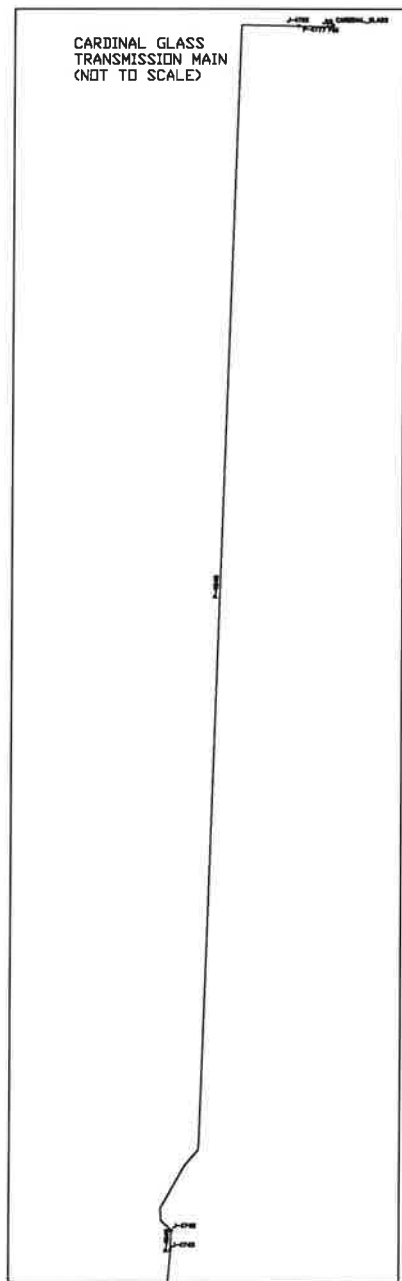
(5) Reservoir 3, the Cardinal Glass Reservoir is actually 500,000 gallons. By contract with Cardinal Glass, up to 120,000 of the Cardinal Glass reservoir is available for use by the City as needed.

L. Pressure Zone Table


Pressure Zone Number	Pressure Zone Name	Estimated Population Served
Zone 1	603 Reservoir Gravity Zone	450
Zone 2	Southeast Boosted Pressure Zone	150
Zone 3	Southeast Reduced Pressure Zone	50
Zone 4	Downtown Reduced Pressure Zone	500
Zone 5	Cardinal Glass Reservoir Gravity Pressure Zone	250

APPENDIX F

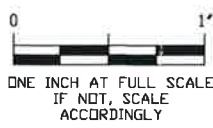
WATER MODEL OUTPUT FILES



CITY OF WINLOCK
 WATER SYSTEM PLAN
 FIGURE F1
 MODELED SYSTEM NODE AND PIPE IDs



Gray & Osborne, Inc.
 CONSULTING ENGINEERS



Node Information

ID	Description	Zone	Elevation (ft)
J-2035	hydrant	(533) 603 GRAVITY	365
J-2034	hydrant	(533) 603 GRAVITY	360
J-2033	hydrant	(533) 603 Gravity	360
J-2032	hydrant	(533) 603 GRAVITY	340
J-2031	hydrant	(533) 603 GRAVITY	325
J-2030	hydrant	(533) 603 GRAVITY	332
J-2051	New Junction Information	(533) 603 Gravity	327
J-2022	New Junction Information	(533) 603 Gravity	335
J-2024	New Junction Information	(533) 603 Gravity	340
J-2023	hydrant	(533) 603 GRAVITY	355
J-2025	hydrant	(533) 603 GRAVITY	360
J-2026	hydrant	(533) 603 GRAVITY	408
J-2027	hydrant	(533) 603 GRAVITY	424
J-2028	hydrant	(533) 603 GRAVITY	415
J-2036	hydrant	(533) 603 GRAVITY	307
J-2040	New Junction Information	(533) 603 GRAVITY	303
J-2000	hydrant	(533) 603 GRAVITY	413
J-2021	New Junction Information	(533) 603 GRAVITY	420
J-2020	New Junction Information	(533) 603 GRAVITY	423
J-2005	hydrant	(533) 603 GRAVITY	310
J-4711	New Junction Information	(533) 603 GRAVITY	353
J-2009	New Junction Information	(533) 603 GRAVITY	353
J-2006	New Junction Information	(533) 603 GRAVITY	353
J-2010	New Junction Information	(533) 603 GRAVITY	348
J-2012	New Junction Information	(533) 603 GRAVITY	391
J-2013	New Junction Information	(533) 603 GRAVITY	395
J-2011	New Junction Information	(533) 603 GRAVITY	398
J-2052	New Junction Information	(533) 603 GRAVITY	299
J-2008	New Junction Information	(533) 603 GRAVITY	294
J-2015	New Junction Information	(430) DOWNTOWN REDUCED	291
J-2019	New Junction Information	(430) DOWNTOWN REDUCED	283
J-2018	New Junction Information	(430) Downtown Reduced	299
J-2014	New Junction Information	(430) Downtown Reduced	284
J-2001	hydrant	(533) 603 Gravity	298
J-3024	New Junction Information	(430) DOWNTOWN REDUCED	298
J-2002	hydrant	(533) 603 GRAVITY	285
J-2004	hydrant	(533) 603 GRAVITY	281
J-2017	New Junction Information	(430) DOWNTOWN REDUCED	281
J-2037	New Junction Information	(533) 603 Gravity	281
J-2038	hydrant	(533) 603 GRAVITY	295
J-2039	New Junction Information	(533) 603 GRAVITY	298
J-4708	hydrant	(430) DOWNTOWN REDUCED	298
J-1016	New Junction Information	(430) Downtown Reduced	317
J-1004	New Junction Information	(533) 603 Gravity	308
J-1034	New Junction Information	(430) DOWNTOWN REDUCED	315

Node Information

ID	Description	Zone	Elevation (ft)
J-3058	New Junction Information	(430) DOWNTOWN REDUCED	315
J-3029	hydrant	(430) Downtown Reduced	319
J-3059	hydrant	(430) DOWNTOWN REDUCED	307
J-3044	New Junction Information	(430) DOWNTOWN REDUCED	307
J-4713	New Junction Information	(533) 603 GRAVITY	305
J-3042	New Junction Information	(430) DOWNTOWN REDUCED	318
J-3030	hydrant	(430) DOWNTOWN REDUCED	319
J-4715	New Junction Information	(430) DOWNTOWN REDUCED	298
J-3045	New Junction Information	(430) DOWNTOWN REDUCED	293
J-3032	New Junction Information	(430) DOWNTOWN REDUCED	295
J-3027	New Junction Information	(430) DOWNTOWN REDUCED	281
J-3026	New Junction Information	(430) DOWNTOWN REDUCED	281
J-3057	New Junction Information	(430) DOWNTOWN REDUCED	282
J-3025	hydrant	(430) DOWNTOWN REDUCED	281
J-3028	New Junction Information	(430) DOWNTOWN REDUCED	278
J-3023	hydrant	(430) DOWNTOWN REDUCED	272
J-4712	hydrant	(430) DOWNTOWN REDUCED	272
J-3022	hydrant	(430) DOWNTOWN REDUCED	260
J-3041	New Junction Information	(531) SE REDUCED	274
J-3007	New Junction Information	(531) SE REDUCED	275
J-3021	New Junction Information	(430) DOWNTOWN REDUCED	275
J-4736	New Junction Information	(430) DOWNTOWN REDUCED	275
J-4737	New Junction Information	(531) SE REDUCED	276
J-3040	New Junction Information	(430) DOWNTOWN REDUCED	280
J-3014	hydrant	(531) SE REDUCED	280
J-3054	New Junction Information	(430) DOWNTOWN REDUCED	280
J-3039	New Junction Information	(430) DOWNTOWN REDUCED	280
J-3053	New Junction Information	(430) DOWNTOWN REDUCED	280
J-3038	New Junction Information	(430) DOWNTOWN REDUCED	280
J-3052	New Junction Information	(430) DOWNTOWN REDUCED	327
J-3013	hydrant	(531) SE REDUCED	280
J-3035	New Junction Information	(430) DOWNTOWN REDUCED	293
J-3051	New Junction Information	(430) DOWNTOWN REDUCED	320
J-3049	New Junction Information	(430) DOWNTOWN REDUCED	289
J-3050	hydrant	(531) SE REDUCED	293
J-3034	New Junction Information	(430) DOWNTOWN REDUCED	294
J-3055	New Junction Information	(430) Downtown Reduced	301
J-3056	hydrant	(531) SE REDUCED	294
J-3033	New Junction Information	(430) DOWNTOWN REDUCED	294
J-3012	hydrant	(531) SE Reduced	305
J-4714	New Junction Information	(430) DOWNTOWN REDUCED	305
J-3019	New Junction Information	(430) DOWNTOWN REDUCED	318
J-3020	New Junction Information	(430) DOWNTOWN REDUCED	352
J-3018	New Junction Information	(430) Downtown Reduced	342
J-1031	New Junction Information	(533) 603 GRAVITY	315

Node Information

ID	Description	Zone	Elevation (ft)
J-1009	hydrant	(430) DOWNTOWN REDUCED	324
J-1010	New Junction Information	(430) DOWNTOWN REDUCED	356
J-1030	hydrant	(533) 603 GRAVITY	373
J-4720	New Junction Information	(628) N BOOSTED - CARDINAL	390
J-1024	hydrant	(628) N BOOSTED - CARDINAL	390
J-1035	hydrant	(430) Downtown Reduced	328
J-1036	hydrant	(430) DOWNTOWN REDUCED	328
J-4731	hydrant	(628) N BOOSTED - CARDINAL	405
J-1033	hydrant	(533) 603 Gravity	413
J-4693	hydrant	(430) DOWNTOWN REDUCED	336
J-1037	New Junction Information	(533) 603 GRAVITY	336
J-1013	New Junction Information	(533) 603 GRAVITY	336
J-2053	hydrant	(533) 603 GRAVITY	311
J-2042	hydrant	(533) 603 Gravity	318
J-1018	New Junction Information	(533) 603 Gravity	351
J-1019	New Junction Information	(533) 603 Gravity	352
J-1017	New Junction Information	(533) 603 Gravity	335
J-1014	New Junction Information	(533) 603 Gravity	360
J-1015	hydrant	(533) 603 Gravity	370
J-4704	hydrant	(628) N BOOSTED - CARDINAL	413
J-5000	hydrant	(533) 603 GRAVITY	417
J-2043	hydrant	(533) 603 GRAVITY	317
J-2046	New Junction Information	(533) 603 Gravity	311
J-2044	New Junction Information	(533) 603 Gravity	316
J-2045	New Junction Information	(533) 603 Gravity	311
J-2050	New Junction Information	(533) 603 GRAVITY	309
J-2049	New Junction Information	(533) 603 Gravity	308
J-2055	hydrant	(533) 603 Gravity	314
J-2047	New Junction Information	(533) 603 Gravity	320
J-2048	New Junction Information	(533) 603 Gravity	305
J-2054	hydrant	(533) 603 Gravity	313
J-1029	hydrant	(533) 603 Gravity	395
J-1028	New Junction Information	(533) 603 Gravity	420
J-1026	New Junction Information	(533) 603 GRAVITY	415
J-5004	New Junction Information	(628) N BOOSTED - CARDINAL	420
J-1023	hydrant	(628) N BOOSTED - CARDINAL	440
J-1021	hydrant	(628) N BOOSTED - CARDINAL	430
J-1022	New Junction Information	(628) N BOOSTED - CARDINAL	440
J-1011	hydrant	(628) N BOOSTED - CARDINAL	430
J-4719	hydrant	(533) 603 GRAVITY	415
J-4706	New Junction Information	(628) N BOOSTED - CARDINAL	380
J-4705	New Junction Information	(533) 603 GRAVITY	380
J-5003	New Junction Information	(533) 603 Gravity	390
J-1032	hydrant	(533) 603 GRAVITY	377
J-1008	New Junction Information	(533) 603 GRAVITY	377

Node Information

ID	Description	Zone	Elevation (ft)
J-1003	New Junction Information	(533) 603 GRAVITY	419
J-1007	New Junction Information	(533) 603 Gravity	230
J-1005	New Junction Information	(533) 603 Gravity	425
J-1006	New Junction Information	(533) 603 Gravity	230
J-4694	New Junction Information	(609) SE BOOSTED	425
J-4695	New Junction Information	(609) SE BOOSTED	429
J-4716	hydrant	(609) SE Boosted	430
J-4718	hydrant	(609) SE BOOSTED	434
J-4717	New Junction Information	(609) SE BOOSTED	445
J-4696	hydrant	(609) SE BOOSTED	445
J-1000	New Junction Information	(533) 603 GRAVITY	405.8
J-4697	New Junction Information	(609) SE BOOSTED	450
J-3001	hydrant	(609) SE BOOSTED	418
J-3002	hydrant	(609) SE BOOSTED	416
J-3000	hydrant	(609) SE BOOSTED	450
J-4709	New Junction Information	(609) SE BOOSTED	450
J-3060	New Junction Information	(609) SE BOOSTED	449
J-3008	hydrant	(609) SE BOOSTED	445
J-3016	New Junction Information	(609) SE BOOSTED	455
J-4710	New Junction Information	(609) SE Boosted	455
J-3017	New Junction Information	(609) SE BOOSTED	455
J-3006	hydrant	(609) SE BOOSTED	452
J-4732	New Junction Information	(609) SE BOOSTED	454
J-4733	hydrant	(609) SE Boosted	445
J-4734	hydrant	(609) SE Boosted	470
J-4738	hydrant	(609) SE Boosted	459
J-4739	New Junction Information	(609) SE BOOSTED	455
J-4735	hydrant	(609) SE Boosted	460
J-3015	New Junction Information	(609) SE Boosted	460
J-3009	hydrant	(609) SE Boosted	437
J-3010	New Junction Information	(609) SE BOOSTED	418
J-3011	hydrant	(531) SE REDUCED	316
J-2041	New Junction Information	(533) 603 GRAVITY	310
J-4743	hydrant	(628) N BOOSTED - CARDINAL	315
J-4742	hydrant	(628) N BOOSTED - CARDINAL	315
J-4703	hydrant	(628) N BOOSTED - CARDINAL	450
J10	hydrant	(430) DOWNTOWN REDUCED	270
J12	hydrant	(430) Downtown Reduced	298
J14	hydrant	(609) SE Boosted	457
J16	hydrant	(533) 603 GRAVITY	425
J18	New Junction Information	(628) N BOOSTED - CARDINAL	480
J20	New Junction Information	(609) SE BOOSTED	459
J22	New Junction Information	(628) N BOOSTED - CARDINAL	380
J24	hydrant	(628) N BOOSTED - CARDINAL	422
J26	hydrant	(531) SE REDUCED	276

Pipe Information

ID	Length (ft)	Diameter (in)	Roughness
P-4777	356	10	200
P-4848	13,297.00	10	200
P-4849	200	12	200
P-4847	3,361.00	10	130
P-1025	710	8	130
P-1026	455	2	130
P-1029	360	8	130
P-1051	337	8	130
P-4793	46	8	130
P-4794	53	8	130
P-1037	288	1	90
P-4779	532	10	90
P-4786	496	8	100
P-4790	1,121.00	8	100
P-4792	100	8	130
P-4791	120	8	130
P-4788	58	8	130
P-4787	130	8	130
P-4817	633	10	90
P-4816	719	10	100
P-1048	488	10	90
P-1049	463	10	90
P-1009	696	6	130
P-1010	278	6	130
P-1055	242	10	130
P-1052	584	10	130
P-1008	360	2	130
P-1007	123	1.3	130
P-1006	361	1.3	130
P-1003	1,709.00	10	130
P-1000	238	10	130
P-4764	301	8	130
P-4810	233	8	130
P-4762	415	8	100
P-4814	39	8	100
P-4761	662	8	130
P-3001	324	8	130
P-3002	942	8	130
P-4815	549	6	130
P-4813	652	8	100
P-4758	110	8	100
P-3006	461	2	130
P-4837	69	2	130
P-4834	500	12	130
P-4835	532	12	130

Pipe Information

ID	Length (ft)	Diameter (in)	Roughness
P-4843	349	8	130
P-4844	537	8	130
P-4845	300	8	130
P-4833	506	8	130
P-4795	57	2	130
P-4799	832	2	130
P-4796	660	2	130
P-3018	172	2	130
P-4797	128	2	130
P-4798	802	2	130
P-3007	210	8	130
P-3008	409	8	130
P-3009	508	8	130
P-3010	1,105.00	8	130
P-4769	297	8	130
P-4771	516	8	130
P-3012	534	8	130
P-3013	291	8	130
P-3014	420	8	130
P-3060	664	8	130
P-3015	569	8	130
P-4839	301	8	130
P-4841	102	8	130
P-3024	76	8	130
P-4842	305	8	130
P-3045	659	2	130
P-4803	349	4	90
P-4805	640	8	130
P-4840	56	4	90
P-4838	457	4	90
P-3043	431	4	90
P-3056	157	0.8	90
P-3042	108	4	90
P-3055	243	0.8	90
P-3040	666	4	90
P-3061	172	0.8	90
P-3054	349	0.8	90
P-3038	225	4	90
P-3058	255	1	90
P-3037	287	6	90
P-4807	217	4	90
P-3021	255	1	90
P-3020	349	4	90
P-4809	903	2	90
P-3050	152	1	135

Pipe Information

ID	Length (ft)	Diameter (in)	Roughness
P-3036	266	6	90
P-3034	451	6	90
P-3033	155	6	90
P-3046	252	4	90
P-3048	334	2	90
P-3049	273	0.8	90
P-3059	128	6	90
P-3032	101	6	90
P-1039	90	6	90
P-1045	90	6	90
P-1012	483	6	90
P-1013	623	2	90
P-1047	1,053.00	10	130
P-1014	276	8	90
P-1020	433	3	90
P-1015	474	8	90
P-4757	489	6	90
P-1041	85	6	90
P-1040	87	6	90
P-1021	305	6	90
P-2050	549	8	130
P-2046	65	6	90
P-2045	232	6	90
P-2044	1,483.00	6	90
P-2047	201	1.5	90
P-2043	480	6	90
P-2037	600	8	130
P-2063	403	3	130
P-2038	1,161.00	8	130
P-2039	977	8	130
P-2040	888	8	130
P-2041	646	8	130
P-2042	914	8	130
P-2030	156	6	130
P-2031	288	8	130
P-2029	99	8	130
P-2036	464	2	90
P-2032	1,300.00	8	130
P-2033	1,039.00	8	130
P-2034	749	8	130
P-2028	870	8	130
P-2027	245	4	90
P-2005	700	10	130
P-2004	515	10	130
P-2002	555	10	130

Pipe Information

ID	Length (ft)	Diameter (in)	Roughness
P-2001	553	10	130
P-2000	191	10	130
P-1004	233	10	130
P-2006	260	6	130
P-2008	479	2	90
P-2009	211	1	90
P-4800	108	0.8	90
P-2010	233	1	90
P-2014	347	2	90
P-2019	155	4	90
P-2020	103	4	90
P-2023	244	4	90
P-2017	1,057.00	4	130
P-2025	247	4	90
P-2024	219	2	130
P-2022	330	4	90
P-2021	346	4	90
P-3030	1,102.00	6	130
P-3029	277	4	90
P-3028	562	4	90
P-3027	302	4	90
P-3031	235	0.8	90
P-3026	1,355.00	6	130
P-3057	148	0.8	90
P-4806	630	2	130
P-2018	856	1.3	90
P-2049	685	1.3	90
P-4832	416	6	130
P-4831	389	8	130
P-4818	297	1.5	130
P-2051	244	6	130
P-2052	308	6	130
P-2057	183	2	90
P-2053	202	6	130
P-2056	189	2	90
P-2054	273	6	130
P-2059	197	2	90
P-2060	244	2	90
P-2062	174	2	90
P-2061	271	2	90
P-2058	260	6	130
P-1035	689	10	130
P-2055	1,070.00	4	130
P-1019	946	6	130
P-1018	136	6	130

Pipe Information

ID	Length (ft)	Diameter (in)	Roughness
P-1024	33	3	90
P-1017	130	6	130
P-1042	180	4	90
P-1023	52	0.8	90
P-1022	238	0.8	90
P-2026	785	6	90
P-2012	243	2	90
P-2013	151	2	90
P-2011	131	2	90
P-4811	823	8	130
P-4812	383	6	130
P-2048	61	4	130
P-4804	72	4	90
P19	1	8	130
P21	1	8	130
P23	1	8	130
P25	1	8	130
P27	1	10	130
P29	1	10	130
P31	1	10	130
P33	1	10	130
P35	1	10	130
P37	1	10	130
P39	238	10	130
P41	305	8	130
P43	300	6	90
P45	532	12	130
P47	1,000.00	10	130
P49	301	8	130
P53	301	8	130
P57	58	8	130
P61	1	10	200
P63	161	2	90
P65	144	8	130
P67	144	8	130
P69	144	8	130
P71	1	8	130
P73	1	8	130
P75	91	8	130
P77	91	8	130
P79	1	8	130
P81	1	8	130
P83	350	8	100
P85	50	8	130
P89	250	4	90

Pipe Information

ID	Length (ft)	Diameter (in)	Roughness
P91	180	2	90
P95	150	2	90
P97	316	4	90

Reservoir Information

ID	Type	Elevation (ft)	Diameter (ft)
306RESERVOIR2	0: Cylindrical	460	26
CARDINAL_GLASS	0: Cylindrical	620.15	49.88
306RESERVOIR1	0: Cylindrical	460	26

Pump Information

ID (Char)	Type	Elevation (ft)	Diameter (in)	Design Head (ft)	Design Flow (gpm)	Curve
EASTSIDE1	1: Design Point Curve	459	8	76	350	-
CARDINAL_PUMP1	1: Design Point Curve	380	8	95	250	-
EASTSIDE2	3: Multiple Point Curve	459	8	76	1,000.00	603FIREPUMPS
EASTSIDE3	3: Multiple Point Curve	459	8	76	1,000.00	603FIREPUMPS
CARDINAL_PUMP2	1: Design Point Curve	380	8	95	150	-

Pump Curve (603 Fire Pumps)

Flow (gpm)	Head (ft)
0	154
100	153
200	152
300	150.5
400	148.5
500	145.5
600	142
700	137.5
800	132
900	125.5
1000	117
1100	104
1200	87
1300	65

Valve Information

ID	Type	Elevation (ft)	Diameter (in)	Setting	Minor Loss
PRV-12	0: Pressure Reducing Valve	380	8	40	10
PRV-2	0: Pressure Reducing Valve	275	6	57	10
PRV-1	0: Pressure Reducing Valve	315	6	50	10
PRV-3	0: Pressure Reducing Valve	299	6	54	10
PRV-4	0: Pressure Reducing Valve	336	6	37	10
PRV-13	0: Pressure Reducing Valve	420	8	32	10
PRV-10	0: Pressure Reducing Valve	416	6	50	10
BAICHTEL1_VALVE	3: Flow Control Valve	449	8	50	10
BAICHTEL2_VALVE	3: Flow Control Valve	449	8	50	10
603WELL_VALVE	3: Flow Control Valve	405.8	10	200	10
EUREKA1_VALVE	3: Flow Control Valve	373	10	210	10
EUREKA3_VALVE	3: Flow Control Valve	415	10	50	10
603_BOOSTER_VALVE	0: Pressure Reducing Valve	459	8	65	0
CARDINAL_BOOSTER_VALVE	0: Pressure Reducing Valve	380	8	107	0

2022 Peak Hour Results				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-1010	3.96	356	429	32
J-3051	3.96	320	394	32
J-3052	3.96	327	403	33
J-3042	3.96	318	402	36
J-4693	0	336	430	41
J-1028	3.96	420	519	43
J-1036	3.96	328	430	44
J-1035	3.96	328	430	44
J-1005	3.96	425	527	44
J-2027	3.96	424	528	45
J-2020	3.96	423	528	46
J-1009	3.96	324	430	46
J16	3.96	425	532	47
J-2021	3.96	420	528	47
J-3030	3.96	319	429	48
J-3029	3.96	319	430	48
J-1003	3.96	419	530	48
J-5000	3.96	417	529	48
J-1016	3.96	317	430	49
J-2028	3.96	415	528	49
J-1026	0	415	529	49
J-4719	0	415	529	49
J-1034	3.96	315	430	50
J-3058	0	315	430	50
J-2000	3.96	413	528	50
J-1033	3.96	413	529	50
J-3055	3.96	301	420	52
J-2026	3.96	408	528	52
J-3044	3.96	307	428	53
J-3049	3.96	289	411	53
J-3059	3.96	307	430	53
J-4714	3.96	305	428	53
J-4708	3.96	298	422	54
J-3028	3.96	278	404	55
J-2011	3.96	398	525	55
J-1000	0	405.8	534	55
J-2018	3.96	299	428	56
J-4715	3.96	298	427	56
J-3024	3.96	298	428	56
J-2013	3.96	395	525	56
J12	3.96	298	429	57
J-3053	3.96	280	412	57
J-3054	3.96	280	412	57
J-3045	3.96	293	426	58

2022 Peak Hour Results				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-1029	3.96	395	529	58
J-3032	3.96	295	429	58
J-2012	3.96	391	525	58
J-3034	3.96	294	428	58
J-3033	3.96	294	428	58
J-3035	3.96	293	428	58
J-4711	3.96	353	489	59
J-2015	0	291	428	59
J-4734	3.96	470	608	60
J-5003	3.96	390	529	60
J-2014	3.96	284	428	62
J-3057	3.96	282	427	63
J-2019	3.96	283	428	63
J-3025	3.96	281	426	63
J-3015	3.96	460	606	63
J-3026	3.96	281	427	63
J-3040	3.96	280	426	63
J-3039	3.96	280	426	63
J-3038	3.96	280	427	64
J-2017	3.96	281	428	64
J-2009	3.96	353	500	64
J-3027	3.96	281	428	64
J-4735	3.96	460	608	64
J-4705	0	380	529	65
J18	0	480	629	65
J-4738	3.96	459	608	65
J-3017	3.96	455	606	66
J-4710	3.96	455	606	66
J-3016	3.96	455	606	66
J-3021	0	275	426	66
J-4736	3.96	275	426	66
J14	3.96	457	608	66
J-1008	3.96	377	529	66
J-1032	3.96	377	529	66
J-4739	3.96	455	608	66
J-4712	3.96	272	426	67
J-3023	3.96	272	426	67
J-4732	3.96	454	608	67
J-1030	0	373	529	68
J10	3.96	270	426	68
J-3006	3.96	452	608	68
J-4709	3.96	450	608	68
J-3000	3.96	450	608	69
J-1015	3.96	370	528	69

2022 Peak Hour Results				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-4697	0	450	609	69
J-3060	0	449	608	69
J-2035	3.96	365	528	71
J-3008	3.96	445	608	71
J-4733	3.96	445	608	71
J-4717	3.96	445	609	71
J-4696	3.96	445	609	71
J-3022	3.96	260	426	72
J-2034	3.96	360	528	73
J-2033	3.96	360	528	73
J-2025	3.96	360	528	73
J-1014	3.96	360	528	73
J-1017	3.96	335	506	74
J-3020	3.96	352	523	74
J-2006	3.96	353	524	74
J-3009	3.96	437	608	74
J-1018	3.96	351	523	75
J-2023	3.96	355	528	75
J-4718	3.96	434	609	76
J-2010	3.96	348	524	76
J-1019	3.96	352	528	76
J-4716	3.96	430	609	78
J-4703	3.96	450	629	78
J-4695	3.96	429	609	78
J-4694	3.96	425	609	80
J-2032	3.96	340	528	82
J-2024	3.96	340	528	82
J-1022	3.96	440	629	82
J-1023	3.96	440	629	82
J-3018	3.96	342	531	82
J-3010	3.96	418	608	82
J-3001	3.96	418	609	83
J-1037	0	336	528	83
J-1013	3.96	336	528	83
J-3002	3.96	416	609	83
J-2022	3.96	335	528	84
J-2030	3.96	332	528	85
J-1021	3.96	430	629	86
J-1011	3.96	430	629	86
J-2051	3.96	327	528	87
J-2031	3.96	325	528	88
J24	0	422	629	90
J-2047	3.96	320	528	90
J-5004	0	420	629	91

2022 Peak Hour Results				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-2042	3.96	318	528	91
J-2043	3.96	317	528	92
J-2044	3.96	316	528	92
J-3019	3.96	318	531	92
J-1031	0	315	528	93
J-2055	3.96	314	528	93
J-3011	3.96	316	531	93
J-2054	3.96	313	529	93
J-4704	3.96	413	629	94
J-2046	3.96	311	528	94
J-2045	3.96	311	528	94
J-2050	3.96	309	526	94
J-2053	3.96	311	528	94
J-2005	3.96	310	528	95
J-2049	3.96	308	526	95
J-2041	3.96	310	529	95
J-1004	3.96	308	528	96
J-2048	3.96	305	526	96
J-2036	3.96	307	528	96
J-4713	3.96	305	528	97
J-4731	3.96	405	629	97
J-2040	3.96	303	527	97
J-2052	3.96	299	524	97
J-3012	3.96	305	531	98
J20	0	459	687	99
J-2039	3.96	298	528	100
J-2001	3.96	298	528	100
J-2038	3.96	295	528	101
J-2008	0	294	528	102
J-3056	3.96	294	531	103
J-4720	3.96	390	628	103
J-3050	3.96	293	531	103
J-1024	3.96	390	629	104
J-2002	3.96	285	528	105
J-2037	3.96	281	528	107
J-2004	3.96	281	528	107
J-4706	0	380	629	108
J-3014	3.96	280	531	109
J-3013	3.96	280	531	109
J-4737	0	276	531	111
J26	0	276	531	111
J-3007	3.96	275	531	111
J-3041	3.96	274	531	111
J22	0	380	656	120

2022 Peak Hour Results				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-1006	3.96	230	528	129
J-1007	3.96	230	529	129
J-4743	3.96	315	629	136
J-4742	3.96	315	629	136

2036 Peak Hour Results					
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)	
J-3051	8.62	320	278	-18	Very small diameter pipes, end of lines, up a hill
J-3052	8.62	327	316	-5	Very small diameter pipes, end of lines, up a hill
J-3042	8.62	318	311	-3	Very small diameter pipes, end of lines, up a hill
J-4711	8.62	353	365	5	Very small diameter pipes, end of lines, up a hill
J-3028	8.62	278	319	18	Very small diameter pipes, end of lines, up a hill
J-2009	8.62	353	408	24	Very small diameter pipes, end of lines, up a hill
J-3049	8.62	289	349	26	Very small diameter pipes, end of lines, up a hill
J-1010	8.62	356	425	30	
J-3053	8.62	280	351	31	
J-1028	8.62	420	492	31	
J-3054	8.62	280	354	32	
J-3055	8.62	301	387	37	
J-4693	0	336	428	40	
J-1005	8.62	425	519	41	
J-4708	8.62	298	394	42	
J-1017	8.62	335	434	43	
J-1036	8.62	328	428	43	
J-1035	8.62	328	428	43	
J-1009	8.62	324	428	45	
J-2027	8.62	424	529	45	
J-2020	8.62	423	529	46	
J-3030	8.62	319	426	47	
J16	8.62	425	533	47	
J-3029	8.62	319	427	47	
J-2021	8.62	420	529	47	
J-1016	8.62	317	427	48	
J-1034	8.62	315	428	49	
J-3058	0	315	428	49	
J-1003	8.62	419	533	49	
J-2028	8.62	415	529	49	
J-3044	8.62	307	421	50	
J-5000	8.62	417	532	50	
J-2000	8.62	413	529	50	
J-1026	0	415	531	50	
J-2011	8.62	398	515	51	
J-4714	8.62	305	422	51	
J-4719	0	415	533	51	
J-1033	8.62	413	532	52	
J-2018	8.62	299	418	52	
J-4715	8.62	298	418	52	
J-3059	8.62	307	427	52	
J-3045	8.62	293	413	52	
J-2013	8.62	395	515	52	
J-2026	8.62	408	529	52	
J-3024	8.62	298	420	53	
J-2012	8.62	391	514	54	
J-3035	8.62	293	419	54	
J12	8.62	298	424	55	
J-1000	0	405.8	533	55	
J-3034	8.62	294	421	55	
J-2015	0	291	419	55	
J-3032	8.62	295	423	55	
J-3033	8.62	294	422	55	
J-3025	8.62	281	413	57	
J-3057	8.62	282	414	57	

2036 Peak Hour Results

ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-3040	8.62	280	413	58
J-3039	8.62	280	414	58
J-3038	8.62	280	414	58
J-2014	8.62	284	419	59
J-1029	8.62	395	531	59
J-2019	8.62	283	419	59
J-3026	8.62	281	417	59
J-2017	8.62	281	419	60
J-3015	8.62	460	598	60
J-3021	0	275	413	60
J-4736	8.62	275	413	60
J-3027	8.62	281	419	60
J-4734	8.62	470	609	60
J-4712	8.62	272	413	61
J-3023	8.62	272	413	61
J-5003	8.62	390	533	62
J10	8.62	270	413	62
J-3020	8.62	352	496	62
J-3017	8.62	455	599	63
J-4710	8.62	455	600	63
J-3016	8.62	455	600	63
J18	0	480	628	64
J-4735	8.62	460	609	64
J-4738	8.62	459	609	65
J14	8.62	457	609	66
J-4705	0	380	532	66
J-3022	8.62	260	413	66
J-4739	8.62	455	609	67
J-4732	8.62	454	609	67
J-1008	8.62	377	532	67
J-1032	8.62	377	532	67
J-4709	8.62	450	606	68
J-3006	8.62	452	609	68
J-1018	8.62	351	509	68
J-2006	8.62	353	512	69
J-3000	8.62	450	609	69
J-4697	0	450	609	69
J-1030	0	373	532	69
J-3060	0	449	609	69
J-1015	8.62	370	530	69
J-2010	8.62	348	511	71
J-2035	8.62	365	529	71
J-3008	8.62	445	609	71
J-4733	8.62	445	609	71
J-4717	8.62	445	609	71
J-4696	8.62	445	609	71
J-2034	8.62	360	529	73
J-2033	8.62	360	529	73
J-2025	8.62	360	529	73
J-1014	8.62	360	530	74
J-3009	8.62	437	608	74
J-2023	8.62	355	529	75
J-4718	8.62	434	609	76
J-1019	8.62	352	530	77
J-4703	8.62	450	628	77

2036 Peak Hour Results					
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)	
J-4716	8.62	430	609	78	
J-4695	8.62	429	609	78	
J-4694	8.62	425	609	80	
J-1022	8.62	440	626	81	
J-1023	8.62	440	628	81	
J-2032	8.62	340	529	82	
J-3018	8.62	342	531	82	
J-2024	8.62	340	529	82	
J-3010	8.62	418	608	82	
J-3001	8.62	418	609	83	
J-3002	8.62	416	609	84	
J-1037	0	336	530	84	
J-2022	8.62	335	529	84	
J-1013	8.62	336	530	84	
J-2030	8.62	332	529	85	
J-1021	8.62	430	628	86	
J-1011	8.62	430	628	86	
J-2051	8.62	327	529	87	
J-2031	8.62	325	529	88	
J24	0	422	627	89	
J-5004	0	420	627	90	
J-2047	8.62	320	529	91	
J-2052	8.62	299	510	91	
J-2050	8.62	309	521	92	
J-2042	8.62	318	530	92	
J-2043	8.62	317	530	92	
J-3019	8.62	318	531	92	
J-2049	8.62	308	521	92	
J-2044	8.62	316	530	93	
J-4704	8.62	413	627	93	
J-1031	0	315	530	93	
J-2048	8.62	305	520	93	
J-3011	8.62	316	531	93	
J-2055	8.62	314	530	94	
J-2054	8.62	313	530	94	
J-2046	8.62	311	529	94	
J-2045	8.62	311	529	94	
J-2053	8.62	311	529	95	
J-2005	8.62	310	529	95	
J-2041	8.62	310	530	96	
J-1004	8.62	308	530	96	
J-2036	8.62	307	529	96	
J-2040	8.62	303	525	96	
J-4731	8.62	405	627	96	
J-4713	8.62	305	528	97	
J-3012	8.62	305	531	98	
J20	0	459	686	98	
J-2039	8.62	298	529	100	
J-2001	8.62	298	530	100	
J-2038	8.62	295	529	102	
J-4720	8.62	390	625	102	
J-2008	0	294	529	102	
J-3056	8.62	294	531	103	
J-1024	8.62	390	627	103	
J-3050	8.62	293	531	103	

2036 Peak Hour Results					
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)	
J-2002	8.62	285	529	106	
J-4706	0	380	627	107	
J-2004	8.62	281	529	108	
J-2037	8.62	281	529	108	
J-3014	8.62	280	531	109	
J-3013	8.62	280	531	109	
J-4737	0	276	531	111	
J26	0	276	531	111	
J-3041	8.62	274	530	111	
J-3007	8.62	275	531	111	
J22	0	380	659	121	
J-1006	8.62	230	524	127	
J-1007	8.62	230	526	128	
J-4743	8.62	315	628	136	
J-4742	8.62	315	628	136	

2022 Fire Flow Results											
ID	Total Demand (gpm)	Critical Fire Node ID	Critical Fire Node Pressure (psi)	Critical Fire Node Head (ft)	Adjusted Fire-Flow (gpm)	Available Flow at Hydrant (gpm)	Critical Available Node ID	Critical Available Node Pressure (psi)	Critical Available Node Head (ft)	Adjusted Available Flow (gpm)	Design Flow (gpm)
J26	500	J-4693	40.75	430.05		1,321.54	J26	20	322.16	1,321.54	1,322
J-4719	500	J-4719	42.24	512.49	1,868.53	1,870.23	J-4719	20	461.16	1,870.23	1,869
J24	500	J-4693	40.75	430.05		2,103.37	J24	20	468.16	2,103.37	2,103
J-1030	500.00	J-2027	39.01	514.02		3,588.47	J-2027	-1.8	419.84		
J-2028	502.77	J-2027	29.06	491.06	664.27	680.61	J-2027	19.01	467.87	664.63	664
J-2027	502.77	J-2027	29.06	491.06	664.27	664.62	J-2027	20	470.16	664.63	664
J-2026	502.77	J-2027	31.38	496.43	738.33	866.02	J-2027	13.07	454.16	738.34	738
J-2035	502.77	J-2035	48.03	475.84	811.28	811.79	J-2035	20	411.16	811.79	811
J-2034	502.77	J-2035	50.05	480.52	866.69	892.34	J-2035	17.83	406.16	866.95	867
J-2033	502.77	J-2035	51.5	483.85	916.12	938.59	J-2035	17.83	406.16	916.13	916
J-2032	502.77	J-2027	35.14	505.11	963.01	1,103.70	J-2027	13.78	455.79	962.99	963
J-4735	502.77	J-4693	40.75	430.05		1,190.57	J-4735	20	506.16	1,190.57	1,191
J-1015	502.77	J-1015	56.11	499.48	1,207.32	1,207.32	J-1015	20	416.16	1,207.32	1,207
J-3014	502.77	J-4693	40.75	430.05		1,338.09	J-3014	20	326.16	1,338.09	1,338
J-4738	502.77	J-4693	40.75	430.05		1,363.09	J-4735	19.57	505.16	1,355.70	1,356
J-4734	502.77	J-4693	40.75	430.05		1,366.41	J-4734	20	516.16	1,366.41	1,366
J14	502.77	J-4693	40.75	430.05		1,493.34	J-4734	14.37	503.16	1,387.03	1,387
J-3013	502.77	J-4693	40.75	430.05		1,387.15	J-3014	20	326.16	1,387.15	1,387
J-4733	502.77	J-4693	40.75	430.05		1,611.04	J-4734	9.17	491.16	1,408.65	1,409
J-3050	502.77	J-4693	40.75	430.05		1,414.65	J-3050	20	339.16	1,414.65	1,415
J-4732	502.77	J-4693	40.75	430.05		1,564.03	J-4734	13.07	500.16	1,429.94	1,430
J-3012	502.77	J-4693	40.75	430.05		1,455.68	J-3012	20	351.16	1,455.68	1,456
J-3056	502.77	J-4693	40.75	430.05		1,456.14	J-3012	19.93	351.01	1,455.68	1,456
J-3011	502.77	J-4693	40.75	430.05		1,486.23	J-3011	20	362.16	1,486.23	1,486
J-3000	502.77	J-4693	40.75	430.05		1,492.50	J-4734	11.33	496.15	1,610.18	1,610
J-4731	502.77	J-4693	40.75	430.05		875.75	J-4731	20	451.16	1,615.02	1,615
J-5000	502.77	J-5000	40.38	510.19	1,804.15	1,805.78	J-5000	20	463.16	1,805.94	1,804
J-1033	502.77	J-1033	42.52	511.12	1,910.07	1,909.18	J-1033	20	459.16	1,909.28	1,909
J-4704	502.77	J-4693	40.75	430.05		2,088.90	J-4704	20	459.16	2,088.90	2,089
J-1023	502.77	J-4693	40.75	430.05		2,091.52	J-1023	20	486.16	2,091.52	2,092
J-1029	502.77	J-2027	38.28	512.35	2,154.10	2,478.97	J-2027	18.18	465.96	2,152.33	2,152
J-1021	502.77	J-4693	40.75	430.05		2,225.60	J-1023	17.31	479.95	2,177.11	2,177
J-1011	502.77	J-4693	40.75	430.05		2,377.95	J-1011	20	476.16	2,377.95	2,378

2022 Fire Flow Results											
ID	Total Demand (gpm)	Critical Fire Node ID	Critical Fire Node Pressure (psi)	Critical Fire Node Head (ft)	Adjusted Fire-Flow (gpm)	Available Flow at Hydrant (gpm)	Critical Available Node ID	Critical Available Node Pressure (psi)	Critical Available Node Head (ft)	Adjusted Available Flow (gpm)	Design Flow (gpm)
J-4716	502.77	J-4693	40.75	430.05		2,392.71	J-4716	20	476.16	2,713.84	2,714
J-4696	502.77	J-4693	40.75	430.05		1,552.92	J-4696	20	491.16	2,934.76	2,935
J16	502.77	J-4693	40.75	430.05		2,148.27	J16	20	471.16	3,397.95	3,398
J-4693	750	J-4693	7.25	352.73	574.6	574.62	J-4693	20	382.16	574.62	575
J-4708	752.77	J-4708	-44,199.27	-101,708.16	16.29	13.50	J-4708	20	344.16	16.30	16
J-3059	752.77	J-3059	-25.18	248.88	468.78	386.15	J-3059	20	353.16	468.81	469
J-3025	752.77	J-3025	-7.72	263.19	553.97	554.04	J-3025	20	327.16	554.04	554
J10	752.77	J10	8.38	289.33	657.02	657.03	J10	20	316.16	657.03	657
J-3022	752.77	J10	8.38	289.33	657.02	673.43	J10	-18.1	311.78	657.03	657
J-4712	752.77	J-4712	8.95	292.65	659.27	563.38	J-4712	20	318.16	659.28	659
J-1009	752.77	J-1009	19.39	368.75	743.38	743.08	J-1009	20	370.16	743.08	743
J-1036	752.77	J-4693	25.47	394.79	897.19	988.45	J-4693	16.53	374.16	897.19	897
J-2025	752.77	J-2027	25.37	482.54	902.97	1,448.66	J-2027	-7.73	406.15	902.98	903
J12	752.77	J12	30.96	369.45	932.32	932.39	J12	20	344.16	932.39	932
J-2023	752.77	J-2027	26.97	486.24	958.15	1,689.71	J-2027	-9.81	401.36	958.45	958
J-2031	752.77	J-2027	27.09	486.51	962.8	1,288.72	J-2027	4.68	434.79	962.99	963
J-2030	752.77	J-2027	27.09	486.51	962.80	1,492.30	J-2027	-3.34	416.3	962.99	963
J-2036	752.77	J-2027	28.5	489.77	1,020.35	1,482.58	J-2027	0.16	424.37	1,020.28	1,020
J-2000	752.77	J-2027	29.63	492.38	1,072.39	1,191.57	J-2027	15.37	459.46	1,072.32	1,072
J-2005	752.77	J-2027	30.52	494.43	1,118.63	2,640.97	J-2027	-28.7	357.76	1,118.54	1,119
J-1035	752.77	J-4693	29.85	404.9	1,123.34	1,218.10	J-4693	16.53	374.16	1,123.35	1,123
J-1032	752.77	J-1032	41.88	473.65	1,129.91	878.51	J-1032	20	423.16	1,129.91	1,130
J-3030	752.77	J-3030	33.75	396.88	1,154.65	931.13	J-3030	20	365.16	1,155.11	1,155
J-2004	752.77	J-2027	31.26	496.14	1,161.41	1,980.61	J-2027	-41.58	328.03	1,161.32	1,161
J-2002	752.77	J-2027	31.78	497.34	1,194.97	3,260.22	J-2027	-38.96	334.09	1,194.87	1,195
J-2001	752.77	J-2027	32.35	498.65	1,234.38	3,082.00	J-2027	-32.58	348.81	1,234.26	1,234
J-2038	752.77	J-2027	32.34	498.63	1,239.30	1,789.68	J-2027	-1.4	420.76	1,239.18	1,239
J-2053	752.77	J-2027	32.53	499.08	1,289.67	2,668.80	J-2027	2.54	429.85	1,289.70	1,290
J-3029	752.77	J-3029	38.7	408.32	1,396.20	867.7	J-3029	20	365.16	1,396.56	1,396
J-2042	752.77	J-2027	32.74	499.57	1,452.41	1,519.04	J-2027	11.08	449.57	1,453.65	1,452
J-3009	752.77	J-4693	40.75	430.05		1,489.46	J-3009	20	483.16	1,489.46	1,489
J-4718	752.77	J-4693	40.75	430.05		881.28	J-4718	20	480.16	1,595.94	1,596
J-1024	752.77	J-4693	40.75	430.05		1,563.95	J-1024	20	436.16	1,605.00	1,605

2022 Fire Flow Results											
ID	Total Demand (gpm)	Critical Fire Node ID	Critical Fire Node Pressure (psi)	Critical Fire Node Head (ft)	Adjusted Fire-Flow (gpm)	Available Flow at Hydrant (gpm)	Critical Available Node ID	Critical Available Node Pressure (psi)	Critical Available Node Head (ft)	Adjusted Available Flow (gpm)	Design Flow (gpm)
J-3001	752.77	J-4693	40.75	430.05		1,488.43	J-4734	-2.62	463.94	2,724.40	2,724
J-4743	752.77	J-4693	40.75	430.05		3,757.45	J-1011	-22.32	378.49	2,897.56	2,898
J-4742	752.77	J-4693	40.75	430.05		3,236.70	J-1011	-22.24	378.67	2,905.53	2,906
J-3008	1,002.77	J-4693	40.75	430.05		1,530.73	J-3008	20	491.16	1,584.23	1,584
J-2043	1,002.77	J-2027	28.05	488.74	1,672.99	1,716.85	J-2027	13.81	455.88	1,673.49	1,673
J-2055	1,002.77	J-2027	28.4	489.53	1,867.60	1,328.88	J-2027	14.50	457.47	1,867.81	1,868
J-2054	1,002.77	J-2027	28.67	490.16	2,043.41	2,987.70	J-2027	1.16	426.67	2,044.83	2,043
J-3002	1,002.77	J-4693	40.75	430.05		1,490.88	J-4734	-3.47	462.00	2,341.36	2,341
J-4703	1,002.77	J-4693	40.75	430.05		2,609.74	J-4703	20	496.16	14,557.35	14,557

2036 Fire Flow Results

ID	Total Demand (gpm)	Critical Fire Node ID	Critical Fire Node Pressure (psi)	Critical Fire Node Head (ft)	Adjusted Fire-Flow (gpm)	Available Flow at Hydrant (gpm)	Critical Available Node ID	Critical Available Node Pressure (psi)	Critical Available Node Head (ft)	Adjusted Available Flow (gpm)	Design Flow (gpm)	
J26	500	J-4734	39.96	562.22	1,071.25	1,154.76	J-4734	13.94	502.18	1,022.02	1,021	
J-1030	500	J-2027	31.9	497.62	1,269.74	14,649.14	J-2027	-2.9	417.31	1,270.31	1,270	
J-4719	500	J-2027	31.48	496.66	1,324.98	1,767.19	J-2027	19.34	468.64	1,325.40	1,325	
J24	500	J24	84.67	617.41	2,034.92	2,035.19	J24	20.00	468.16	2,035.19	2,035	
J-2027	505.72	J-2027	20.82	472.05	523.96	524.05	J-2027	20	470.16	524.05	524	
J-2028	505.72	J-2027	20.82	472.05	523.96	565.06	J-2027	18.16	465.91	524.05	524	
J-2026	505.72	J-2027	23.19	477.53	589.61	713.58	J-2027	13.07	454.15	589.61	590	
J-2035	505.72	J-2027	27.08	486.51	721.89	726.34	J-2027	19.81	469.72	721.67	722	
J-2034	505.72	J-2027	27.08	486.51	721.89	789.87	J-2027	17.13	463.54	721.67	722	
J-2032	505.72	J-2027	27.08	486.51	721.89	979.22	J-2027	8.42	443.44	721.67	722	
J-2033	505.72	J-2027	27.08	486.51	721.89	825.61	J-2027	15.57	459.94	721.67	722	
J-4735	505.72	J-4735	39.82	551.9	855.97	856.05	J-4735	20	506.16	856.05	856	
J-4738	505.72	J-4734	38.2	558.17	911.23	953.44	J-4734	17.82	511.12	911.48	911	
J-4734	505.72	J-4734	38.2	558.17	911.23	911.48	J-4734	20	516.16	911.48	911	
J14	505.72	J-4734	38.38	558.57	921.29	1,029.38	J-4734	14.37	503.16	921.56	921	
J-4733	505.72	J-4734	38.56	558.98	931.81	1,136.95	J-4734	9.17	491.15	932.11	932	
J-4732	505.72	J-4734	38.73	559.38	942.14	1,078.11	J-4734	13.06	500.15	942.48	942	
J-3056	505.72	J-4734	39.96	562.22	1,027.02	1,254.16	J-4734	9.44	491.78	1,027.74	1,027	
J-3014	505.72	J-4734	39.96	562.22	1,027.02	1,169.24	J-4734	13.53	501.23	1,027.74	1,027	
J-3012	505.72	J-4734	39.96	562.22	1,027.02	1,246.08	J-4734	9.83	492.69	1,027.74	1,027	
J-3013	505.72	J-4734	39.96	562.22	1,027.02	1,208.37	J-4734	11.66	496.92	1,027.74	1,027	
J-3011	505.72	J-4734	39.96	562.22	1,027.02	1,262.29	J-4734	9.04	490.85	1,027.74	1,027	
J-3050	505.72	J-4734	39.96	562.22	1,027.02	1,222.11	J-4734	11	495.39	1,027.74	1,027	
J-1015	505.72	J-1015	48.42	481.74	1,173.49	1,172.98	J-1015	20	416.16	1,172.98	1,173	
J-1029	505.72	J-2027	30.7	494.85	1,468.98	2,324.55	J-2027	16.4	461.84	1,470.27	1,469	
J-1033	505.72	J-2027	31.17	495.93	1,528.09	1,778.76	J-2027	19.39	468.75	1,529.17	1,528	
J-4731	505.72	J-4731	87.9	607.85	1,570.45	869.9	J-4731	20	451.16	1,570.55	1,570	
J-5000	505.72	J-5000	33.2	493.62	1,621.00	1,621.92	J-5000	20	463.16	1,620.98	1,621	
J-4704	505.72	J-4704	88.37	616.95	2,022.64	2,023.86	J-4704	20	459.16	2,023.85	2,023	
J-1023	505.72	J-1023	77.17	618.09	2,024.19	2,024.44	J-1023	20	486.16	2,024.44	2,024	
J-1021	505.72	J-1023	77.51	618.89	2,106.11	2,158.93	J-1023	17.1	479.47	2,106.22	2,106	
J-1011	505.72	J-1023	78.2	620.47	2,305.21	2,311.30	J-1023	19.69	485.44	2,305.05	2,305	
J-4716	505.72	J-4716	75.03	603.15	2,404.04	2,390.08	J-4716	20	476.16	2,403.05	2,403	
J-4696	505.72	J-4696	69.38	605.13	2,555.72	1,538.32	J-4696	20	491.16	2,555.68	2,556	
J16	505.72	J-2027	36.73	508.77	2,714.10	1,825.49	J-2027	19.4	468.76	2,713.93	2,714	
J-4693	750	J-4693	5.53	348.75	548.15	548.59	J-4693	20	382.16	548.59	548	
J-4708	755.72	J-4708	-44,524.86	-102,459.58	15.89	13.36	J-4708	20	344.16	15.89	16	hydrant at the end of a very small line
J-3059	755.72	J-3059	-28.27	241.76	451.10	380.29	J-3059	20	353.16	451.43	451	
J-3025	755.72	J-3025	-11.63	254.16	531.92	532.12	J-3025	20	327.16	532.12	532	
J10	755.72	J-3025	6.39	295.75	631.36	633.87	J-3025	19.75	326.59	631.44	631	
J-3022	755.72	J-3025	6.39	295.75	631.36	651.53	J-3025	17.93	322.39	631.44	631	
J-4712	755.72	J-3025	6.39	295.75	631.36	539.39	J-3025	19.58	326.19	631.44	631	
J-2025	755.72	J-2027	16.81	462.80	684.76	1,362.11	J-2027	-7.74	406.14	684.92	685	

2036 Fire Flow Results												
ID	Total Demand (gpm)	Critical Fire Node ID	Critical Fire Node Pressure (psi)	Critical Fire Node Head (ft)	Adjusted Fire-Flow (gpm)	Available Flow at Hydrant (gpm)	Critical Available Node ID	Critical Available Node Pressure (psi)	Critical Available Node Head (ft)	Adjusted Available Flow (gpm)	Design Flow (gpm)	
J-1009	755.72	J-1009	17.49	364.37	713.03	713.08	J-1009	20	370.16	713.08	713	
J-2023	755.72	J-2027	18.47	466.62	719.01	1,589.10	J-2027	-9.84	401.28	719.06	719	
J-2031	755.72	J-2027	18.59	466.90	721.63	1,197.96	J-2027	1.76	428.07	721.67	722	
J-2030	755.72	J-2027	18.59	466.90	721.63	1,424.88	J-2027	-4.32	414.02	721.67	722	
J-2036	755.72	J-2027	20.03	470.24	756.44	1,490.77	J-2027	-1.66	420.17	756.61	756	
J-2000	755.72	J-2027	21.38	473.34	793.63	917.86	J-2027	15.25	459.19	793.68	794	
J-2005	755.72	J-2027	22.42	475.75	825.87	2,576.80	J-2027	-29	357.08	826.07	826	
J-2004	755.72	J-2027	23.26	477.69	854.83	1,874.69	J-2027	-41.8	327.52	855.24	855	
J-1036	755.72	J-4693	23.75	390.82	866.33	956.89	J-4693	16.53	374.16	866.00	866	
J-2002	755.72	J-2027	23.86	479.08	876.95	3,155.99	J-2027	-39.4	333.08	877.58	877	
J12	755.72	J12	28.23	363.15	887.83	887.93	J12	20	344.16	887.93	888	
J-2038	755.72	J-2027	24.3	480.07	897.31	1,844.84	J-2027	-6	410.14	897.32	897	
J-2001	755.72	J-2027	24.55	480.65	904.67	2,978.89	J-2027	-33.27	347.22	904.68	905	
J-2053	755.72	J-2027	24.52	480.59	906.88	2,647.75	J-2027	-2.14	419.06	906.89	907	
J-2042	755.72	J-2027	24.77	481.17	917.85	1,569.49	J-2027	7.72	441.82	917.86	918	
J-1032	755.72	J-1032	35.17	458.16	997.93	875.56	J-1032	20	423.16	998.39	998	
J-3009	755.72	J-4734	31.18	541.95	1,027.69	1,086.05	J-4734	17.39	510.13	1,027.75	1,028	
J-1035	755.72	J-4693	28.16	401.00	1,036.19	1,109.76	J-4693	16.53	374.16	1,035.98	1,036	
J-3029	755.72	J-2027	26.11	484.25	1,070.80	821.06	J-2027	16.3	461.62	1,070.91	1,071	
J-3030	755.72	J-3030	32.04	392.94	1,076.79	896.74	J-3030	20	365.16	1,076.07	1,076	
J-1024	755.72	J-1024	82.11	579.49	1,564.01	1,561.00	J-1024	20.00	436.16	1,563.99	1,564	
J-4718	755.72	J-4718	61.66	576.29	1,592.15	881.28	J-4718	20	480.16	1,592.17	1,592	
J-3001	755.72	J-4734	45.49	574.98	2,024.19	908.91	J-4734	-7.21	453.36	2,025.38	2,024	
J-4743	755.72	J-1023	76.5	616.55	2,808.56	3,695.60	J-1023	-20.96	391.64	2,807.61	2,808	
J-4742	755.72	J-1023	76.53	616.61	2,816.31	3,181.23	J-1023	-20.89	391.79	2,815.35	2,815	
J-2043	1,005.72	J-2027	20.09	470.37	1,023.96	1,658.56	J-2027	11.32	450.13	1,023.96	1,024	
J-3008	1,005.72	J-4734	20.97	518.39	1,027.72	1,117.74	J-4734	15.94	506.78	1,027.74	1,028	
J-2055	1,005.72	J-2027	21.16	472.84	1,325.14	1,277.47	J-2027	8.26	443.06	1,325.69	1,325	
J-2054	1,005.72	J-2027	21.75	474.20	1,404.83	2,970.40	J-2027	-3.21	416.59	1,405.96	1,405	
J-3000	1,005.72	J-4734	39.96	562.22	1,527.31	1,414.70	J-4734	11.32	496.12	1,527.74	1,527	
J-3002	1,005.72	J-4734	36.58	554.41	1,643.69	913.72	J-4734	-6.87	454.15	1,643.86	1,644	
J-4703	1,005.72	J-4703	75.65	624.59	14,433.82	2,614.00	J-4703	20	496.16	14,435.64	14,434	

2036 PHD with CIPs				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J 1010	8.62	356	427.47	31
J-3052	8.62	327	416.51	39
J-4693	0	336	427.51	40
J-1005	8.62	425	519.16	41
J-3051	8.62	320	419.28	43
J-1036	8.62	328	427.51	43
J-1035	8.62	328	427.52	43
J-1009	8.62	324	427.52	45
J-3055	8.62	301	404.7	45
J-2027	8.62	424	528.8	45
J-2020	8.62	423	528.92	46
J-3030	8.62	319	426.6	47
J16	8.62	425	532.75	47
J-3029	8.62	319	427.33	47
J-2021	8.62	420	529.05	47
J-3042	8.62	318	427.32	47
J-1028	8.62	420	530.4	48
J-1016	8.62	317	427.48	48
J-1034	8.62	315	427.53	49
J-3058	0	315	428.2	49
J-1003	8.62	419	532.54	49
J-2028	8.62	415	528.8	49
J-5000	8.62	417	531.51	50
J-1026	0	415	531.08	50
J-2000	8.62	413	529.09	50
J-4719	0	415	532.62	51
J-4714	8.62	305	422.65	51
J-2018	8.62	299	416.7	51
J-1033	8.62	413	532	52
J-3049	8.62	289	408.27	52
J-4708	8.62	298	418.32	52
J-3024	8.62	298	418.32	52
J-3044	8.62	307	427.32	52
J-3059	8.62	307	427.33	52
J-2026	8.62	408	528.81	52
J-3045	8.62	293	413.82	52
J-4715	8.62	298	422.65	54
J-3053	8.62	280	406.06	55
J-2015	0	291	417.36	55
J-3054	8.62	280	406.41	55
J12	8.62	298	424.7	55

2036 PHD with CIPs				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-3035	8.62	293	420.1	55
J-1000	0	405.8	532.9	55
J-3034	8.62	294	422.23	56
J-3032	8.62	295	423.56	56
J-3033	8.62	294	422.77	56
J-2011	8.62	398	528.3	56
J-4711	8.62	353	485.78	58
J-2014	8.62	284	417.64	58
J-2013	8.62	395	528.91	58
J-2019	8.62	283	417.22	58
J-3057	8.62	282	417	59
J-1029	8.62	395	530.61	59
J-3025	8.62	281	416.88	59
J-2017	8.62	281	417.29	59
J-3026	8.62	281	417.29	59
J-3027	8.62	281	417.47	59
J-3040	8.62	280	416.58	59
J-3039	8.62	280	416.85	59
J-3038	8.62	280	417.08	59
J-2012	8.62	391	528.21	59
J-3015	8.62	460	597.98	60
J-3028	8.62	278	416.33	60
J-4734	8.62	470	608.7	60
J-4736	8.62	275	416.58	61
J-3021	0	275	416.58	61
J-5003	8.62	390	532.5	62
J-3017	8.62	455	599.47	63
J-4712	8.62	272	416.59	63
J-3023	8.62	272	416.6	63
J-4710	8.62	455	599.87	63
J-3016	8.62	455	599.87	63
J10	8.62	270	416.58	64
J18	0	480	628.15	64
J-4735	8.62	460	608.68	64
J-4738	8.62	459	608.69	65
J14	8.62	457	608.7	66
J-4705	0	380	532.48	66
J-4739	8.62	455	608.68	67
J-4732	8.62	454	608.71	67
J-1008	8.62	377	532.45	67
J-1032	8.62	377	532.46	67

2036 PHD with CIPs				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-4709	8.62	450	606.13	68
J-3022	8.62	260	416.58	68
J-3006	8.62	452	608.63	68
J-3000	8.62	450	608.77	69
J-4697	0	450	609.01	69
J-1030	0	373	532.48	69
J-3060	0	449	608.79	69
J-1015	8.62	370	529.89	69
J-2035	8.62	365	528.58	71
J-3008	8.62	445	608.64	71
J-4733	8.62	445	608.7	71
J-4717	8.62	445	608.96	71
J-4696	8.62	445	608.96	71
J-2034	8.62	360	528.58	73
J-2033	8.62	360	528.59	73
J-2025	8.62	360	528.84	73
J-1014	8.62	360	529.81	74
J-3009	8.62	437	608.48	74
J-2023	8.62	355	528.87	75
J-4718	8.62	434	608.95	76
J-2009	8.62	353	529.27	76
J-2006	8.62	353	529.33	76
J-1019	8.62	352	529.64	77
J-4703	8.62	450	628.14	77
J-3020	8.62	352	530.19	77
J-1018	8.62	351	529.52	77
J-4716	8.62	430	608.95	78
J-4695	8.62	429	608.95	78
J-2010	8.62	348	529.23	79
J-4694	8.62	425	608.95	80
J-1022	8.62	440	626.45	81
J-1023	8.62	440	627.5	81
J-2032	8.62	340	528.6	82
J-3018	8.62	342	530.73	82
J-2024	8.62	340	528.85	82
J-3010	8.62	418	608.18	82
J-3001	8.62	418	608.91	83
J-3002	8.62	416	608.86	84
J-1037	0	336	529.61	84
J-2022	8.62	335	528.76	84
J-1013	8.62	336	529.78	84

2036 PHD with CIPs				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J-1017	8.62	335	529.09	84
J-2047	8.62	320	516.49	85
J-2030	8.62	332	528.7	85
J-1021	8.62	430	627.52	86
J-1011	8.62	430	627.6	86
J-2051	8.62	327	528.57	87
J-2031	8.62	325	528.64	88
J24	0	422	627.47	89
J-5004	0	420	627.49	90
J-2042	8.62	318	529.59	92
J-2043	8.62	317	529.7	92
J-3019	8.62	318	530.79	92
J-2044	8.62	316	529.81	93
J-4704	8.62	413	627.44	93
J-1031	0	315	529.81	93
J-3011	8.62	316	531.27	93
J-2055	8.62	314	530.03	94
J-2054	8.62	313	530.48	94
J-2046	8.62	311	529.27	95
J-2053	8.62	311	529.53	95
J-2045	8.62	311	529.81	95
J-2005	8.62	310	529.22	95
J-2041	8.62	310	530.4	96
J-2050	8.62	309	530.03	96
J-1004	8.62	308	529.7	96
J-2036	8.62	307	528.82	96
J-2040	8.62	303	525.03	96
J-2049	8.62	308	530.03	96
J-4731	8.62	405	627.41	96
J-4713	8.62	305	528.22	97
J-2048	8.62	305	530.03	98
J-3012	8.62	305	531.17	98
J20	0	459	686.2	98
J-2052	8.62	299	529.2	100
J-2039	8.62	298	529.46	100
J-2001	8.62	298	529.63	100
J-2038	8.62	295	529.46	102
J-4720	8.62	390	624.57	102
J-2008	0	294	529.36	102
J-3056	8.62	294	531.15	103
J-1024	8.62	390	627.4	103

2036 PHD with CIPs				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
J 3050	8.62	293	531.12	103
J-2002	8.62	285	529.43	106
J-4706	0	380	627.44	107
J-2004	8.62	281	529.32	108
J-2037	8.62	281	529.32	108
J-3014	8.62	280	531.09	109
J-3013	8.62	280	531.1	109
J-4737	0	276	531.09	111
J26	0	276	531.09	111
J-3041	8.62	274	529.53	111
J-3007	8.62	275	531.08	111
J22	0	380	659.15	121
J-1006	8.62	230	523.72	127
J-1007	8.62	230	526.07	128
J-4743	8.62	315	627.74	136
J-4742	8.62	315	627.74	136

2036 Fire Flow Results with CIPs											
ID	Total Demand (gpm)	Critical Fire Node ID	Critical Fire Node Pressure (psi)	Critical Fire Node Head (ft)	Adjusted Fire-Flow (gpm)	Available Flow at Hydrant (gpm)	Critical Available Node ID	Critical Available Node Pressure (psi)	Critical Available Node Head (ft)	Adjusted Available Flow (gpm)	Design Flow (gpm)
J26	500.00	J-4734	39.96	562.22	1,021.25	1,154.76	J-4734	13.94	502.18	1,022.02	1,021
J24	500.00	J24	84.67	617.41	2,034.92	2,035.19	J24	20	468.16	2,035.19	2,035
J-4719	500	J-4719	35.38	496.66	2,244.25	2,243.58	J-4719	20	461.16	2,242.36	2,242
J-1030	500	J-2027	31.92	497.66	2,308.26	3,218.65	J-2027	-2.15	419.05	2,306.82	2,307
J-2027	505.72	J-2027	20.94	472.32	526.60	526.73	J-2027	20	470.16	526.73	527
J-2028	505.72	J-2027	20.94	472.32	526.60	567.57	J-2027	18.18	465.95	526.73	527
J-2026	505.72	J-2027	23.31	477.79	592.20	771.66	J-2027	13.07	454.15	592.20	592
J-2035	505.72	J-2035	38.87	454.72	742.08	741.87	J-2035	20	411.16	741.96	742
J-2034	505.72	J-2035	40.92	459.44	793.31	819.27	J-2035	17.83	406.16	793.32	793
J-2033	505.72	J-2035	42.4	462.84	837.62	865.42	J-2035	17.83	406.15	837.70	838
J-2032	505.72	J-2027	27.34	487.10	853.20	1,062.44	J-2027	15.38	459.49	853.27	853
J-4735	505.72	J-4735	39.82	551.9	855.97	856.05	J-4735	20	506.16	856.05	856
J-4734	505.72	J-4734	38.2	558.17	911.23	911.48	J-4734	20	516.16	911.48	911
J-4738	505.72	J-4734	38.2	558.17	911.23	953.44	J-4734	17.82	511.12	911.48	911
J14	505.72	J-4734	38.38	558.57	921.29	1,029.38	J-4734	14.37	503.16	921.56	921
J-4733	505.72	J-4734	38.56	558.98	931.81	1,136.95	J-4734	9.17	491.15	932.11	932
J-4732	505.72	J-4734	38.73	559.38	942.14	1,078.11	J-4734	13.06	500.15	942.48	942
J-3012	505.72	J-4734	39.96	562.22	1,027.02	1,246.08	J-4734	9.83	492.69	1,027.74	1,027
J-3014	505.72	J-4734	39.96	562.22	1,027.02	1,169.24	J-4734	13.53	501.23	1,027.74	1,027
J-3011	505.72	J-2027	39.22	514.51		1,262.29	J-4734	9.04	490.85	1,027.74	1,028
J-3013	505.72	J-2027	39.22	514.51		1,208.37	J-4734	11.66	496.92	1,027.74	1,028
J-3050	505.72	J-2027	39.22	514.51		1,222.11	J-4734	11	495.39	1,027.74	1,028
J-3056	505.72	J-2027	39.22	514.51		1,254.16	J-4734	9.44	491.78	1,027.74	1,028
J-1015	505.72	J-1015	49.21	483.56	1,519.54	1,380.31	J-1015	20	416.16	1,519.66	1,520
J-4731	505.72	J-4731	87.9	607.85	1,570.55	869.90	J-4731	20	451.16	1,570.55	1,571
J-4704	505.72	J-4704	88.37	616.95	1,949.74	1,949.67	J-4704	20	459.16	1,949.67	1,950
J-1023	505.72	J-1023	77.17	618.09	2,024.19	2,024.44	J-1023	20	486.16	2,024.44	2,024
J-1021	505.72	J-1023	77.51	618.89	2,106.11	2,158.93	J-1023	17.1	479.47	2,106.22	2,106

2036 Fire Flow Results with CIPs											
ID	Total Demand (gpm)	Critical Fire Node ID	Critical Fire Node Pressure (psi)	Critical Fire Node Head (ft)	Adjusted Fire-Flow (gpm)	Available Flow at Hydrant (gpm)	Critical Available Node ID	Critical Available Node Pressure (psi)	Critical Available Node Head (ft)	Adjusted Available Flow (gpm)	Design Flow (gpm)
J-1029	505.72	J-2027	30.92	495.35	2,121.06	2,328.99	J-2027	16.36	461.76	2,120.92	2,121
J-5000	505.72	J-5000	33.3	493.85	2,211.34	2,211.12	J-5000	20	463.16	2,210.44	2,210
J-1033	505.72	J-1033	35.47	494.85	2,241.41	2,237.35	J-1033	20	459.16	2,239.71	2,240
J-1011	505.72	J-1023	78.2	620.47	2,305.21	2,311.30	J-1023	19.69	485.44	2,305.05	2,305
J-4716	505.72	J-4716	75.03	603.15	2,404.04	2,390.08	J-4716	20	476.16	2,403.05	2,403
J-4696	505.72	J-4696	69.38	605.13	2,555.72	1,538.32	J-4696	20	491.16	2,555.68	2,556
J16	505.72	J16	40.94	519.49	3,514.51	2,149.39	J16	20	471.16	3,514.52	3,515
J-4693	750	J-4693	21.62	385.89	796.98	797.13	J-4693	20	382.16	797.13	797
J-2025	755.72	J-2027	20.03	470.22	756.30	1,572.30	J-2027	-7.74	406.14	757.02	756
J-4708	755.72	J-4708	20.5	345.31	762.76	762.76	J-4708	20	344.16	762.77	763
J-2023	755.72	J-2027	21.66	473.99	829.35	1,784.84	J-2027	-9.83	401.32	829.42	829
J-2030	755.72	J-2027	22.1	475.00	853.18	1,497.19	J-2027	2.69	430.20	853.25	853
J-2031	755.72	J-2027	22.1	475	853.18	1,285.64	J-2027	9.36	445.6	853.25	853
J12	755.72	J12	27.98	362.58	884.37	884.49	J12	20	344.16	884.49	884
J-1036	755.72	J-4693	23.89	391.14	887.95	985.76	J-4693	16.53	374.16	887.42	887
J-2036	755.72	J-2027	23.37	477.94	939.15	1,527.05	J-2027	4.46	434.3	939.62	939
J-3009	755.72	J-4734	31.18	541.95	1,027.69	1,086.05	J-4734	17.39	510.13	1,027.75	1,028
J-2000	755.72	J-2027	24.58	480.74	1,051.31	1,294.41	J-2027	15.32	459.35	1,050.99	1,051
J-3030	755.72	J-3030	31.8	392.38	1,098.41	897.6	J-3030	20	365.16	1,098.42	1,098
J-3025	755.72	J-3025	37.9	368.47	1,100.47	1,100.83	J-3025	20	327.16	1,100.83	1,100
J-1035	755.72	J-4693	28.3	401.32	1,132.40	1,250.54	J-4693	16.53	374.16	1,132.41	1,132
J-1032	755.72	J-1032	37.27	463.01	1,145.30	875.57	J-1032	20	423.16	1,145.29	1,145
J-2005	755.72	J-2027	25.54	482.95	1,156.72	2,630.41	J-2027	-28.96	357.17	1,156.44	1,156
J-2004	755.72	J-2027	26.33	484.77	1,264.72	1,608.26	J-2027	-41.75	327.64	1,264.36	1,264
J-1009	755.72	J-1009	33.84	402.09	1,313.85	1,313.99	J-1009	20	370.16	1,314.01	1,314
J-2002	755.72	J-2027	26.81	485.88	1,342.17	3,182.50	J-2027	-39.33	333.23	1,341.15	1,341
J-3022	755.72	J-3022	54.18	385.04	1,352.89	1,352.90	J-3022	20	306.16	1,352.90	1,353
J-3029	755.72	J-3029	36.9	404.16	1,397.11	823.13	J-3029	20	365.16	1,397.20	1,397

2036 Fire Flow Results with CIPs											
ID	Total Demand (gpm)	Critical Fire Node ID	Critical Fire Node Pressure (psi)	Critical Fire Node Head (ft)	Adjusted Fire-Flow (gpm)	Available Flow at Hydrant (gpm)	Critical Available Node ID	Critical Available Node Pressure (psi)	Critical Available Node Head (ft)	Adjusted Available Flow (gpm)	Design Flow (gpm)
J-3059	755.72	J-3029	36.9	404.16	1,397.11	1,426.32	J-3029	18.71	362.17	1,397.17	1,397
J10	755.72	J10	52.86	392.00	1,402.45	1,402.49	J10	20	316.16	1,402.49	1,402
J-2001	755.72	J-2027	27.35	487.11	1,440.42	3,001.89	J-2027	-33.08	347.65	1,440.74	1,440
J-4712	755.72	J-4712	53.45	395.36	1,444.16	1,047.12	J-4712	20	318.16	1,444.25	1,444
J-1024	755.72	J-1024	82.11	579.49	1,563.51	1,561.00	J-1024	20	436.16	1,563.99	1,564
J-4718	755.72	J-4718	61.66	576.29	1,592.15	881.28	J-4718	20	480.16	1,592.17	1,592
J-2038	755.72	J-2027	28	488.62	1,642.41	1,974.67	J-2027	-6.21	409.67	1,642.24	1,642
J-2053	755.72	J-2027	28.36	489.44	1,752.74	2,727.94	J-2027	-2.58	418.04	1,752.52	1,753
J-2042	755.72	J-2027	28.73	490.31	1,887.41	1,573.44	J-2027	7.7	441.77	1,887.12	1,887
J-3001	755.72	J-4734	45.49	574.98	2,024.19	908.91	J-4734	-7.21	453.36	2,025.38	2,024
J-4743	755.72	J-1023	76.5	616.55	2,808.56	3,695.60	J-1023	-20.96	391.64	2,807.61	2,808
J-4742	755.72	J-1023	76.53	616.61	2,816.31	3,181.23	J-1023	-20.89	391.79	2,815.35	2,815
J-3008	1,005.72	J-4734	20.97	518.39	1,027.72	1,117.74	J-4734	15.94	506.78	1,027.74	1,028
J-3000	1,005.72	J-4734	39.96	562.22	1,527.31	1,414.71	J-4734	11.32	496.12	1,527.74	1,527
J-3002	1,005.72	J-4734	36.58	554.41	1,643.69	913.72	J-4734	-6.87	454.15	1,643.86	1,644
J-2043	1,005.72	J-2027	27.58	487.66	1,956.44	1,654.30	J-2027	11.94	451.56	1,956.34	1,956
J-2055	1,005.72	J-2027	28.51	489.81	2,045.60	1,234.56	J-2027	8.57	443.79	2,045.57	2,046
J-2054	1,005.72	J-2027	29.11	491.18	2,100.63	2,960.30	J-2027	-3.23	416.54	2,100.58	2,101
J-4703	1,005.72	J-4703	75.65	624.59	14,433.82	2,614.00	J-4703	20	496.16	14,435.64	14,434

APPENDIX G

WELLHEAD PROTECTION PROGRAM

City of Winlock

**Wellhead Protection Plan
June 2015**

Prepared By

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City of Winlock**

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City of Winlock**

**Charles Brown
Evergreen Rural Water of Washington**

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Introduction

Wellhead Protection Planning is about maintaining and safeguarding the quality and quantity of your drinking water source. The City of Winlock gets its drinking water from four groundwater wells. These wells are near land-use activities that could potentially contaminate the water supply. Effective Wellhead Protection that emphasize preventing contamination and loss of supply (WAC 246-290-135). Prevention is far less costly than responding to problems after they occur. State drinking water rules require Group A water systems to develop and implement a Wellhead Water Protection Plan in their Water System Plan or Small Water System Management Program (WAC 246-290-135). This program is part of a complete Water System Plan or Small Water System Management Program. The City of Winlock Wellhead Protection Area is delineated area surrounding the drinking water wells that if contaminated could result in contaminating the well. It is important to protect and manage this area to ensure safe and reliable drinking water over the long term. All drinking water sources are at some risk of contamination and loss of supply. WA DOH publications *Wellhead Protection Program Guidance Document* (331-018) and Chapter 1.5 of the *Small Water System Management Program Guide* (331-134) were used to develop this plan.

Components of the City of Winlock Wellhead Protection Plan are:

1. Complete a *Susceptibility Assessment Form* for each water source.
2. Delineated (mapped) Wellhead Protection area for each source.
3. Covenants for each of the water source a sanitary control area.
4. An inventory of existing and potential contaminant sources.
5. Documentation of Notification to regulatory agencies, local governments, landowners, and facility operators that includes delineation and inventory of potential contaminant sources.
6. A contingency plan to provide water if the source becomes unavailable.

7. Coordination with local emergency responders for appropriate spill or incident response measures.

8. Develop and implement an Action Plan to update and improve Wellhead Protection.

Wellhead Protection Plan

1. Susceptibility Assessment

Completing the Susceptibility Assessment form is the first step in wellhead protection because it will determine the risk of contamination of your water source. The City of Winlock last completed *Susceptibility Assessment Forms* for each of the drinking water sources in 1994. These documents are on file at the Department of Health, SW Regional Office. As part of this program the susceptibility assessment forms were updated and are included in Appendix A. The revised and updated forms should be sent to DOH SW Region.

The City of Winlock list 7 groundwater sources. Eureka 2 (SO2) was decommissioned in 1990. Ask Street (SO3) is inactive and is scheduled for decommissioning. Baichtel #1 (SO7) is inactive. The casing is deteriorating and the electricity has been disconnected. It was determined that decommissioning the well may cause problems with Beichtel #2.

Currently Eureka #1 (SO1) is Undetermined for Risk of Contamination. Well 603 (SO5) has a High Risk of Contamination. Eureka #3 and Baichtel #2 have a Moderate Risk of Contamination. (See Appendix "A" Susceptibility Assessment Forms)

2. Delineation of the Wellhead Protection Area

The City of Winlock is responsible for defining or delineating the Wellhead Protection Area boundaries. The Well Protection Area is the area managed by the Water District to protect the groundwater based drinking water supply. The Wellhead Protection Area consist of 5 zones: the standard Sanitary Control Area and 4 additional zones based on the 6 month, 1, 5 and 10 year time

of travel.

The City of Winlock has fewer than 1000 connections and the 4 wells are rated HIGH and MODERATE for Risk of Contamination. These conditions allow the Calculated Fixed Radius Method to be used to delineate the 6 month, 1, 5 and 10 year time of travel zones that create the Wellhead Protection Area. The Calculated Fixed Radius is a way to define a circular area around the wellhead, that makes up the protection area. The fixed radius is an estimate of the area overlying the groundwater you will pump through your well over a period of time. The Time of Travel Zones are based on the rate that water moves horizontally through the aquifer but ignore the vertical time of travel or the time to move from the surface to the aquifer. To achieve greater protection a more sophisticated delineation method should be considered in the future.

The calculated fixed radius method was used to delineate the protection areas and create a map for the Wellhead Protection Area for each well. This plan uses the Instructions for Susceptibility Assessment Form DOH #331-274, Table E: Tables for Calculating the Fixed Radii of Protective Circles Around a Water Source. This table uses the volume pumped through the well and the screened interval or opening through which water flows into the well to calculate the Time of Travel Zones. Eureka #1 (SO1) and Eureka #3 (SO8) have 10 feet of screen interval and pumped 30,000,000 gallons and 5,000,000 gallons respectively in 2013. Well 603 (SO5) has 43 feet of screened interval and pumped 101,000,000 gallons in 2013. Beichtel #2 has 100 feet of screened interval and pumped 8,000,000 gallons in 2013. All values were rounded.

Appendix E: Tables for Calculating the Fixed Radii of Protective Circles Around a Water Source

SCREENED INTERVAL = 10ft	Time of Travel			
	6 month (radius in feet)	1 year (radius in feet)	5 years (radius in feet)	10 years (radius in feet)
Annual Volume pumped (GAL)				
< 5,000,000	220	310	700	980
20,000,000	440	620	1390	1970
SCREENED INTERVAL = 50ft	Time of Travel			
	6 month (radius in feet)	1 year (radius in feet)	5 years (radius in feet)	10 years (radius in feet)
Annual Volume pumped (GAL)				
100,000,000	440	620	1390	1970
SCREENED INTERVAL = 75ft	Time of Travel			
	6 month (radius in feet)	1 year (radius in feet)	5 years (radius in feet)	10 years (radius in feet)
Annual Volume pumped (GAL)				
< 5,000,000	80	110	250	360

The maps show the wells, sanitary control area and 6 month, 1-, 5-, and 10-year time-of-travel zones in the Wellhead Protection Area. The map also shows the Wellhead Protection Area in relation to other geographic features such as rivers, lakes, towns, buildings, sewer mains and roads. (See Appendix "B" Wellhead Protection Area Delineation Maps)

3. Secure a Sanitary Control Area

All Group A water systems must maintain a sanitary control area around each surface or groundwater source to protect it from contamination. You must maintain physical and legal authority over your sanitary control area. The sanitary control area must have a radius of 100 feet for wells, and 200 feet for springs or surface water intakes. The rules prohibit any activity in the sanitary control area that could contaminate a drinking water well. Water systems use covenants or written promises, agreements or restrictions to prevent the contamination of drinking water wells. Water system owners

use the covenants to ensure no source of contamination will be constructed, stored, discarded or applied within the sanitary control area. There are two kinds of covenants. A Declaration of Covenant is used if the water system owns all the property in the sanitary control area. A Restrictive Covenant is used when someone else owns all or part of the property in the sanitary control area. Copies of documents, such as deeds, declarative or restrictive covenants, or written agreements should be included in this plan. See *Sanitary Control Area Protection (331-453)* and *Covenants for public water supply protection (331-048)*.

The City of Winlock has NO established 100 foot radius sanitary control area for its four groundwater wells. The City does own the property where each well is located and has room for a 100 foot sanitary control area on each property. The City can use a Declaration of Covenant to secure control of this property. (See Appendix C- Sanitary Control Area)

4. Potential Contamination Source Inventory

A survey the Wellhead Protection Area to identify past, present, and future land-use activities that may pose a contamination threat to the four groundwater wells was conducted.

A review of the Washington State Department of Health Source Water Assessment Program (SWAP) database indicated numerous Potential Contamination Sources within the Wellhead Protection Areas.

A Review of Washington State Department of Ecology Toxic Cleanup Program Web Reporting (TCP) identified active, inactive or leaking Underground Storage Tanks within or near the Wellhead Protection Areas.

The Washington State Department of Ecology Facility/Site Identification System identified 19 Facilities or Sites in the Winlock Wellhead Protection Areas of environmental interest.

Ace Hardware

500 NE 1st St Winlock, WA

Bedder Bunk Co Inc.	801 NW Kerron St Winlock, WA
BNSF Winlock	908 NW Kerron St Winlock, WA
Boreen Project	305 E Walnut St Winlock, WA
Fred Shell	111 Kerron St Winlock, WA
Handi Store	503 Kerron St Winlock, WA
Lewis J Shooks Drilling	115 Kakela Rd Winlock, WA
MI Windows and Doors	222St HWY 505 Winlock, WA
Old Winlock Shop	712 NW Dexter Winlock, WA
School Bus Garage	King Rd and Byham Winlock, WA
Shakertown Corp	1220 NW Kerron St Winlock, WA
USWCOM Winlock	1 st & Shannon Winlock, WA
Vanguard Properties Co	1150 Kerron St Winlock, WA
Vanguard Properties Co	699 Kerron St Winlock, WA
Winlock Texaco	223 Hwy 505 Winlock, WA
Winlock Wood Products	803 Kerron St Winlock, WA
Winlock Veneer Co	703 Kerron St Winlock, WA
Winlock School Dist. Bus Transport	311 Fir Winlock, WA
Wood Specialty Products Winlock	801 Kerron St Winlock, WA

(See Appendix D- Potential Contamination Sources)

5. Letters of Notification

Notify appropriate entities about the location of your wellhead protection area and the results of your inventory. Federal, State, and local agencies decide where to allow certain land uses, activities, or facilities. Write letters to regulatory agencies, local emergency responders, and local governments with

authority over landuse decisions to inform them that activities or businesses they regulate occur within your wellhead protection area. Landowners and facilities that operate possible contaminant sources might alter their practices if they know the location of your wellhead protection area. Notify them in writing that their activities are in your wellhead protection area and encourage them to protect your drinking water supply. Sample letters are in the *Wellhead Protection Program Guidance Document* (331-018). Focus on activities in the 6-month and one-year time of travel zones first.

Send letters of Notification to government agencies, emergency responders and property owners inside the 10 year time of travel zones based on the new Susceptibility Assessment and Delineation Maps every two years. Particular attention should be paid to DOE Site Facilities. (See Appendix "E" Sample Letters of Notification)

6. Develop a Contingency Plan

All Group A water systems must have a contingency plan to provide water if the supply source becomes temporarily or permanently unavailable. Completing an emergency response plan satisfies this requirement. (See the *Emergency Response Planning Guide for Public Drinking Water Systems* (351-211)) (See Appendix "F" Emergency Response Plan).

7. Source Water Protection Action Plan and Implementation Schedule

The following items need to be accomplished to complete the Source water Protection Plan:

1. Update Susceptibility Assessment for each source to reflect current conditions. Use the latest WA DOH version and instructions for completing the form. Send the results to WA DOH SW Regional Office. This task can be accomplished by the District Personnel, Operator or Engineer using district funds. Send the results to WA DOH SW Regional Office. **COMPETED April 2015**
2. GPS truth each well site. Revise delineation maps to reflect new data and information from the new revised Susceptibility Assessment forms. Submit new corrected well locations and maps to the WA DOH SW Regional Office. This Task can be accomplished by District

Personnel, Engineer or Operator using district funds. Send the results to WA DOH SW Regional Office. **COMPLETED April 1015**

3. All four wells have no required 100 Foot radius for a Sanitary Control Area around the wells. Secure a Declarative Covenant for all four wells. This task will require legal documents, Board action and can be accomplished by the District Personnel, Legal Council and Board using district funds. Target Date for completion- June 2015
4. Send Letters of Notification to Government Agencies, emergency responders and property owners. Examples of letters are included with this plan. (see Appendix D). This task can be accomplished by the District Personnel or Operator using district funds. Target date for completion- June 2015
5. Update Emergency Response Plan to reflect current conditions. This task can be completed by District Personnel, Engineer or Operator using district funds. **COMPLETED April 2015**

Appendix A: Susceptibility Assessments (SA)

Eureka #1 (SO1) AFM908

Well 603 (SO5) AFM907

Eureka #3 (SO8) AFM904

Baichtel #2 (SO9) AET197



Ground Water Contamination Susceptibility Assessment Survey Form

Complete **one** form for **each** ground water source (well, well of a wellfield, spring, spring of a springfield) used in your water system (photocopy as necessary). Contact your regional WA DOH office if you need a copy of the Instruction Packet.

PART I: System Information

Well owner/manager: City of Winlock

Water system name: Winlock City

County: Lewis

Water system ID number: 97500 Source number: SO1

Well depth: 55 feet

Source name: Eureka #1

WA well tag identification number: _____

XX Well not tagged

Number of connections: 631 Population served: 1400

Township: 12 Range: 02W

Section: 28 ¼ ¼ Section: NESE

Latitude/longitude (if available): 46° 29' 32.28"N / 122° 55' 58.63"W

How was latitude/longitude determined?

_____ Global positioning device _____ survey _____ topographical map
XX other: Google Maps

*Please see Instruction Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: ___/___/1932/year

Date well last reconstructed: ___/___/___ month/day/year

Information unavailable

2) Well driller: C. King

Well driller unknown

3) Type of well: Drilled: rotary bored cable (percussion) Dug

___ other: spring(s) lateral collector (Ranney)

driven jetted other: _____

4) Well report available Yes (attach copy to form) No

5) Average pumping rate: 210 (gallons/min)

Source of information WFI

If not documented, how was pumping rate determined? _____

Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

disinfection filtration carbon filter air stripper other

Purpose of treatment (describe materials to be removed or controlled by treatment):

Biological contaminate removal

7) If source is chlorinated, is a chlorine residual maintained: Yes No

Residual level: 0.3 (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

less than 20 ft 20-49ft 50-99ft 100-200ft greater than 200ft

XX information unavailable

2) Depth to ground water (static water level):

less than 20ft 20-49ft 50-100ft greater than 100ft

flowing well/spring (artesian)

How was water level determined?

well log other _____

XX depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch) or

_____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: Yes No

5) Wellhead elevation (height above mean sea level): 384 feet

How was elevation determined? topographic map Drilling/Well Log altimeter

other: Google Earth

information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to Instruction Packet for example.)

XX evidence of confining layer(s) in well log

_____ no evidence of confining layer(s) in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the **bottom** of the **lowest confining layer**? Yes No

XX information unavailable

7) Sanitary setback:

less than 100ft* 100-120ft 120-200 ft greater than 200ft

* If less than 100ft, describe the site conditions:

Well at the end of a limited access gravel road. Steep slope on each side. Intermittent stream within 50 feet of the Well

8) Wellhead construction:

wellhead enclosed in a well house

controlled access (describe): Fencing and locked gate

other uses for well house (describe): None

no wellhead control

9) Surface seal:

18 ft

greater than 18 ft

less than 18 ft (no Department of Ecology approval)

less than 18 ft (approved by Department of Ecology, include documentation)

depth of seal unknown

no surface seal

10) Annual rainfall (inches per year):

less than 10 in/yr 10-25 in/yr

greater than 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 29,965,066 (2013) (gallons)

How was this determined?

meter

estimated: pumping rate (_____)

pump capacity (_____)

pumping rate and capacity (_____)

other (describe): _____

2) Determined time of travel using:

"Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

Alternate Numerical Model

6-month ground water travel time: 700 feet

1-year ground water travel time: 980 feet

5-year ground water travel time: 2200 feet

10-year ground water travel time: 3110 feet

Information available on length of screened/open interval?

Yes No

Length of screened/open interval: 10 feet

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6- month time of travel boundary?

Yes No (mark and identify on map)

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6-month time of travel boundary?

Yes No (mark and identify on map)

Comments: Intermittent stream during rainfall within 50 feet of the well

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time. If you do not know if one of the following is present, mark the “unknown” space.

	<u>6-month</u>	<u>1-year</u>	<u>5-year</u>	<u>unknown</u>
• likely pesticide application	_____	<u>X</u>	_____	_____
• stormwater injection wells	_____	_____	_____	_____
• other injection wells	_____	_____	_____	_____
• abandoned ground water well	_____	_____	<u>X</u>	_____
• landfills, dumps, disposal areas	_____	_____	_____	_____
• known hazardous materials clean-up site	_____	_____	_____	_____
• known water quality problems	_____	_____	_____	_____
• population density less than 1 house/acre	_____	_____	_____	_____
• residences commonly have septic tanks	_____	_____	_____	_____
• Wastewater treatment lagoons	_____	_____	_____	_____
• sites used for land application of waste	_____	_____	_____	_____

Please include a map of the wellhead and time of travel areas with this form. Mark and identify on the map any of the risks listed above.

If other recorded or potential sources of ground water contamination exist within the ten-year time of travel circular zone around your water supply, please describe:

2) **Source-specific water quality records:** For each type of test below, **mark the row that applies to the sample results for this source.** Consider all the sample results from the past 12 years. Maximum Contaminant Levels (MCLs) and State Advisory Levels (SALs) are noted next to the specific test and are listed in the Instruction Packet.

A. **Nitrate:** (Nitrate MCL = 10 mg/liter)

- Results greater than MCL
- less than 2 mg/liter nitrate
- 2-5 mg/liter nitrate
- greater than 5 mg/liter nitrate

B. **VOCs:** (VOC detection level is 0.5 ug/liter or 0.0005 mg/liter)

- Results greater than MCL or SAL
- VOCs detected at least once
- VOCs never detected
- VOC sampling records unavailable

C. **EDB/DBCP:**

(EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l.)

- EDB/DBCP detected below MCL at least once
- EDB/DBCP detected above MCL at least once
- EDB/DBCP never detected
- EDB/DBCP tests required but not yet completed
- EDB/DBCP tests not required

D. **Other SOCs (Pesticides, Herbicides, or SOCs other than EDB/DBCP):**

- Other SOCs detected
(pesticides, herbicides or other synthetic organic chemicals)
- Other SOC tests performed but none detected
(list test methods in comments)
- Other SOC tests not performed

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: _____

E. Bacterial contamination:

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records)? Yes No

Any bacterial detection(s) in the past 3 years in the distribution system that have been attributed to the source? Yes No

Source sampling records for bacteria unavailable Yes No

PART VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water sources which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10-year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

Yes No

Describe with references to map produced in Part IV:

The well is located in a raven with an intermittent stream within 50 feet of the well.

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

Yes No

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

Yes No

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

Yes No

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
Less than 6-month travel time	_____	<u>XX</u>	_____
6 month—1 year travel time	_____	<u>XX</u>	_____
1—5 year travel time	_____	<u>XX</u>	_____
5—10 year travel time	_____	<u>XX</u>	_____

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

	YES	NO	unknown
Less than 1-year travel time	_____	<u>XX</u>	_____
1—5 year travel time	_____	<u>XX</u>	_____
5—10 year travel time	_____	<u>XX</u>	_____

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

FORM COMPLETED BY:

Print Name

Date

Signature

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

Eureka #1 well



WATER WELL REPORT FOR AN EXISTING WELL

INSTRUCTIONS:

Use this form only if an original water well report was NEVER filed or is MISSING from Ecology records. Your well must be properly tagged prior to submitting this form. Please fill in all blanks as completely as possible. If information is not known, leave blank. After completing, mail the original form to: Wa State Dept of Ecology, PO Box 47600, Olympia, WA, 98504-7600, ATTN: Marian Bruner.

<p>CURRENT USE: <input type="checkbox"/> Domestic <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Municipal <input type="checkbox"/> DeWater <input type="checkbox"/> Irrigation <input type="checkbox"/> Test Well <input type="checkbox"/> Other</p> <p>DIMENSIONS: Diameter of well <u>8</u> inches. Depth of completed well <u>55</u> ft. if known.</p> <p>CONSTRUCTION DETAILS Liner Installed <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown TYPE: <input type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Concrete Liner <input type="checkbox"/> Other <input checked="" type="checkbox"/> Unknown</p> <p>Perforations: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown</p> <p>SIZE of perfs <u> </u> in. by <u> </u> in. and no. of perfs <u> </u> from <u> </u> ft. to <u> </u> ft.</p> <p>Screens: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown Mfr's Name <u> </u> TYPE: <input type="checkbox"/> Stainless Steel <input type="checkbox"/> PVC <input type="checkbox"/> Other Diam. <u> </u> Slot Size <u> </u> from <u> </u> ft. to <u> </u> ft.</p> <p>Gravel/Filter packed: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown</p> <p>Materials placed from <u> </u> ft. to <u> </u> ft.</p> <p>Surface Seal: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown If known, to what depth <u>?</u> ft. Materials used if known: <input type="checkbox"/> Bentonite <input checked="" type="checkbox"/> Cement</p> <p>PUMP: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Mfr's Name <u>FAIRBANKS - HORSE</u> Type: <u>VLS - VERTICAL LINESHAFT TURBINE P. 10 HP</u></p> <p>WATER LEVELS: Land-surface elevation above mean sea level <u> </u> ft. Static level <u> </u> ft. below top of casing Date measured <u> </u> Artesian pressure <u> </u> lbs. per square inch Date measured <u> </u> Well head has cap? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Shut off valve? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>WELL TESTS: Drawdown is amount water level is lowered below static level. Was a pump test made? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, attach copy <input checked="" type="checkbox"/> Unknown Yield: <u> </u> gal./min. with <u> </u> ft. drawdown after <u> </u> hrs.</p>	<p>Unique Ecology Well ID Tag No. <u>AFM 908</u></p> <p>Water Right? If yes, attach copy <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No CITY OF WINLOCK</p> <p>Property Owner Name <u>WINLOCK CITY WATER</u></p> <p>Well Street Address <u> </u></p> <p>City <u>WINLOCK, WA</u> County: <u>LEWIS</u></p> <p>Tax Parcel No. <u>6350-000-000</u></p> <p>LOCATION An accurate location of your well is very important. The Township, Range, Section and 1/4, 1/4 can be found on your legal description or through your county assessor's office. Sec. <u>28</u> Twn <u>12N</u> R02W ^{EWM circle or one} _{WWM}</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr><td>D</td><td>C</td><td>B</td><td>A</td></tr> <tr><td>E</td><td>F</td><td>G</td><td>H</td></tr> <tr><td>M</td><td>L</td><td>K</td><td>J</td></tr> <tr><td>N</td><td>P</td><td>Q</td><td>R</td></tr> </table> <p>This square represents one section of land, which is approx 640 acres. Within this section, circle the letter that best represents the location of the well within this section.</p> <p>Latitude/Longitude NOTE: Section, Township, Range still REQUIRED Lat Deg <u> </u> Lat Min/Sec <u> </u> Long Deg <u> </u> Long Min/Sec <u> </u> <input type="checkbox"/> GPS <input type="checkbox"/> Survey <input type="checkbox"/> Topographic Map <input type="checkbox"/> Computer Generated</p> <p>Additional Information, if available: <input type="checkbox"/> Location marked on topographic map (please attach) <input type="checkbox"/> Location marked on air photo (please attach)</p> <p><u>SITE LOCATION TAKEN (GPS) BY DAVE HADY</u></p>	D	C	B	A	E	F	G	H	M	L	K	J	N	P	Q	R
D	C	B	A														
E	F	G	H														
M	L	K	J														
N	P	Q	R														

DEPARTMENT OF ECOLOGY JULY 2003 DURING SITE VISIT. CHECKING WELL TAGS - WATER RIGHT TRANSFER. CERTIFICATION: The information reported above is true to the best of my knowledge and belief.

Driller Engineer Property Owner Other

Name GARY LACY Drilling Company CITY OF WINLOCK

Signature GARY LACY Address of person completing this form:
P.O. Box 777

Driller License No. City, State, Zip WINLOCK, WASH 98596-0117

Date Signed 8-15-03

Original - Ecology

Ecology is an Equal Opportunity Employer.



Ground Water Contamination Susceptibility Assessment Survey Form

Complete **one** form for **each** ground water source (well, well of a wellfield, spring, spring of a springfield) used in your water system (photocopy as necessary). Contact your regional WA DOH office if you need a copy of the Instruction Packet.

PART I: System Information

Well owner/manager: City of Winlock

Water system name: Winlock City

County: Lewis

Water system ID number: 97500 Source number: SO5

Well depth: 156 feet

Source name: 603 Well

WA well tag identification number: **A F M 9 0 7**

Well not tagged

Number of connections: 631 Population served: 1400

Township: 12N Range: 02W

Section: 27 ¼ ¼ Section: NENW

Latitude/longitude (if available): 46°29'26.11"N / 122°55'21.92 "W

How was latitude/longitude determined?

 Global positioning device survey topographical map
XX other: Google Earth

*Please see Instruction Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 5 / 7 / 80 month/day/year

Date well last reconstructed: / / month/day/year

Information unavailable

2) Well driller: Brank Drilling

Well driller unknown

3) Type of well: Drilled: rotary bored XX cable (percussion) Dug

 other: spring(s) lateral collector (Ranney)

driven jetted other:

4) Well report available XX Yes (attach copy to form) No

5) Average pumping rate: 200 (gallons/min)

Source of information Well log

If not documented, how was pumping rate determined?

Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

XX disinfection filtration carbon filter air stripper other

Purpose of treatment (describe materials to be removed or controlled by treatment):

7) If source is chlorinated, is a chlorine residual maintained: XX Yes No

Residual level: 0.3 (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

less than 20 ft 20-49ft 50-99ft 100-200ft greater than 200ft

information unavailable

2) Depth to ground water (static water level):

less than 20ft 20-49ft 50-100ft greater than 100ft

flowing well/spring (artesian)

How was water level determined?

well log other _____

depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch) or

_____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: Yes No

5) Wellhead elevation (height above mean sea level): 457 feet

How was elevation determined? topographic map Drilling/Well Log altimeter

other: Google Earth

information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to Instruction Packet for example.)

YES evidence of confining layer(s) in well log

_____ no evidence of confining layer(s) in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the **bottom** of the **lowest confining layer**? Yes No

information unavailable

7) Sanitary setback:

less than 100ft* 100-120ft 120-200 ft greater than 200ft

* If less than 100ft, describe the site conditions:

8) Wellhead construction:

wellhead enclosed in a wellhouse

controlled access (describe): Fencing and locked gate

other uses for wellhouse (describe): _____

no wellhead control

9) Surface seal:

18 ft

greater than 18 ft

less than 18 ft (no Department of Ecology approval)

less than 18 ft (approved by Department of Ecology, include documentation)

depth of seal unknown

no surface seal

10) Annual rainfall (inches per year):

less than 10 in/yr 10-25 in/yr greater than 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 101,803,000 (gallons)

How was this determined?

meter

- estimated:
 - pumping rate (_____)
 - pump capacity (_____)
 - pumping rate and capacity (_____)
- other (describe): _____

2) Determined time of travel using:

"Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

Alternate Numerical Model

6-month ground water travel time: _____ 440 _____ feet

1-year ground water travel time: _____ 620 _____ feet

5-year ground water travel time: _____ 1390 _____ feet

10-year ground water travel time: _____ 1970 _____ feet

Information available on length of screened/open interval?

Yes No

Length of screened/open interval: _____ 43 _____ feet

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6- month time of travel boundary?

Yes No (mark and identify on map)

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6-month time of travel boundary?

Yes No (mark and identify on map)

Comments: _____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time. If you do not know if one of the following is present, mark the "unknown" space.

	<u>6-month</u>	<u>1-year</u>	<u>5-year</u>	<u>unknown</u>
• likely pesticide application	_____	_____	<u>X</u>	_____
• stormwater injection wells	_____	_____	_____	_____
• other injection wells	_____	_____	_____	_____
• abandoned ground water well	_____	_____	_____	_____
• landfills, dumps, disposal areas	_____	_____	_____	_____
• known hazardous materials clean-up site	_____	_____	_____	_____
• known water quality problems	_____	_____	_____	_____
• population density less than 1 house/acre	_____	_____	_____	_____
• residences commonly have septic tanks	_____	_____	_____	_____
• Wastewater treatment lagoons	_____	_____	_____	_____
• sites used for land application of waste	_____	_____	_____	_____

Please include a map of the wellhead and time of travel areas with this form. Mark and identify on the map any of the risks listed above.

If other recorded or potential sources of ground water contamination exist within the ten-year time of travel circular zone around your water supply, please describe:

2) Source-specific water quality records: For each type of test below, **mark the row that applies to the sample results for this source.** Consider all the sample results from the past 12 years. Maximum Contaminant Levels (MCLs) and State Advisory Levels (SALs) are noted next to the specific test and are listed in the Instruction Packet.

A. **Nitrate:** (Nitrate MCL = 10 mg/liter)

- Results greater than MCL
- less than 2 mg/liter nitrate
- 2-5 mg/liter nitrate
- greater than 5 mg/liter nitrate

B. **VOCs:** (VOC detection level is 0.5 ug/liter or 0.0005 mg/liter)

- Results greater than MCL or SAL
- VOCs detected at least once
- VOCs never detected
- VOC sampling records unavailable

C. **EDB/DBCP:**

(EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l.)

- EDB/DBCP detected below MCL at least once
- EDB/DBCP detected above MCL at least once
- EDB/DBCP never detected
- EDB/DBCP tests required but not yet completed
- EDB/DBCP tests not required

D. **Other SOCs (Pesticides, Herbicides, or SOCs other than EDB/DBCP):**

- Other SOCs detected
(pesticides, herbicides or other synthetic organic chemicals)
- Other SOC tests performed but none detected
(list test methods in comments)
- Other SOC tests not performed

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: 3/16/95- 1. Aldicarb sulfone @ 3.3ppb, Trigger @ 0.9ppb MCL @40 ppb 2. Methomyl @1.4 ppb

E. **Bacterial contamination:**

Any bacterial detection(s) in the past 3 years in samples taken from

the source (not distribution sampling records)? Yes No

Any bacterial detection(s) in the past 3 years in the distribution system that have been attributed to the source? Yes No

Source sampling records for bacteria unavailable Yes No

PART VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water sources which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10-year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

Yes No

Describe with references to map produced in Part IV:

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

Yes No

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

Yes No

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

Yes No

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
Less than 6-month travel time	_____	<u>XX</u>	_____
6 month—1 year travel time	_____	<u>XX</u>	_____
1—5 year travel time	_____	<u>XX</u>	_____
5—10 year travel time	_____	<u>XX</u>	_____

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

	YES	NO	unknown
Less than 1-year travel time	_____	<u>XX</u>	_____
1—5 year travel time	_____	<u>XX</u>	_____
5—10 year travel time	_____	<u>XX</u>	_____

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

FORM COMPLETED BY:

Print Name

Date

Signature

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

File Original and First Copy with
Department of Ecology
Second Copy -- Owner's Copy
Third Copy -- Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No.
Permit No. **62-25852**

(1) OWNER: Name TOWN OF WINLOCK Address WINLOCK WASH.

(2) LOCATION OF WELL: County LEWIS - ~~SE 1/4~~ ~~22nd~~ 1/2 Sec. ~~27~~ T 12 N. R 24 W. M 27

Bearing and distance from section or subdivision corner

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

(4) TYPE OF WORK: Owner's number of well (if more than one)
New well Method: Dug Bored
Deepened Cable Driven
Reconditioned Rotary Jetted

(5) DIMENSIONS: Diameter of well 8 inches
Drilled 170 ft Depth of completed well 100 ft

(6) CONSTRUCTION DETAILS:
Casing installed: 8 " Diam. from 0 ft. to 156 ft.
Threaded " Diam. from _____ ft. to _____ ft.
Welded " Diam. from _____ ft. to _____ ft.

Perforations: Yes No
Type of perforator used: MILLS KNIFE
SIZE of perforations 4 in. by 3 in.
16 perforations from 101 ft. to 106 ft.
12 perforations from 110 ft. to 112 ft.
22 perforations from 119 ft. to 155 ft.

Screens: Yes No
Manufacturer's Name _____ Model No. _____
Type _____ Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes No Size of gravel: _____ ft. to _____ ft.
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes No To what depth? 25 ft.
Material used in seal: CEMENT & BENTONITE
Did any strata contain unusable water? Yes No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____ Type _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation _____ ft.
above mean sea level _____ ft.
Static level 70 ft. below top of well Date _____
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level WINLOCK CITY
Was a pump test made? Yes No If yes, by whom?
Yield: 200 gal./min. with 4 ft. drawdown after 6 hrs.
" " " " " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test: 30 gal./min. with 0 ft. drawdown after 4 hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes No

(10) WELL LOG:
Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
CLAY - YELLOW	0	55
CONGLOMERATE - YELLOW	55	80
SAND & GRAVEL - 10 G.P.M.	80	92
CONGLOMERATE - YELLOW	92	101
SAND & GRAVEL - 20 G.P.M.	101	106
CONGLOMERATE - YELLOW	106	110
HEAVY SAND - 20 G.P.M.	110	118
CONGLOMERATE - YELLOW	112	119
SAND & GRAVEL - WATER BEARING CONTINUOUSLY	119	155
CLAY BLUE	155	170

Work started 10-1 1978 Completed 5-7 1980

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME BRANK DRILLING (Type or print)
(Person, firm, or corporation)

Address WINLOCK WASH.

[Signed] Kenneth C. Brank (Well Driller)

License No. 0040 Date _____ 1980



Ground Water Contamination Susceptibility Assessment Survey Form

Complete **one** form for **each** ground water source (well, well of a wellfield, spring, spring of a springfield) used in your water system (photocopy as necessary). Contact your regional WA DOH office if you need a copy of the Instruction Packet.

PART I: System Information

Well owner/manager: City of Winlock

Water system name: Winlock City Water

County: Lewis

Water system ID number: 97500 Source number: SO8

Well depth: 150 feet

Source name: Eureka #3

WA well tag identification number: **A F M 9 0 4**

Well not tagged

Number of connections: 631 Population served: 1400

Township: 12N Range: 02W

Section: 28 ¼ ¼ Section: NWSE

Latitude/longitude (if available): 46°29'36.18"N / 122°56'02.67"W

How was latitude/longitude determined?

 Global positioning device survey topographical map
XX other: Google Earth

*Please see Instruction Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 9 / ___ / 57 month/day/year

Date well last reconstructed: ___ / ___ / ___ month/day/year

Information unavailable

2) Well driller: K and M Well Drilling Co.

Well driller unknown

3) Type of well: ___ Drilled: rotary bored cable (percussion) Dug

___ other: spring(s) lateral collector (Ranney)

driven jetted other: Unknown

4) Well report available Yes (attach copy to form) No

5) Average pumping rate: 50 (gallons/min)

Source of information WFI

If not documented, how was pumping rate determined? _____

Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

disinfection filtration carbon filter air stripper other

Purpose of treatment (describe materials to be removed or controlled by treatment):

Biological contaminate removal

7) If source is chlorinated, is a chlorine residual maintained: Yes No

Residual level: 0.3 (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

less than 20 ft 20-49ft 50-99ft 100-200ft greater than 200ft

information unavailable

2) Depth to ground water (static water level):

less than 20ft 20-49ft 50-100ft greater than 100ft

flowing well/spring (artesian)

How was water level determined?

well log other _____

depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch) or

_____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: Yes No

5) Wellhead elevation (height above mean sea level): 439 feet

How was elevation determined? topographic map Drilling/Well Log altimeter

other: Google Earth

information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to Instruction Packet for example.)

YES evidence of confining layer(s) in well log

_____ no evidence of confining layer(s) in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the **bottom** of the **lowest confining layer**? Yes No

information unavailable

7) Sanitary setback:

- less than 100ft* 100-120ft 120-200 ft greater than 200ft

* If less than 100ft, describe the site conditions:

8) Wellhead construction:

wellhead enclosed in a wellhouse

controlled access (describe): Well is at the end of a limited access private road .

other uses for wellhouse (describe): _____

no wellhead control

9) Surface seal:

18 ft

greater than 18 ft

less than 18 ft (no Department of Ecology approval)

less than 18 ft (approved by Department of Ecology, include documentation)

depth of seal unknown

no surface seal

10) Annual rainfall (inches per year):

less than 10 in/yr 10-25 in/yr greater than 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 4,880,600 (gallons)

How was this determined?

meter

- estimated: pumping rate (_____)
 pump capacity (_____)
 pumping rate and capacity (_____)
 other (describe): _____

2) Determined time of travel using:

"Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

Alternate Numerical Model

6-month ground water travel time: 220 feet

1-year ground water travel time: 310 feet

5-year ground water travel time: 700 feet

10-year ground water travel time: 980 feet

Information available on length of screened/open interval?

Yes No

Length of screened/open interval: 8 feet

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6- month time of travel boundary?

Yes No (mark and identify on map)

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6-month time of travel boundary?

Yes No (mark and identify on map)

Comments: _____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time. If you do not know if one of the following is present, mark the “unknown” space.

	<u>6-month</u>	<u>1-year</u>	<u>5-year</u>	<u>unknown</u>
• likely pesticide application	_____	_____	_____	_____
• stormwater injection wells	_____	_____	_____	_____
• other injection wells	_____	_____	_____	_____
• abandoned ground water well	_____	_____	_____	_____
• landfills, dumps, disposal areas	_____	_____	_____	_____
• known hazardous materials clean-up site	_____	_____	_____	_____
• known water quality problems	_____	_____	_____	_____
• population density less than 1 house/acre	_____	_____	_____	_____
• residences commonly have septic tanks	_____	_____	_____	_____
• Wastewater treatment lagoons	_____	_____	_____	_____
• sites used for land application of waste	_____	_____	_____	_____

Please include a map of the wellhead and time of travel areas with this form. Mark and identify on the map any of the risks listed above.

If other recorded or potential sources of ground water contamination exist within the ten-year time of travel circular zone around your water supply, please describe:

2) **Source-specific water quality records:** For each type of test below, **mark the row that applies to the sample results for this source.** Consider all the sample results from the past 12 years. Maximum Contaminant Levels (MCLs) and State Advisory Levels (SALs) are noted next to the specific test and are listed in the Instruction Packet.

A. **Nitrate:** (Nitrate MCL = 10 mg/liter)

- Results greater than MCL
- less than 2 mg/liter nitrate
- 2-5 mg/liter nitrate
- greater than 5 mg/liter nitrate

B. **VOCs:** (VOC detection level is 0.5 ug/liter or 0.0005 mg/liter)

- Results greater than MCL or SAL
- VOCs detected at least once
- VOCs never detected
- VOC sampling records unavailable

C. **EDB/DBCP:**

(EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l.)

- EDB/DBCP detected below MCL at least once
- EDB/DBCP detected above MCL at least once
- EDB/DBCP never detected
- EDB/DBCP tests required but not yet completed
- EDB/DBCP tests not required

D. **Other SOCs (Pesticides, Herbicides, or SOCs other than EDB/DBCP):**

- Other SOCs detected
(pesticides, herbicides or other synthetic organic chemicals)
- Other SOC tests performed but none detected
(list test methods in comments)
- Other SOC tests not performed

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: _____

E. Bacterial contamination:

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records)?

Yes **XX** No

Any bacterial detection(s) in the past 3 years in the distribution system that have been attributed to the source?

Yes **XX** No

Source sampling records for bacteria unavailable

Yes **XX** No

PART VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water sources which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10-year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?)

Yes **XX** No

Describe with references to map produced in Part IV:

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain?

Yes **XX** No

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel?

Yes **XX** No

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.)

Yes **XX** No

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
Less than 6-month travel time	_____	XX_____	_____
6 month—1 year travel time	_____	XX_____	_____
1—5 year travel time	_____	XX_____	_____
5—10 year travel time	_____	XX_____	_____

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

	YES	NO	unknown
Less than 1-year travel time	_____	XX_____	_____
1—5 year travel time	_____	XX_____	_____
5—10 year travel time	_____	XX_____	_____

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

FORM COMPLETED BY:

Print Name

Date

Signature

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

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION
AND DEVELOPMENT

WELL LOG

No. Appl. 4657

Date Sept., 1957

Record by well driller

Source driller's record

Location: State of WASHINGTON

County Lewis

Area _____

Max Blk. 4, Eureka Add.

~~XXXXXXX~~ sec. 28 T. 12 N., R. 2 E.

Drilling Co. K & M Well Drilling Co.

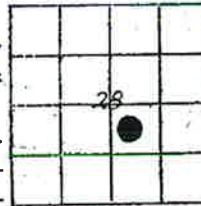
Address Centralia, Wash.

Method of Drilling _____ Date _____, 19____

Owner Town of Winlock, Wash.

Address _____

Land surface, datum _____ ft. ^{above}/_{below}



CORRECTION	MATERIAL	THICKNESS (feet)	DEPTH (feet)
------------	----------	------------------	--------------

(Transcribe driller's terminology literally but paraphrase as necessary, in parentheses. If material water-bearing, so state and record static level if reported. Give depths in feet below land-surface datum unless otherwise indicated. Correlate with stratigraphic column, if feasible. Following log of materials, list all casings, perforations, screens, etc.)

	Brown clay	85	85
	Brown clay, boulders		
	gravel sand cemented	29	114
	Loose gravel boulders & sand, water bearing	10	124
	Blue clay - soft shale	26	150
	PUMP TEST:		
	Dim. 150"x8"		
	SWL: 110'4"		
	DD: 15 ft.		
	Yield: 60 g.p.m.		
	Water Temp. 50° F.		
	CASING: 8" diam. Std. steel pipe		
	from 0 to 122'10"		
	Cast steel shoe on the casing.		
	PERFORATIONS: 8 per ft. 1/2"x1 1/2" from		
	114 to 122 ft.		

Turn up

Sheet _____ of _____ sheets



Ground Water Contamination Susceptibility Assessment Survey Form

Complete **one** form for **each** ground water source (well, well of a wellfield, spring, spring of a springfield) used in your water system (photocopy as necessary). Contact your regional WA DOH office if you need a copy of the Instruction Packet.

PART I: System Information

Well owner/manager: City of Winlock

Water system name: Winlock City water

County: Lewis

Water system ID number: 97500 Source number: SO9

Well depth: 238 feet

Source name: Baichtal Well # 2

WA well tag identification number: A E T 1 9 7

Well not tagged

Number of connections: 631 Population served: 1400

Township: 12N Range: 02W

Section: 34 ¼ ¼ Section: NWNW

Latitude/longitude (if available): 46°29'15.34"N / 122°55'33.45"W

How was latitude/longitude determined?

XX Global positioning device XX survey XX topographical map
other: Google Earth

*Please see Instruction Packet for details and explanations of all questions in Parts II through V.

PART II: Well Construction and Source Information

1) Date well originally constructed: 6 /29 /01 month/day/year

Date well last reconstructed: / / month/day/year

Information unavailable

2) Well driller: Williams Well Drilling Toledo, WA

Well driller unknown

3) Type of well: Drilled: rotary bored cable (percussion) Dug

 other: spring(s) lateral collector (Ranney)

driven jetted other:

4) Well report available Yes (attach copy to form) No

5) Average pumping rate: 125 (gallons/min)

Source of information WFI

If not documented, how was pumping rate determined?

Pumping rate unknown

6) Is this source treated?

If so, what type of treatment:

disinfection filtration carbon filter air stripper other

Purpose of treatment (describe materials to be removed or controlled by treatment):

Microbial contaminant removal

7) If source is chlorinated, is a chlorine residual maintained: Yes No

Residual level: 0.3 (At the point closest to the source.)

PART III: Hydrogeologic Information

1) Depth to top of open interval: [check one]

less than 20 ft 20-49ft 50-99ft 100-200ft greater than 200ft

information unavailable

2) Depth to ground water (static water level):

less than 20ft 20-49ft 50-100ft greater than 100ft

flowing well/spring (artesian)

How was water level determined?

well log other _____

depth to ground water unknown

3) If source is a flowing well or spring, what is the confining pressure:

_____ psi (pounds per square inch) **or**

_____ feet above wellhead

4) If source is a flowing well or spring, is there a surface impoundment, reservoir, or catchment associated with this source: Yes No

5) Wellhead elevation (height above mean sea level): 450 feet

How was elevation determined? topographic map Drilling/Well Log altimeter

other: Google Earth

information unavailable

6) Confining layers: (This can be completed only for those sources with a drilling log, well log or geologic report describing subsurface conditions. Please refer to Instruction Packet for example.)

Yes evidence of confining layer(s) in well log

_____ no evidence of confining layer(s) in well log

If there is evidence of a confining layer, is the depth to ground water more than 20 feet above the **bottom** of the **lowest confining layer**? Yes No

information unavailable

7) Sanitary setback:

- less than 100ft* 100-120ft 120-200 ft greater than 200ft

* If less than 100ft, describe the site conditions:

8) Wellhead construction:

- wellhead enclosed in a wellhouse

- controlled access (describe): Wellhead and piping enclosed,

fencing with locked gate.

- other uses for wellhouse (describe): _____

- no wellhead control

9) Surface seal:

- 18 ft

greater than 18 ft

- less than 18 ft (no Department of Ecology approval)

- less than 18 ft (approved by Department of Ecology, include documentation)

- depth of seal unknown

- no surface seal

10) Annual rainfall (inches per year):

- less than 10 in/yr 10-25 in/yr greater than 25 in/yr

PART IV: Mapping Your Ground Water Resource

1) Annual volume of water pumped: 7,716,700 (gallons)

How was this determined?

meter

- estimated: pumping rate (_____)
 pump capacity (_____)
 pumping rate and capacity (_____)
 other (describe): _____

2) Determined time of travel using:

"Calculated Fixed Radius" estimate of ground water movement:
(see Instruction Packet)

Alternate Numerical Model

6-month ground water travel time: 80 feet

1-year ground water travel time: 110 feet

5-year ground water travel time: 250 feet

10-year ground water travel time: 360 feet

Information available on length of screened/open interval?

Yes No

Length of screened/open interval: 100 feet

3) Is there a river, lake, pond, stream, or other obvious surface water body within the 6- month time of travel boundary?

Yes No (mark and identify on map)

4) Is there a stormwater and/or wastewater facility, treatment lagoon, or holding pond located within the 6-month time of travel boundary?

Yes No (mark and identify on map)

Comments: _____

PART V: Assessment of Water Quality

1) Regional sources of risk to ground water:

Please indicate if any of the following are present within a circular area around your water source having a radius up to and including the five-year ground water travel time. If you do not know if one of the following is present, mark the "unknown" space.

	<u>6-month</u>	<u>1-year</u>	<u>5-year</u>	<u>unknown</u>
• likely pesticide application	_____	_____	XX	_____
• stormwater injection wells	_____	_____	_____	_____
• other injection wells	_____	_____	_____	_____
• abandoned ground water well	_____	_____	_____	_____
• landfills, dumps, disposal areas	_____	_____	_____	_____
• known hazardous materials clean-up site	_____	_____	_____	_____
• known water quality problems	_____	_____	_____	_____
• population density less than 1 house/acre	_____	_____	_____	_____
• residences commonly have septic tanks	_____	_____	_____	_____
• Wastewater treatment lagoons	_____	_____	_____	_____
• sites used for land application of waste	_____	_____	_____	_____

Please include a map of the wellhead and time of travel areas with this form. Mark and identify on the map any of the risks listed above.

If other recorded or potential sources of ground water contamination exist within the ten-year time of travel circular zone around your water supply, please describe:

2) **Source-specific water quality records:** For each type of test below, **mark the row that applies to the sample results for this source.** Consider all the sample results from the past 12 years. Maximum Contaminant Levels (MCLs) and State Advisory Levels (SALs) are noted next to the specific test and are listed in the Instruction Packet.

A. **Nitrate:** (Nitrate MCL = 10 mg/liter)

- Results greater than MCL
- less than 2 mg/liter nitrate
- 2-5 mg/liter nitrate
- greater than 5 mg/liter nitrate

B. **VOCs:** (VOC detection level is 0.5 ug/liter or 0.0005 mg/liter)

- Results greater than MCL or SAL
- VOCs detected at least once
- VOCs never detected
- VOC sampling records unavailable

C. **EDB/DBCP:**

(EDB MCL = 0.05 ug/l or 0.00005 mg/l. DBCP MCL = 0.2 ug/l or 0.0002 mg/l.)

- EDB/DBCP detected below MCL at least once
- EDB/DBCP detected above MCL at least once
- EDB/DBCP never detected
- EDB/DBCP tests required but not yet completed
- EDB/DBCP tests not required

D. **Other SOCs (Pesticides, Herbicides, or SOCs other than EDB/DBCP):**

- Other SOCs detected
(pesticides, herbicides or other synthetic organic chemicals)
- Other SOC tests performed but none detected
(list test methods in comments)
- Other SOC tests not performed

If any SOCs in addition to EDB/DBCP were detected, please identify and date. If other SOC tests were performed, but no SOCs detected, list test methods here: _____

E. Bacterial contamination:

Any bacterial detection(s) in the past 3 years in samples taken from the source (not distribution sampling records)? Yes No

Any bacterial detection(s) in the past 3 years in the distribution system that have been attributed to the source? Yes No

Source sampling records for bacteria unavailable Yes No

PART VI: Geographic or Hydrologic Factors Contributing to a Non-Circular Zone of Contribution

The following questions will help identify those ground water sources which may not be accurately represented by the calculated fixed radius (CFR) method described in Part IV. For these sources, the CFR areas should be used as a preliminary delineation of the critical time of travel zones for that source. As a system develops its Wellhead Protection Plan for these sources, a more detailed delineation method should be considered.

1) Is there evidence of obvious hydrologic boundaries within the 10-year time of travel zone of the CFR? (Does the largest circle extend over a stream, river, lake, up a steep hillside, and/or over a mountain or ridge?) Yes No

Describe with references to map produced in Part IV:

2) Aquifer Material:

A) Does the drilling log, well log or other geologic/engineering reports identify that the well is located in an area where the underground conditions are identified as fractured rock and/or basalt terrain? Yes No

B) Does the drilling log, well log or other geologic/engineering reports indicate that the well is located in an area where the underground conditions are primarily identified as coarse sand and gravel? Yes No

3) Is the source located in an aquifer with a high horizontal flow rate? (These can include sources located on flood plains of large rivers, artesian wells with high water pressure, and/or shallow flowing wells and springs.) Yes No

4) Are there other high capacity wells (agricultural, municipal and/or industrial) located within the CFRs?

a) Presence of ground water extraction wells removing more than approximately 500 gal/min within...

	YES	NO	unknown
Less than 6-month travel time	_____	XX____	_____
6 month—1 year travel time	_____	XX____	_____
1—5 year travel time	_____	XX____	_____
5—10 year travel time	_____	XX____	_____

b) Presence of ground water recharge wells (dry wells) or heavy irrigation within...

	YES	NO	unknown
Less than 1-year travel time	_____	XX____	_____
1—5 year travel time	_____	XX____	_____
5—10 year travel time	_____	XX____	_____

Please identify or describe additional hydrologic or geographic conditions that you believe may affect the shape of the zone of contribution for this source. Where possible, reference them to locations on the map produced in Part IV.

FORM COMPLETED BY:

Print Name

Date

Signature

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

Water Right Permit # G 2-26206P **98330** WATER WELL REPORT State Card No. W 134632
 State of Washington Unique Well # AET 197

(1) OWNER: City of Minlock Address: PO Box 777 Minlock, WA 98596

(2) LOCATION OF WELL: County Lewis NW 1/4, NW 1/4, Sec. 24, T 12N P 2W WM.
 (2a) STREET ADDRESS OF WELL. (or nearest address) HWY Cemetery Rd. Minlock, WA Ta. Parcel # 6526-7

(3) PROPOSED USE: Municipal I (10) WELL LOG

(4) TYPE OF WORK: New Owner's number of well I MATERIAL I FROM I TO
 (if more than one) I I I
 Method: Air rotary I Topsoil I 0 I 2

(5) DIMENSIONS: Diameter of well: 10 inches I Clay, yellowish red I 2 I 28
 Drilled 238 ft. Depth of completed well: 238 ft. I I I
 I Clay, yellow w/gravel I 28 I 113

(6) CONSTRUCTION DETAILS:
 Casing installed: 10" Dia. from +2 ft. to 146 ft. I Sand & gravel I 113 I 124
 " Dia. from ft. to ft. I I I
 " Dia. from ft. to ft. I Clay, yellow w/gravel I 124 I 136

Perforations: No I Gravel & sand, yellow I 136 I 146
 Type of perforator used: I I I
 Size of perforations: in. by in. I Sandrock, gray I 146 I 178
 perforations from ft. to ft. I I I
 perforations from ft. to ft. I Sandrock, black, water bearing I 178 I 225

Screens: Yes I Shalerock, hard, blue I 225 I 238
 Manufacturer's name: Farwest I I I
 Type: Schedule 40 flush joint mill slotted I I I
 Dia. 8 5/8" slot size: blank from 138 ft. to 178 ft. I I I
 Dia. 8 5/8" slot size: .060 from 178 ft. to 218 ft. I I I
 Dia. 8 5/8" slot size: blank from 218 ft. to 238 ft. I I I
 Dia. slot size: from ft. to ft. I I I

Gravel packed: No Size of gravel: I I I
 Gravel placed from. ft. to ft. I I I

Surface seal: Yes To what depth: 40 ft. I I I
 Material used in seal: Cement I I I
 Did any strata contain unusable water? No I I I
 Type of water: Depth of strata: I I I
 Method of sealing strata off: I I I

PUMP: Manufacturer's name: I I I
 Type: Size: H.P.: I Work Started: 6/18/2001 Completed: 6/29/2001

(8) WATER LEVELS: Land-surface elevation above I WELL CONSTRUCTOR CERTIFICATION:
 mean sea level: ft. I I constructed and/or accept responsibility for
 Static level: 72 ft. below top of well Date: 6/29/2001 I construction of this well, and its compliance with all
 Artesian pressure: lbs. per sq. in. Date: I Washington well construction standards. Materials used
 Controlled by: I and the information reported above are true to the best
 of my knowledge and belief.

(9) WELL TESTS: Drawdown is amount water level is lowered I
 below static water level. I NAME: WILLIAMS WELL DRILLING, INC.
 Was a pump test made? No If yes, by whom: I ADDRESS: 957 Jackson Hwy. So.
 Yield: GPM with ft. drawdown after hrs. I Toledo, Wa. 98591 Phone: 864-2951
 GPM with ft. drawdown after hrs. I
 Date of test: / / I (Signed) *Willie Williams*
 Bailer test: GPM w/ ft. drawdown after hrs. I Willie Williams
 Air test: 100 GPM w/ stem set at 235 ft. for 2 hrs. I License No. 2470 Date: 7/09/201
 Artesian flow: GPM Temp: o Chemical analysis: No I Cont. Reg. No. WILLIND251R3

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 JUL 19 2001
 Washington State
 Department of Ecology

Appendix B: Delineation

WHP Site Area Map

Eureka #1 (SO1) AFM908

Well 603 (SO5) AFM907

Eureka #3 (SO8) AFM904

Baichtel #2 (SO9) AET197

City of Winlock

Wellhead Protection Area

Eureka #1 (SO1) AFM908

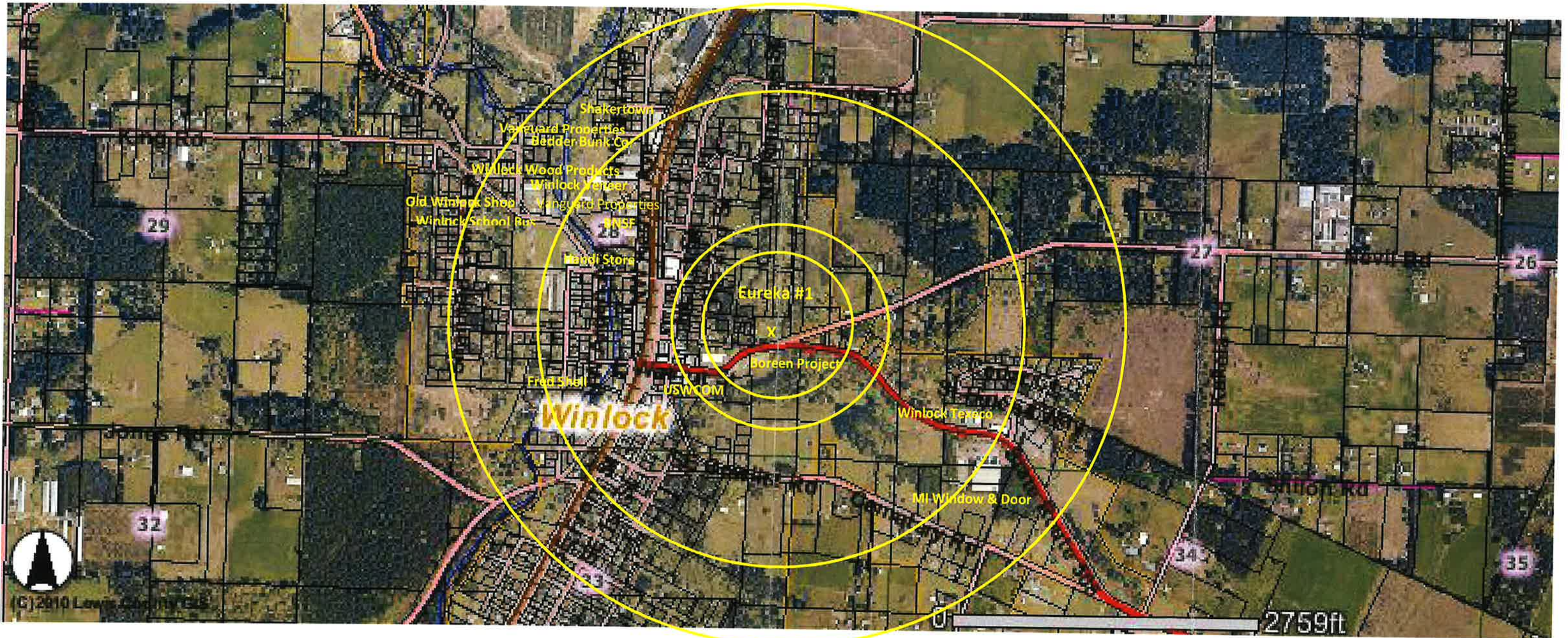
2013 Well Production- 29,965,066 Gallons

Screened Interval- 10 Feet

Range 02W, Township 12N, Section 28, Qtr/Qtr NE/SE

Calculated Fixed Radius (CFR)

6 Month	1 Year	5 Year	10 Year
700 Feet	980 Feet	2200 Feet	3110 Feet



City of Winlock
Wellhead Protection Area
Well 603 (S05) AFM907

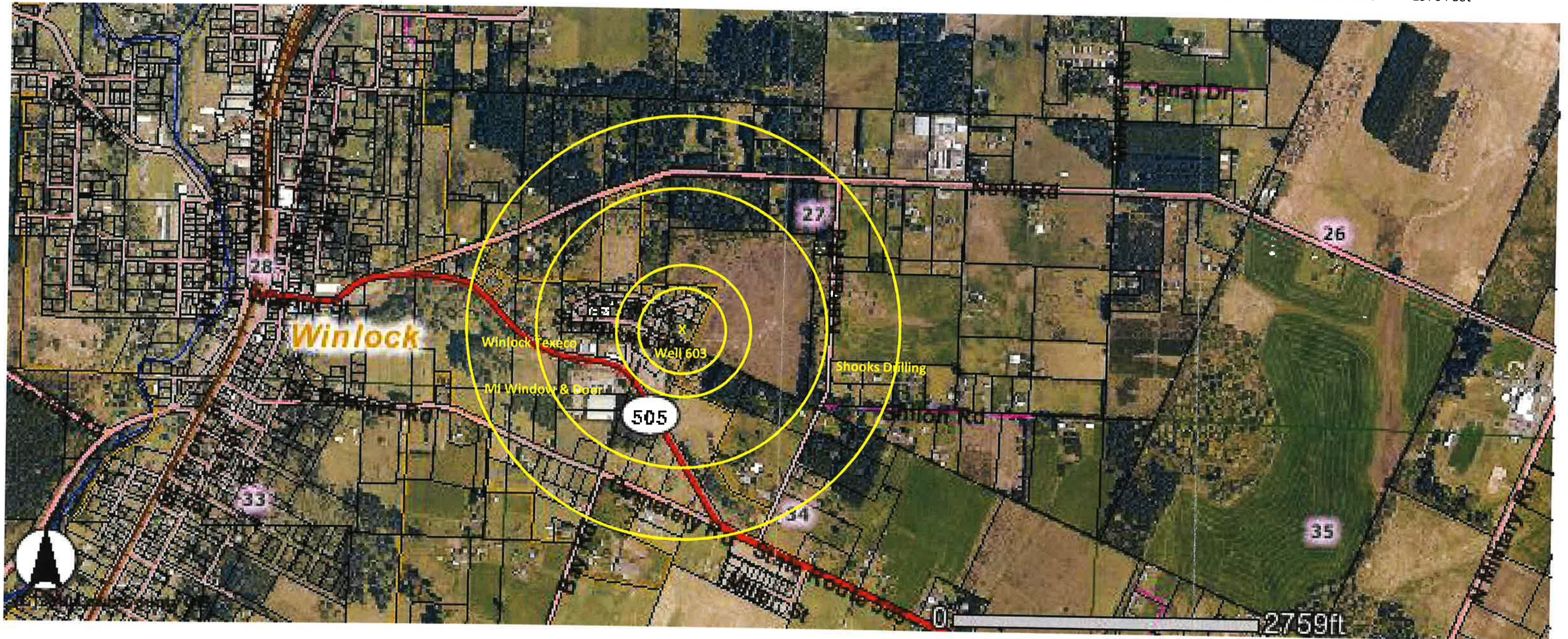
2013 Well Production- 101,833,000 Gallons

Screened Interval- 43 Feet

Range 02W, Township 12N, Section 27, Qtr/Qtr NE/NW

Calculated Fixed Radius (CFR)

6 Month	1 Year	5 Year	10 Year
400 Feet	620 Feet	1390 Feet	1970 Feet



City of Winlock

Wellhead Protection Area

Eureka #3 (SO8) AMF904

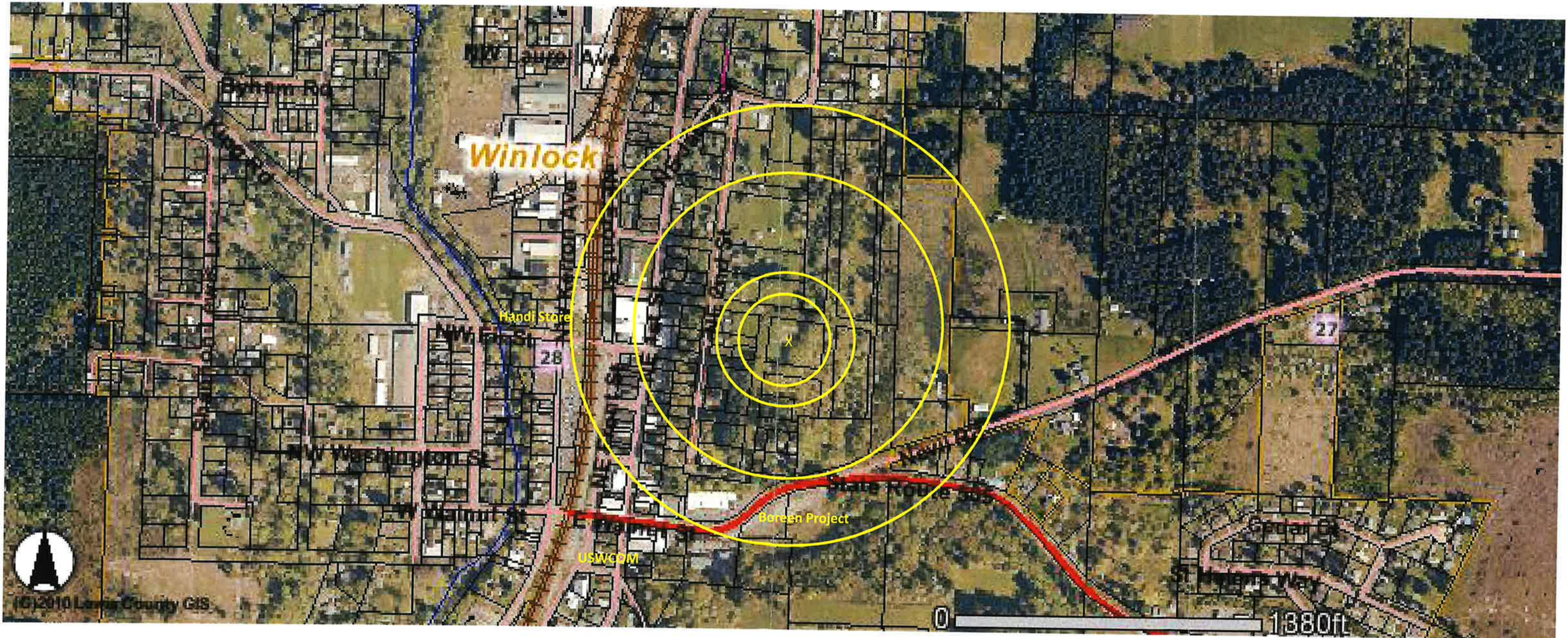
2013 Well Production- 4,880,600 Gallons

Screened Interval- 8 Feet

Range 02W, Township 12N, Section 28, Qtr/Qtr NW/SE

Calculated Fixed Radius (CFR)

6 Month	1 Year	5 Year	10 Year
220 Feet	310 Feet	700 Feet	980 Feet



City of Winlock

Wellhead Protection Area

Baichtel #2 (SO9) AET197

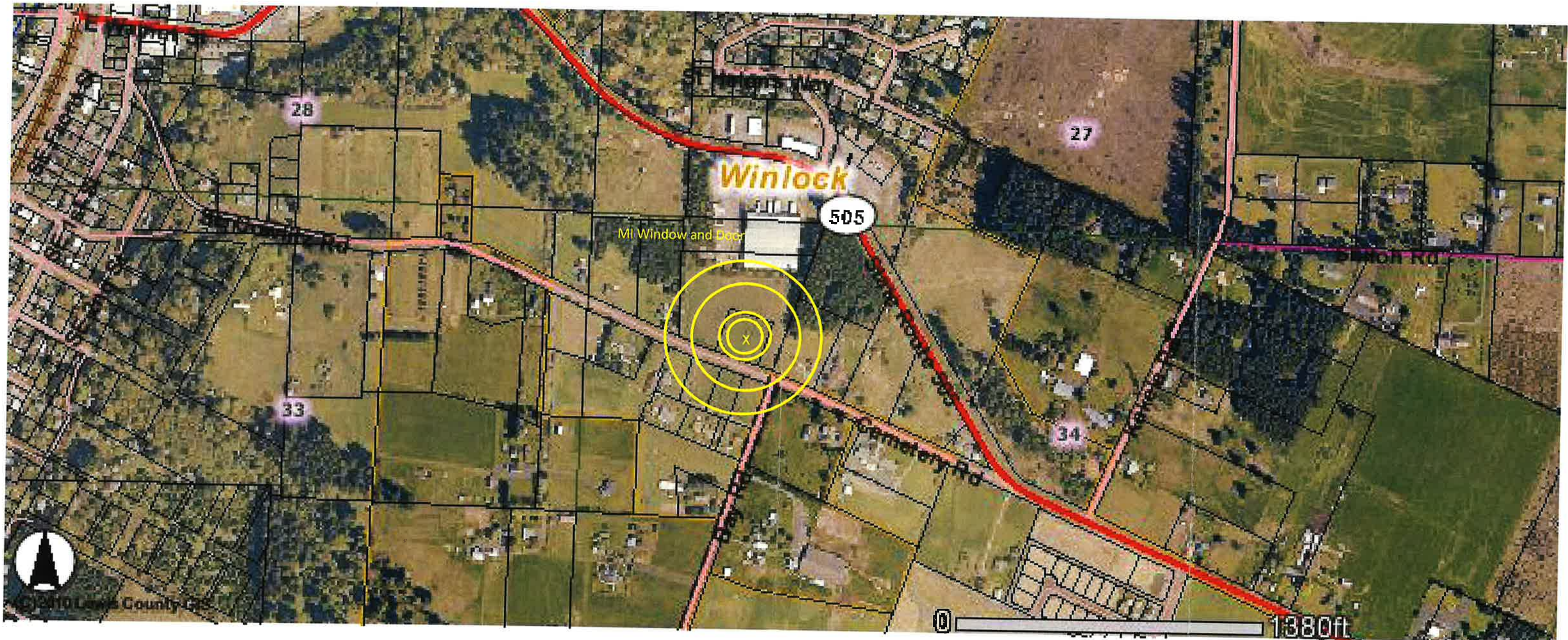
2013 Well Production- 7,176,700 Gallons

Screened Interval- 100 Feet

Range 02W, Township 12N, Section 34, Qtr/Qtr NW/NW

Calculated Fixed Radius (CFR)

6 Month	1 Year	5 Year	10 Year
80 Feet	110 Feet	250 Feet	360 Feet



City of Winlock

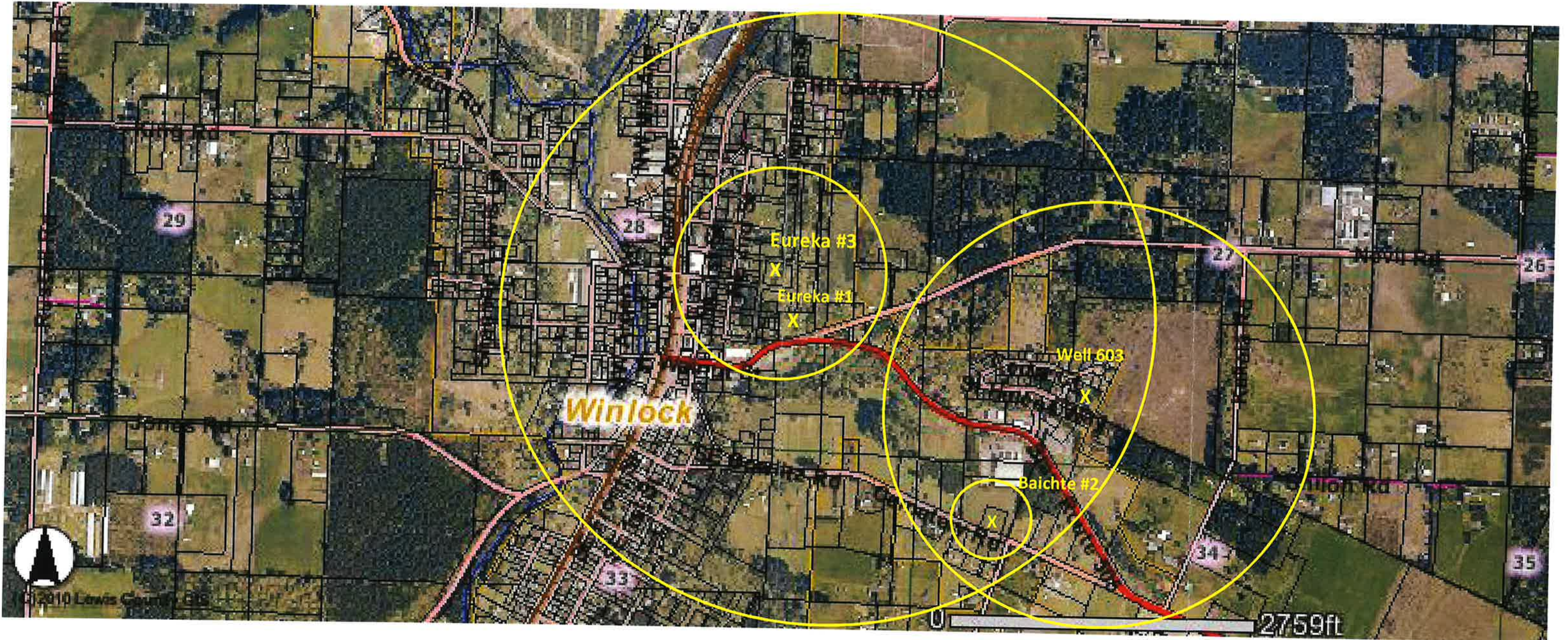
Wellhead Protection Areas

Eureka #1 (SO1) AFM908

Well 603 (SO5) AFM907

Eureka #3 (SO8)

Baichtel #2 (SO9)



Appendix C: Sanitary Control Area

Eureka #1 (SO1) AFM908

Well 603 (SO5) AFM907

Eureka #3 (SO8) AFM904

Baichtel #2 (SO9) AET197

City of Winlock

Wellhead Protection Plan

Sanitary Control Area (SCA)

Eureka #1 (SO1) AFM908

Address 0 Nevil Rd, Winlock
Parcel Number 006417001000
Owner City Of Winlock



City of Winlock

Wellhead Protection Plan

Sanitary Control Area (SCA)

Well #603 (SO5) AFM907

Address 0 St Route 505, Winlock

Parcel Number 015384011000

Owner City Of Winlock



City of Winlock

Wellhead Protection Plan

Sanitary Control Area (SCA)

Eureka #3 (SO8) AFM904

Address 0 NE 1 St St, Winlock
Parcel Number 006342000000
Owner City Of Winlock



City of Winlock

Wellhead Protection Plan

Sanitary Control Area (SCA)

Baichtel #2 (SO9)

Address 0 St Route 505, Winlock

Parcel Number 006526007000

Owner City Of Winlock



Appendix D: Potential Contamination Sources (PCS)

DOE Facility/Site Inventory

DOE Facility/Site Map

DOH SWAP Inventory

Winlock PCS- Summary



Facility/Site



Home / Tabular Search

Map Search

Help

- Show Search Criteria
- Edit Search Criteria
- MapAll
- Export

Facility Site records:

Id	Name	Program Facility Names	Address	City	State	Zip
3213535	667 N MILITARY RD	667 N MILITARY RD	667 N MILITARY RD	WINLOCK	WA	98596
2425962	Ace Hardware	Ace Hardware	500 NE 1ST ST	WINLOCK	WA	98596
95882425	ANDYS TACKLE BOX INC		1122 SPENCER RD	WINLOCK	WA	98596-9202
95174759	AT&T WINLOCK WA5070 WINCLWAR001		STATE HWY NELSON RD	WINLOCK	WA	98530
17989	ATT WINLOCK 2	ATT WINLOCK 2	2414 HIGHWAY 603	WINLOCK	WA	98596
67395799	Bedder Bunk Co Inc		801 NW KERRON ST	WINLOCK	WA	98596
3151688	BNSF WINLOCK	BNSF WINLOCK	908 NW KERRON	WINLOCK	WA	98596-9405
5759	BOREEN PROJECT	BOREEN PROJECT	305 E WALNUT ST	WINLOCK	WA	98532
8662762	BOYS RANCH		446 KNOWLES RD	WINLOCK	WA	98596
1424390	BRUCE & SYLVIA DAILY		893 S MILITARY RD	WINLOCK	WA	98596
5149421	Cardinal Glass Winlock	Cardinal FG Winlock, CARDINAL FLOAT GLASS WINLOCK STP, Cardinal Glass Winlock	545 AVERY RD W	WINLOCK	WA	98596
4231390	Cascade Aqua Farms		170 HARKINS RD	WINLOCK	WA	98596
82227217	CHARLES FANCHER		762 FROST RD	WINLOCK	WA	98596-9602
4688227	CLARY LUMBER CO	CLARY LUMBER CO, Old Coopers Mill	2238 HWY 603	WINLOCK	WA	98596-9786
2727858	Cowlitz Dairy		172 SCHOOLHOUSE LANE RD	WINLOCK	WA	98596-9664
5684	DRAPER VALLEY FARMS 790	DRAPER VALLEY FARMS 790	243 RUSSELL RD	WINLOCK	WA	98596
3997	DRAPER VALLEY FARMS 791	DRAPER VALLEY FARMS 791	351 MEIER RD	WINLOCK	WA	98596

SearchDataList

51942624	FRED SHELL		111 KERRON	WINLOCK WA	98596
23441	GOOD CRUSHING INC HALE RD	GOOD CRUSHING INC HALE RD	296 HALE RD W	WINLOCK WA	98591
23781	GOODS QUARRY TENNESSEE RD	GOODS QUARRY TENNESSEE RD	699 TENNESSEE RD	WINLOCK WA	98596
45155246	HANDI STORE	HANDI STORE	503 KERRON ST	WINLOCK WA	98596-9406
11944936	HILLCREST XII 377		476 SR 505	WINLOCK WA	98596
53376712	JACK W MILLER		920 BYHAM RD	WINLOCK WA	98596-9745
5468	Janke Trucking Inc Transporter	Janke Trucking Inc Transporter	272 JORDAN RD	WINLOCK WA	98596
1451927	JOHNSON QUALITY ROCK	JOHNSON QUALITY ROCK	296 HALE RD W	WINLOCK WA	98596-9722
17837	LEWIS COUNTY FOREST PRODUCTS	LEWIS COUNTY FOREST PRODUCTS	154 HALE RD	WINLOCK WA	98596
57466353	LEWIS J SHOOK SHOOKS DRILLING		115 KAKELA RD	WINLOCK WA	98596-9642
9700467	LLOYD ENBODY GUN RANGE	LLOYD ENBODY GUN RANGE	870 S MILITARY RD	WINLOCK WA	98596
1164	MALARZ FARM	MALARZ FARM	884 N MILITARY RD	WINLOCK WA	98596
23199	MI WINDOWS & DOORS INC	MI WINDOWS & DOORS INC	222 ST HWY 505	WINLOCK WA	98596
6046550	Mickelsen Dairy Inc		202 N MILITARY RD	WINLOCK WA	98596-9664
13482	MICKELSON DAIRY		202 N MILITARY RD	WINLOCK WA	98596
9802395	N MILITARY RD & MCCORKLE RD	N MILITARY RD & MCCORKLE RD	N MILITARY RD & MCCORKLE RD	WINLOCK WA	98596
81499941	Nickula Road Waste		341 NICKULA RD.	WINLOCK WA	98596
4922754	Northwest Pipeline Winlock MS	Northwest Pipeline Winlock MS	774 FROST RD	WINLOCK WA	98596
12661639	OLD WINLOCK SHOP		712 NW DEXTER	WINLOCK WA	98596
44675548	PLEASANT VALLEY AREA 3	LEWIS COUNTY PW PLEASANT VALLEY RD	111 PLEASANT VALLEY RD	WINLOCK WA	98596-9702
99186238	PURSLEY FAMILY TREE FARM		112 BACKSTROM RD	WINLOCK WA	98596-9513
71414855	RMLR BUCKHORN MTN QZR		LAT 46 32 30 LONG 123 01 12	WINLOCK WA	98589
11231	ROY PROPERTY	ROY PROPERTY	500 ROE RD	WINLOCK WA	98596
23232326	SCHOOL BUS GARAGE WINLOCK		KING RD & BYHAM RD	WINLOCK WA	98596-9417
11934841	SHAKERTOWN CORP	SHAKERTOWN 1992 INC, SHAKERTOWN CORP	1220 NW KERRON ST	WINLOCK WA	98596-9409
22667	SHEGRUD PROPERTY	SHEGRUD PROPERTY	245 LIMMER RD	WINLOCK WA	98596
5706820	TIM BOWERS PROPERTY	TIM BOWERS PROPERTY	2404 HWY 603	WINLOCK WA	98596

45975488	TIME OIL CO HILLCREST XII		3282 STATE HWY 603	WINLOCK WA	98596	▼
92127387	Torgerson 4x4	TORGERSON 4 X 4, Torgerson 4x4, Torgerson Wrecking	1730 HWY 603	WINLOCK WA	98596	▼
44553496	Union Oil Co of CA Winlock		CAMPBELL AVE & W 2ND	WINLOCK WA	98596	▼
11223513	US DEA Florence Winlock		144 FLORENCE PL RD	WINLOCK WA	98531	▼
26338616	USWCOM Winlock Co		1ST ST & SHANNON	WINLOCK WA	98596	▼
93637362	VANGUARD PROPERTIES CO		1150 KERRON ST	WINLOCK WA	98596-9409	▼

City of WINLOCK

Cleanup Site: Ace Hardware SWRO
 500 NE 1ST ST
 WINLOCK 98596

Cleanup Site ID: 5284
Facility ID: 2425962

Latitude: 46.493
Longitude: -122.936

[View Vicinity Map](#)

Unit: ACE HARDWARE

Unit Type: Upland

Process Type: Independent Action
 * Historic Release ID: 592134 UST ID: 619293 * culID: 6920 LUST ID: 6234

Detail:	Release Status	Date	Cause
	LUST - Cleanup Started	9/1/2006	Unknown
	LUST - RCU	2/28/2007	

Media Affected	Contaminant Type	Status
Groundwater	Petroleum Products-Unspecified	S
Soil	Benzene	C
Soil	Petroleum-Gasoline	C

Cleanup Site: COWLITZ STUD MILL SITE
 699 KERRON ST
 WINLOCK 98596-9409

Cleanup Site ID: 10843
Facility ID: 85927637

Latitude: 46.494
Longitude: -122.938

[View Vicinity Map](#)

Unit: COWLITZ STUD MILL SITE

Unit Type: Upland

Process Type: Independent Action
 * Historic Release ID: 4568 UST ID: 102222 * culID: 10535 LUST ID: 2885

Detail:	Release Status	Date	Source
	LUST - Cleanup Started	8/31/1993	Piping
	LUST - RCU	7/27/1996	

Media Affected	Contaminant Type	Status
Groundwater	Benzene	S
Groundwater	Other Non-Halogenated Organics	S
Groundwater	Petroleum-Gasoline	S
Soil	Benzene	C
Soil	Other Non-Halogenated Organics	RB
Soil	Petroleum-Gasoline	C

Cleanup Site: FRED'S SHELL
 111 KERRON
 WINLOCK 98596

Cleanup Site ID: 9525
Facility ID: 51942624

Latitude: 46.490
Longitude: -122.939

[View Vicinity Map](#)

Unit: FRED'S SHELL

Unit Type: Upland

Process Type: Independent Action
 * Historic Release ID: 309011 UST ID: 10628 * culID: 9217 LUST ID: 3898

Detail:	Release Status	Date	Source
	LUST - Awaiting Cleanup	10/16/1998	Tank

Media Affected	Contaminant Type	Status
Groundwater	Petroleum-Other	C
Soil	Petroleum-Other	C

Cleanup Site: **HANDI STORE**
 503 KERRON ST
 WINLOCK
 98596-9406
Cleanup Site ID: 9266
Facility ID: 45155246
Latitude: 46.493
Longitude: -122.940
[View Vicinity Map](#)

Unit Type: Upland
Process Type: Independent Action
 * Historic Release ID: 582119 UST ID: 97626 LUST ID: 5692
 * culID: 8958

Release Status	Date	Media Affected	Contaminant Type	Status
LUST - Awaiting Cleanup	9/6/2001	Groundwater	Petroleum-Other	C
LUST - Monitoring	1/14/2008	Soil	Petroleum-Other	C

Cleanup Site: **WINLOCK SCHOOL BUS GARAGE**
 KING RD & BYHAM RD
 WINLOCK
 98596-9417
Cleanup Site ID: 8363
Facility ID: 23232326
Latitude: 46.495
Longitude: -122.941
[View Vicinity Map](#)

Unit Type: Upland
Process Type: Independent Action
 * Historic Release ID: 5658 UST ID: 100997 LUST ID: 3780
 * culID: 8055

Release Status	Date	Source	Media Affected	Contaminant Type	Status
LUST - Cleanup Started	3/16/1995	Tank	Groundwater	Petroleum-Other	C
LUST - Monitoring	5/31/1996				
LUST - Monitoring	10/6/1998		Soil	Petroleum-Other	C

About the Leaking Underground Storage Tanks Site List:

The Cleanup Status assigned by the Department of Ecology to a Leaking Underground Tank Site is based on an informal review of the information we have received regarding the cleanup. A formal review could determine that the site has not been cleaned up to Model Toxics Control Act standards. Formal reviews including potential No Further Action determinations are available under the fee-based Voluntary Cleanup Program.

LUST = Leaking Underground Storage Tank

UST = Underground Storage Tank

Cleanup Status Definitions:

Awaiting Cleanup -- Discovered or reported release, yet no active cleanup measures taken; or, Site check (identified the source) begun or completed, yet no active cleanup measures taken; or, Site characterization begun or completed, yet no active cleanup measures taken.

Cleanup Started -- Responsible party has initiated physical, biological, or chemical management of release (e.g. soil excavated, groundwater pumped, vapors extracted, free product removed, oxygen added, etc.). Site investigations and emergency responses (e.g. venting explosive vapors, providing bottled water) do not qualify as activities under Cleanup Started.

Monitoring -- Groundwater monitoring is the only activity occurring at the site; or, Site has been characterized, only low levels of soil and/or groundwater contamination remain, and natural attenuation is the chosen cleanup method; or, Confirmational monitoring following active cleanup measures.

No Further Action (NFA) -- Cleanup report has been formally reviewed by Ecology under the fee-based Voluntary Cleanup Program and resulted in a No Further Action status; and, Institutional controls may have been required due to soil contamination that may remain under existing structures or in otherwise inaccessible areas.

No Further Action (NFA) Determination II / SHA -- No further action based on an Initial Investigation (II) or Site Hazard Assessment (SHA).

Notification -- Used to track when Ecology is notified of a new LUST release. WAC 173-340-450 (2)(a) requires UST owners / operators to report confirmed releases to Ecology within 24 hours.

Reported Cleaned Up (Historic Data Only) -- Owner or consultant reports that contamination has been cleaned up; and/or, Some soil contamination may remain under existing structures or in otherwise inaccessible areas if groundwater is not threatened and there has been no migration of contamination into the structure; and, Cleanup report has not been formally reviewed by Ecology. A formal review could determine that the site has not been cleaned up to MTCA standards.

Contaminant Type Key:

B - Below Cleanup Level

C - Confirmed Above Cleanup Level

S - Suspected

R - Remediated; RA - Remediated-Above; RB - Remediated-Below

City of Winlock- Potential Contamination Sources: Summary

Facility/Site: Ace Hardware
2425962

Also known as: Ace Hardware

Address **Decimal Coordinates**

500 NE 1ST ST Latitude: 46.49314
WINLOCK WA 98596 Longitude: -122.9365

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
State Cleanup Site	TOXICS	(360) 407-7224		11/8/2006	
LUST Facility	TOXICS	(360) 407-7224	619293	11/6/2006	2/28/2007

Facility/Site:
67395799

Bedder Bunk Co Inc

Also known as: BEDDER BUNK CO INC WINLOCK

Address **Decimal Coordinates**

801 NW KERRON ST Latitude: 46.496
WINLOCK WA 98596 Longitude: -122.93959

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26

County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Toxics Release Inventory	HAZWASTE	(360) 407-6727	WAD130683725	1/1/1991	10/8/2002
Toxics Release Inventory	HAZWASTE	(360) 407-6727	WAD130683725	1/1/1990	10/8/2002
Hazardous Waste Generator	HAZWASTE	(360) 407-6023	WAD130683725	2/3/1986	2/19/1992

Facility/Site: **BNSF WINLOCK**
3151688

Also known as: BNSF WINLOCK, CUMMINGS OIL COINC UST 10632, FORMER SHELL OIL BULK PLANT

Address

908 NW KERRON
WINLOCK WA 98596-9405

Decimal Coordinates

Latitude: 46.49684
Longitude: -122.93953

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26

County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Voluntary Cleanup Sites	TOXICS	(360) 407-7224	SW0775	6/12/2006	
Underground Storage Tank	TOXICS	(360) 407-7224	10632	6/8/1998	

Facility/Site: 5759 BOREEN PROJECT

Also known as: BOREEN PROJECT

Address

305 E WALNUT ST
WINLOCK WA 98532

Decimal Coordinates

Latitude: 46.4911
Longitude: -122.934

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Construction SW GP	WATQUAL		WAR011973	8/19/2009	11/10/2009

Facility/Site: 51942624 FRED SHELL

Also known as: <TD
</TD

Address

111 KERRON
WINLOCK WA 98596

Decimal Coordinates

Latitude: 46.49043
Longitude: -122.93853

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
LUST Facility	TOXICS	(360) 407-7224	10628	7/29/1995	
Underground Storage Tank	TOXICS	(360) 407-7224	10628	4/15/1960	

Facility/Site: **HANDI STORE**
45155246

Also known as: HANDI STORE

Address

503 KERRON ST
WINLOCK WA 98596-9406

Decimal Coordinates

Latitude: 46.49305
Longitude: -122.93995

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Revised Site Visit Program	HAZWASTE	(360) 407-6736		5/9/2007	
Enforcement Final	TOXICS	(360) 407-6986)		4/19/2007	
LUST Facility	TOXICS	(360) 407-7224	97626	9/6/2001	

Facility/Site:
57466353

LEWIS J SHOOK SHOOKS
DRILLING

Address

115 KAKELA RD
WINLOCK WA 98596-9642

Decimal Coordinates

Latitude: 46.49277
Longitude: -122.91879

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	11427	6/8/1998	

Facility/Site:
23199

MI WINDOWS & DOORS INC

Also known as: MI WINDOWS & DOORS INC, CORSICAN BEDDING

Address

222 ST HWY 505
WINLOCK WA 98596

Decimal Coordinates

Latitude: 46.4911
Longitude: -122.936

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Industrial SW GP	WATQUAL		WAR011373	1/15/2009	7/20/2010

Industrial Codes (External Links Below)

Facility/Site: **OLD WINLOCK SHOP**
12661639

Also known as: <TD
</TD

Address

712 NW DEXTER
WINLOCK WA 98596

Decimal Coordinates

Latitude: 46.49506
Longitude: -122.94237

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	5656	3/20/2000	
LUST Facility	TOXICS	(360) 407-7224	5656	12/20/1991	8/25/1993

Facility/Site:
23232326

SCHOOL BUS GARAGE
WINLOCK

Also known as: <TD

Address

Decimal Coordinates

KING RD & BYHAM RD

Latitude: 46.49452

WINLOCK WA 98596-9417

Longitude: -122.94124

Geographic Information

Ecology Region: SWRO

Legislative District: 20

WRIA: 26

County: Lewis

Congressional District: 3

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
LUST Facility	TOXICS	(360) 407-7224	100997	3/16/1995	
Underground Storage Tank	TOXICS	(360) 407-7224	100997	8/23/1991	

Facility/Site:
11934841

SHAKERTOWN CORP

Also known as: SHAKERTOWN 1992 INC, SHAKERTOWN CORP

Address

Decimal Coordinates

1220 NW KERRON ST

Latitude: 46.49806

WINLOCK WA 98596-9409

Longitude: -122.94916

Geographic Information

Ecology Region: SWRO Legislative District: 19 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Non Enforcement Final	WATQUAL	(360) 407-6986)		10/1/2014	
Enforcement Final	WATQUAL	(360) 407-6986)		7/14/2004	
Industrial SW GP	WATQUAL		WAR002712	4/26/1996	

Facility/Site: USWCOM Winlock Co
26338616

Also known as: US WEST COMMUNICATIONS W00412

Address

1ST ST & SHANNON
WINLOCK WA 98596

Decimal Coordinates

Latitude: 46.4901
Longitude: -122.93697

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Emergency/Haz Chem Rpt TIER2	HAZWASTE	(360) 407-6729	WAT540012309	1/1/1993	
Hazardous Waste Generator	HAZWASTE	(360) 407-6023	WAT540012309	3/23/1981	12/31/1996

Facility/Site:
93637362

VANGUARD PROPERTIES CO

Also known as: <TD
</TD

Address

1150 KERRON ST
WINLOCK WA 98596-9409

Decimal Coordinates

Latitude: 46.49861
Longitude: -122.93926

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	8926	6/8/1998	

Facility/Site:
85927637

VANGUARD PROPERTIES
COWLITZ MILL

Also known as: <TD
</TD

Address

699 KERRON ST
WINLOCK WA 98596-9409

Decimal Coordinates

Latitude: 46.4942
Longitude: -122.93817

Geographic Information

Ecology Region: SWRO

Legislative District: 20

WRIA: 26

County: Lewis

Congressional District: 3

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	102222	3/2/1994	
LUST Facility	TOXICS	(360) 407-7224	102222	8/31/1993	7/27/1996

Facility/Site:
23614468

WINLOCK TEXACO

Also known as: WINLOCK SHELL SUBS & MORE

Address

223 SR 505

WINLOCK WA 98596

Decimal Coordinates

Latitude: 46.49003

Longitude: -122.92917

Geographic Information

Ecology Region: SWRO

Legislative District: 20

WRIA: 26

County: Lewis

Congressional District: 3

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	395042	10/7/1996	

Facility/Site:
18504

WINLOCK VENEER CO

Also known as: WINLOCK VENEER CO

Address

Decimal Coordinates

703 NW KERRON ST

Latitude: 46.4947

WINLOCK WA 98596

Longitude: -122.939

Geographic Information

Ecology Region: SWRO

Legislative District: 20

WRIA: 26

County: Lewis

Congressional District: 3

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Industrial SW GP	WATQUAL		WAR004250	4/3/2001	10/28/2011

Facility/Site:
1494179

Winlock Wood Products

Also known as: <TD
</TD

Address

Decimal Coordinates

803 KERRON AVE

Latitude: 46.49564

WINLOCK WA 98596

Longitude: -122.93967

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Hazardous Waste Generator	HAZWASTE	(360) 407-6023	WA0000001495	9/17/1993	12/31/1995

Facility/Site:
17918

WINLOCK SCHOOL DIST BUS
TRANSPORT

Also known as: WINLOCK SCHOOL DIST BUS TRANSPORT

Address

311 NW FIR ST
WINLOCK WA 98596

Decimal Coordinates

Latitude: 46.4931
Longitude: -122.94

Geographic Information

Ecology Region: SWRO Legislative District: 20 WRIA: 26
County: Lewis Congressional District: 3 Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Industrial SW GP	WATQUAL		WAR004456	12/28/2001	

NAICS Code	NAICS Description
<u>4854</u>	School and Employee Bus Transportation

SIC Code	SIC Description
<u>4151</u>	BUS TERMINAL FACILITIES

Facility/Site:
89775562

WOOD SPECIALTY PRODUCTS
WINLOCK

Also known as: <TD
</TD

Address

Decimal Coordinates

801 KERRON ST

Latitude: 46.48808

WINLOCK WA 98596-9406

Longitude: -122.94262

Geographic Information

Ecology Region: SWRO

Legislative District: 19

WRIA: 26

County: Lewis

Congressional District: 3

Tribal Land: No

Ecology Interactions

Interaction Description	Ecology Program	Ecology Program Phone	Program ID	Start Date	End Date
Underground Storage Tank	TOXICS	(360) 407-7224	8925	6/8/1998	

Industrial Codes (External Links Below)

No NAICS information is available for this facility site.

No SIC information is available for this facility site.



Division of Environmental Health Office of Drinking Water

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Source Number: 01

Source Name: EUREKA #1 AFM908

Source Type: W

Source Susceptibility Rating: U

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Protection Type: 5 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
USWCOM Winlock Co	Emergency/Haz Chem Rpt TIER2	A	1/1/1993	
Ace Hardware	State Cleanup Site	A	11/8/2006	
FRED SHELL	Underground Storage Tank	A	4/15/1960	
FRED SHELL	LUST Facility	A	7/29/1995	
VANGUARD PROPERTIES COWLITZ MILL	Underground Storage Tank	A	3/2/1994	

Protection Type: 10 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
BNSF WINLOCK	Voluntary Cleanup Sites	A	6/12/2006	

Protection Type: 5 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
WINLOCK SCHOOL DIST BUS TRANSPORT	Industrial SW GP	A	12/28/2001	
WINLOCK VENEER CO	Industrial SW GP	A	4/3/2001	
HANDI STORE	Underground Storage Tank	A	12/4/1982	
HANDI STORE	LUST Facility	A	9/6/2001	
HANDI STORE	Enforcement Final	A	4/19/2007	
HANDI STORE	Revised Site Visit Program	A	5/9/2007	

Protection Type: 10 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
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Torgerson 4x4	Hazardous Waste Generator	A	10/27/1992	
Torgerson 4x4	Industrial SW GP	A	5/21/2004	
OLD WINLOCK SHOP	Underground Storage Tank	A	3/20/2000	
SCHOOL BUS GARAGE WINLOCK	Underground Storage Tank	A	8/23/1991	
SCHOOL BUS GARAGE WINLOCK	LUST Facility	A	3/16/1995	

Protection Type: 5 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
WINLOCK TEXACO	Underground Storage Tank	A	10/7/1996	

Protection Type: 1 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
BOREEN PROJECT	Construction SW GP	I	8/19/2009	11/10/2009

Protection Type: 5 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
MI WINDOWS & DOORS INC	Industrial SW GP	I	1/15/2009	7/20/2010

Protection Type: 10 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
OLD WINLOCK SHOP	LUST Facility	I	12/20/1991	8/25/1993
Torgerson 4x4	Industrial SW GP	I	12/16/1992	7/27/1998
Winlock Wood Products Co 1200	Hazardous Waste Generator	I	3/16/1990	2/2/2004
Winlock Wood Products Co 1200	Haz Waste Management Activity	I	12/31/2003	12/31/2005
BNSF WINLOCK	Underground Storage Tank	I	6/8/1998	

Protection Type: 5 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
VANGUARD PROPERTIES COWLITZ MILL	LUST Facility	I	8/31/1993	7/27/1996

Protection Type: 10 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
Bedder Bunk Co Inc	Hazardous Waste Generator	I	2/3/1986	2/19/1992

Bedder Bunk Co Inc	Toxics Release Inventory	I	1/1/1990	10/8/2002
Bedder Bunk Co Inc	Toxics Release Inventory	I	1/1/1991	10/8/2002
VANGUARD PROPERTIES CO	Underground Storage Tank	I	6/8/1998	
Winlock Wood Products	Hazardous Waste Generator	I	9/17/1993	12/31/1995

Protection Type: 5 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
USWCOM Winlock Co	Hazardous Waste Generator	I	3/23/1981	12/31/1996
Ace Hardware	LUST Facility	I	11/6/2006	2/28/2007

Protection Type: 10 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
WA DOT TOLEDO MAINTENANCE SITE	LUST Facility	I	9/24/1992	3/10/2004
WA DOT TOLEDO MAINTENANCE SITE	Underground Storage Tank	I	3/20/2000	12/31/2000

Source Number: 02

Source Name: EUREKA #2 ABANDONED-NO TAG

Source Type: W

Source Susceptibility Rating: N

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No known potential contaminant sources identified.

Source Number: 03

Source Name: ASH STREET AFM905

Source Type: W

Source Susceptibility Rating: H

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No known potential contaminant sources identified.

Source Number: 05

Source Name: WELL #603 AFM907

Source Type: W

Source Susceptibility Rating: H

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Protection Type: 5 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
WA DOT TOLEDO MAINTENANCE SITE	Underground Storage Tank	I	3/20/2000	12/31/2000
WA DOT TOLEDO MAINTENANCE SITE	LUST Facility	I	9/24/1992	3/10/2004

Protection Type: 10 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
LEWIS J SHOOK SHOOKS	Underground Storage Tank	I	6/8/1998	

DRILLING Tank

Source Number: 07

Source Name: BAICHTEL #1 AFM906

Source Type: W

Source Susceptibility Rating: L

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Protection Type: 5 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
WA DOT TOLEDO MAINTENANCE SITE	LUST Facility	I	9/24/1992	3/10/2004
WA DOT TOLEDO MAINTENANCE SITE	Underground Storage Tank	I	3/20/2000	12/31/2000

Source Number: 08

Source Name: EUREKA #3 AFM904

Source Type: W

Source Susceptibility Rating: M

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Protection Type: 10 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
Ace Hardware	State Cleanup Site	A	11/8/2006	
Ace Hardware	LUST Facility	I	11/6/2006	2/28/2007
BOREEN PROJECT	Construction SW GP	I	8/19/2009	11/10/2009

Source Number: 09

Source Name: BAICHTEL #2 AET197

Source Type: W

Source Susceptibility Rating: M

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Protection Type: 5 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
WINLOCK TEXACO	Underground Storage Tank	A	10/7/1996	

Protection Type: 10 Year Time of Travel

Potential Contaminant Name	Potential Contaminant Type	Status	Start Date	End Date
WA DOT TOLEDO MAINTENANCE SITE	Underground Storage Tank	I	3/20/2000	12/31/2000
WA DOT TOLEDO MAINTENANCE SITE	LUST Facility	I	9/24/1992	3/10/2004



Washington State Department of Health
Office of Drinking Water
243 Israel Rd. SE
P.O. Box 47822
Olympia, Washington, 98504-7822

Data was last updated: January 15, 2013

Send inquires about DOH and its programs to the [Health Consumer Assistance Office](#)

Comments or questions regarding this web site? Send mail to [SwapSite Developer](#).

Appendix E: Letters of Notification (LON)

List of Emergency Responders
Residential/Property Owners
Emergency Responders
Agency and Local Government
Owner Operator

March, 2015

Regarding: Wellhead Protection Area (WHPA)

Dear (Agency/Local Government):

We are writing to let you know that businesses or facilities you regulate are in our public water system wellhead protection area. Please take all reasonable steps to ensure that land use activities within this area do not contaminate our drinking water sources.

The City of Winlock operates 4 ground water wells. Our water system has 631 connections and serves about 1400 people. The Washington State Department of Health rated two wells in our system as Highly Susceptible. Two wells are rate Moderately Susceptible

The enclosed map shows the 6-month and 1, 5 and 10-year time-of-travel boundaries for our wellhead protection area. Potential Contamination Sources, facilities or activities of concern are identified on the maps. Any groundwater contamination that occurs within this wellhead protection area has a high potential to reach our wells.

Sincerely;

Tedi Curry, Clerk- Treasurer
City of Winlock

Letter of Notification: Wellhead Protection Plan

Dear Emergency Responder:

The City of Winlock is developing a Wellhead Protection Plan as required by the State Department of Health. As part of this plan, the City of Winlock must provide wellhead protection information to agencies responsible for incident/spill response procedures. Using the results of the susceptibility assessment and the findings of the Wellhead Protection Area inventory, local emergency responders are asked to evaluate whether changes in incident/spill response procedures are needed to better protect groundwater within Wellhead Protection Areas. As stated in the Wellhead Protection Program Guidance Document, "If a public water system's Wellhead is determined to be vulnerable to surface activities, special procedures may need to be incorporated into local emergency response plans."

The City of Winlock has four ground water wells. The State DOH has given Eureka #1 (SO1) and Well 603 (SO5) a High Susceptibility rating. Eureka #3(SO8) and Baichtel #2 are given a Moderate Susceptibility rating. A map of the Wellhead Protection Areas with potential contaminant sources are enclosed for your review. An acknowledgement of receipt of this information or a response from your office is not required as part of the Wellhead Protection Plan documentation.

Thank you for your attention in this matter. If you have any questions about the plan, please feel free to contact us.

Sincerely,

Tedi Curry Clerk- Treasurer
City of Winlock

June 2015

Regarding: Wellhead Protection Area (WHPA)

Dear (Owner/Operator):

To protect the drinking water supply for the customers of the City of Winlock water system, we are developing a wellhead protection program as required by state law. As part of our wellhead protection program, we mapped the area overlying the short-term recharge zone of our drinking water supply wells. This is called our wellhead protection area.

Following the mapping of the wellhead protection area, we conducted an inventory of potential groundwater contamination sources within the area. The nature of your business and its location within the wellhead protection area means that your activities have the potential to affect our customers' drinking water supply.

We have notified the agency of agencies that regulate your type of business/facility that you are in our wellhead protection area. You should contact them to request technical assistance to help manage your business in a way that will best prevent groundwater contamination. We realize you are already careful to protect the environment as you conduct your business. We hope that learning that you are in our wellhead protection area will result in more precautions to ensure that your activities will not affect our drinking water quality.

Sincerely,

Tedi Curry

Clerk Treasurer

City of Winlock
Wellhead Protection Plan
Letters of Notification

List of Emergency Responders

Lewis County Emergency Management
345 West Main Street
Chehalis, WA 98532
Business: (360) 740-1151

Lewis County Fire District # 15
PO Box 708
Winlock, WA, 98596
Emergency: 911
Business: (360) 978-4221

Lewis County Sheriff
345 West Main Street
Chehalis, WA 98532
Emergency: 911
Business: 360) 748-9286

Lewis County Public Works
2025 NE Kresky Ave
Chehalis, WA 98532
Business: (360) 740-1123

Incident Response
Washington State Department of Transportation
Southwest Region
11018 NE 51st Circle
Vancouver, WA 98682- 6686
Business: (360) 905-2135

Spill Response Program
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600
Business: (360)-407-6300

List of Local Government and State Agencies

Lewis County Department of Health
350 N. Market Boulevard
Chehalis, WA 98532
Phone: (360) 740-1133

Washington State Department of Health
Office of Drinking Water
PO Box 47823
Olympia, WA 98504-7823
Phone: (360) 664-0768
Toll-Free: 1-877-481-4901

Washington State Department of Ecology
Water Resources Division
PO Box 47600
Olympia WA, 98504-7600
Phone: (360) 407-6000

Washington State Department of Health
Office of Drinking Water
Wellhead Protection Program Coordinator
PO Box 47822
Olympia, WA 98504
Phone: (360) 236-3114

Letter of Notification - Wellhead Protection Plan

Dear Residents:

The City of Winlock is required by the Washington Department of Health to develop a Wellhead Protection Plan. Wellhead protection involves protecting the land area surrounding our wells in order to prevent contamination of our drinking water supply. Part of the plan is this letter of notification to all potential sources of contamination to our wells. *Many of the City residents live within the wellhead protection zones surrounding our source well, many of which use septic systems.*

This letter is intended to inform you of the location of our wells and protection zones, and to serve as a reminder that any hazardous material put onto the ground or into your septic system has the potential of contaminating your drinking water supply. Some potentially harmful activities to avoid are...

- Improper use of a septic system (dumping paint, household cleaners, or solvents into your septic system).
- Dumping motor oil, gasoline, antifreeze or similar fluids onto the ground.
- Heavy use of fertilizers and pesticides.
- Dumping or burying garbage in the ground.

Any unwanted or unused household hazardous materials (like those mentioned above) can be disposed of at a Central Transfer Station Centralia 1411 South Tower, Centralia Wa. Call 360 740-1381 for details and hours of operation.

We have a limited supply of high quality water. It should be everyone's intent to keep it that way for our continued good use, and for the ones that come along after us. Thank you for following these guidelines.

TIPS TO AVOID SEPTIC SYSTEM TROUBLE:

- DO take leftover household chemicals to a hazardous waste collection center for disposal.
- DO practice water conservation. Repair dripping faucets and leaking toilets, run dishwashers and washing machines only when full.
- DO learn the location of your septic system and drain field.
- DON'T allow anyone to drive or park over any part of the system. Areas should be left undisturbed with only a mowed grass cover. Roots from nearby trees or shrubs may clog and damage your drain lines.
- DON'T use commercial septic tank additives. These products usually do not help and some may hurt your system in the long run.
- DON'T poison your system by pouring chemicals down the drain. They can kill the beneficial bacteria that treat your wastewater.

Sincerely,

Tedi Curry, Clerk- Treasurer
City of Winlock

Appendix F: Contingency Plan

Emergency Response Plan

City of Winlock
Emergency Response Plan
June 2015

Prepared By
Lonni Dowell, Mayor
City of Winlock

Tedi Curry, Clerk-Treasurer
City of Winlock

Rodney Cecil, Operator
City of Winlock

Charles Brown
Evergreen Rural Water of Washington

Section 1.

Emergency Response Mission and Goals

Use the mission statement and goals to help focus emergency planning and response.

Emergency response mission and goals

Mission statement for emergency response	In an emergency, the mission of the City of Winlock water system is to protect the health of our customers by being prepared to respond immediately to a variety of events that may result in contamination of the water or disruption of supplying water.
Goal 1	Be able to quickly identify an emergency and initiate timely and effective response action.
Goal 2	Be able to quickly notify local, state, and federal agencies to assist in the response.
Goal 3	Protect public health by being able to quickly determine if the water is not safe to drink or use and being able to immediately notify customers effectively of the situation and advise them of appropriate protective action.
Goal 4	To be able to quickly respond and repair damages to minimize system down time.



Section 2. System Information

Keep this basic information readily available for when you need it for emergency responders, repair people, and the news media.

System information

System identification number	47001 3	
System name and address	City of Winlock PO Box 777 Winlock, WA 98596	
Directions to the system	The City of Winlock is located on Hwy 506, XX miles west of Interstate 5	
Basic description and location of system facilities	The system has 5 groundwater well and associated distribution system. Disinfection is the only treatment.	
Location/Town	City of Winlock Lewis County Onalaska, Washington	
Population served and service connections from Division of Drinking Water records.	1400 _____ people	831 _____ connections
System owner (the owner should be listed as a person's name)		
Name, title, and phone number of person responsible for maintaining and implementing the emergency plan.	Tedi Curry Clerk-Treasurer	360 785-3811 _____ Phone _____ Cell



Section 3. Chain of Command – Lines of Authority

The first response step in any emergency is to inform the person at the top of this list, who is responsible for managing the emergency and making key decisions.

Chain of command – lines of authority

Name and title	Responsibilities during an emergency	Contact numbers
Tedi Curry Clerk-Treasurer	Responsible for overall management and decision making for the water system. The Clerk-Treasurer is the lead for managing the emergency, providing information to regulatory agencies, the public and news media. All communications to external parties are to be approved by the Clerk-Treasurer	Phone: (360) 785-3811 Cell:
Rodney Cecil Operator	In charge of operating the water system, performing inspections, maintenance, sampling, relaying critical information, assessing facilities and providing recommendations to the Clerk-Treasurer	Phone: (360 520-5589 Cell: (360 520-5589
Marty Wastewater Treatment Plant	In charge of running water treatment plant, performing inspections, maintenance, sampling, relaying critical information, assessing facilities, and providing recommendations to the water system operator or Clerk-Treasurer	Phone: Cell:
Tedi Curry Clerk-Treasurer	Responsible for administrative functions in the office including receiving phone calls and keeping a log of events. This person will provide a standard carefully pre-scripted message to those who call with general questions. Additional information will be released through the Clerk-Treasurer.	Phone: (360) 785-3811 Office: (360) 785-3811 Cell:



Section 4. Events that Cause Emergencies

The events listed below may cause water system emergencies. They are arranged from highest to lowest probable risk.

Events that cause emergencies

Type of event	Probability or risk (High-Med-Low)	Comments
Earthquake	High	Had minor earthquake damages in 2001 quake.
High winds	High	System is vulnerable to high wind events. Power is disrupted.
Construction accident	Med	Construction crews often encounter underground utilities..
Ice storm	Med	Minor damage caused in February 2012. Power outage, downed trees.
Drought	Med	Need to plan for decrease in spring yield during dry summers.
Vandalism	Medium	Need training on suspicious activities
Terrorism	Low	Need to be trained on suspicious activity.
Chemical spill	Low	Complete wellhead protection plan.
Flood	Low	System not located in an area vulnerable to flooding.



Section 5. Severity of Emergencies

Decisions on severity should be collaborative among system personnel, but are ultimately made by the person in charge of the emergency. The information for making such a decision will accumulate over time, and may result in changes in the assessment of severity.

Communicate each assessment of severity immediately to all those dealing with the emergency. Make sure staff have cell phones, pagers, or radios when they are in the field.

Level 1

Normal(Routine)Emergency

Description: Description: City of Winlock system considers the following as level I emergencies:

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

The system has specific response activities identified for these types of emergencies, including proper sampling, disinfection, and pressure testing activities. System personnel are advised and are directed to work on the problem and are usually capable of resolving the problem within 24 hours. If it is determined that the problem will take longer than 24 hours to resolve and storage is likely to be drawn down below a safe operating level, the situation will be elevated to level II.

Level II – Emergency

Description: Description: City of Winlock system considers the following to be level II emergencies:

- Disruption in supply such as a transmission main 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.
- An initial primary chemical contaminant sample.
- A disruption in chlorine/chemical feed for the groundwater sources.
- A minor act of vandalism.
- Drought, with a noticeable and continuing decline of water level in the well.

Level III – Significant Emergency

Description: Description: City of Winlock water system considers the following as level III or actual emergencies:

- A verified acute confirmed coliform MCL or E. coli/fecal positive sample requiring immediate consideration of a health advisory notice to customers.
- A confirmed sample of another primary contaminant requiring immediate consideration of a health advisory notice to customers.
- A loss or complete malfunction of the water treatment disinfection facilities for the groundwater source, including chlorination.
- A major line break or other system failure resulting in a water shortage or requiring system shutdown.
- An act of vandalism or terrorist threat such as intrusion or damage to a primary facility.
- An immediate threat to public health of the customers and an advisory is required.
- Severe drought significantly affecting well yield.

Level IV- Catastrophic Emergency

Description: Description: City of Winlock system considers the following events to be level IV or major emergencies:

- Earthquake that shuts down the system or impacts sources, lines, etc.
- Act of terrorism possibly contaminating the water system with biological or chemical agents.
- Flood that infiltrates system facilities and sources.
- Chemical spill within 2000 feet of the system's sources.
- Storm that significantly damages power grid and system facilities.
- Mudslide or other earth shift that causes failure of transmission or loss of water in well.



Section 6. Emergency Notification

Notification call-up lists

Use these lists to notifying important parties during of an emergency.

Local notification list

Local Law Enforcement day 911 or 360 784-9286	Local Law Enforcement night 911 or
Fire Dept day 911 or (360) 978-4221	Fire Dept night 911
Ambulance service day 911	Ambulance service night 911
Local Health Jurisdiction day 800 992-2456 or 253 798-6500	Local Health Jurisdiction after hours 800 992-2456 or 253 798-6500
Water Testing Laboratory day 253 841-0732	Water Testing Laboratory after hours 253 841-0732 or 253 312-1650 cell
Local emergency management day (360) 740-1151	Local emergency management after hours 911
Water System Operator day (360)520-5589	Water System Operator night (360) 520-5589
Neighboring Water System day	Neighboring Water System night
Neighboring Water System day	Neighboring Water System night
News Media Contact KING 5- 206 691-2981 or 1 800 45-NEWS-5	Local Radio Station KMNT-
Other	Other

State notification list

State Police day 253 538-3240 or 911	State Police night 253 538-3240 or 911
Division of Drinking Water Regional Office day 253 395-6750	Division of Drinking Water after hours 1 877 481-4901
State testing laboratory day 260 418 5400	State testing laboratory after hours 260 418 5400
Other	Other

Service/repair notification list

Electrician day Hammer Electric 360 562-7477	Electrician night Same
Plumber day	Plumber night
Pump Specialist day Pump Tech 425 644-8501	Pump Specialist night Same
Soil Excavator day Winlock Public Works 360 520-1005	Soil Excavator night
Equipment Rental day	Equipment Rental night
Other Water/ Sewer 360 520-5589	Other
Other	Other

Notification procedures

Notifying water system customers

Who is Responsible:	The Clerk-Treasurer is ultimately responsible for making the decision to notify customers regarding a potential water shortage and the need for water use restrictions. The Clerk-Treasurer should consult with field staff to make the decision. Once the decision is made procedures for notification will be initiated.
Procedures:	<ul style="list-style-type: none"> • The Clerk-Treasurer confers with key staff to verify problems. • The Clerk-Treasurer organizes staff to develop the message to be delivered to the customers. • The Clerk-Treasurer consults with state drinking water staff regarding the problem. • The Clerk-Treasurer with assistance from staff prepares door hangers, signs and radio message. • Water system operator will continue to investigate problem and make repairs as necessary. • The water shortage notification will be distributed by: <ol style="list-style-type: none"> 1. Field staff placing "water shortage notices" on doors and along travel routes. 2. Staff will place signs on main travel routes into the community. 3. The Clerk-Treasurer contacts radio station and requests issuance of the water shortage notice and request to curtail water use. 4. Administrative support person will provide a pre-scripted message to phone callers and log in each phone call. • Water system operator continuously updates the Clerk-Treasurer on water shortage. • Once water shortage is resolved, re-notify customers.

Alerting local law enforcement, state drinking water officials, and local health

Who is Responsible:	The Clerk-Treasurer or water systems operator when authorized
Procedures:	Notify appropriate agency of emergency and explain the situation.

Contacting service and repair contractors

Who is Responsible:	The water systems operator & Clerk-Treasurer
Procedures:	Refer to notification call up list in section 6

Contact neighboring water systems, if necessary

Who is Responsible:	The water systems operator or Clerk-Treasurer
Procedures:	Explain situation and request assistance. Refer to section 6 notification list.

Procedures for issuing a health advisory

Who is Responsible:	Clerk-Treasurer or the water systems operator when authorized.
Procedures:	Reference http://www.doh.wa.gov/ehp/dw/Our Main Pages/purveyor assist 2.htm and contact south west region DOH office of drinking water

Other procedures, as necessary

Who is Responsible:	The water systems operator or Clerk-Treasurer
Procedures:	



Section 7. Water Quality Sampling

If contamination is suspected, notify and work with the local health jurisdiction and State DOH, Division of Drinking Water (DDW) regional office to help identify what testing should be done. This may help prevent illness or even death.

Water quality sampling

Sampling parameter	Do we have procedures? Yes/No	Basic steps to conduct sampling (sites, frequency, procedures, lab requirements, lab locations, contacts, etc.)
Coliform Bacteria	YES	Refer to coliform monitoring plan which is posted in Water treatment plant lab and in WTP records at town hall.
Heterotrophic Plate Count (HPC)	N/A	
Chlorine Residual	YES	Taken Daily at sewer treat plant lab sink tap and fire hall kitchen sink tap.
Chlorine Demand	YES	Calculated based on chemical feed rate and chlorine residual
Nitrate/Nitrite	YES	Refer to water Quality monitoring report for current year
Volatile Organic Compounds (VOC)	Yes	Refer to water Quality monitoring report for current year
Synthetic Organic Compound	Yes	Refer to water Quality monitoring report for current year
Pesticides	Yes	Refer to water Quality monitoring report for current year



Section 8. Effective Communication

Communication with customers, the news media, and the general public is a critical part of emergency response.

Designated public spokesperson

Designate a spokesperson (and alternates) for delivering messages to the news media and the public (see Section 6 for news media contacts in local notification list).

Designate a spokesperson and alternates

Spokesperson	Alternate 1	Alternate 2
Tedi Curry, Clerk-Treasurer	Rodney Cecil, Operator	Marty Martinson, Asst. Operator

Key messages

Develop possible messages in advance, and update them as the emergency develops:

- We are taking this incident seriously and doing everything we can to resolve it.
- Our primary concern is protecting our customers' health.
- Another important concern is keeping the system operational and preventing damage.
- What we know right now is _____
- The information we have is incomplete. We will keep you informed as soon as we know more.
- We have contacted state and local officials to help us respond effectively.
- If you think you may be ill or need medical advice, contact a physician.
- We are sampling the water and doing tests to determine whether there is contamination.

Health advisories

During events when water quality and human health are in question, it may be necessary to issue a health advisory that gives advice or recommendations to water system customers on how to protect their health when drinking water is considered unsafe. These advisories are issued when the health risks to the consumers are sufficient, in the estimation of the water system or state or local health officials, to warrant such advice.

Health advisories usually take the form of a drinking water warning or boil water advisory. Communication during these times is critical. Health advisories should always be well thought out and provide very clear messages.

The Division of Drinking Water has put together a number of tools, including fact sheets, brochures, forms, and templates to help prepare for a health advisory. These are on the Web at:
[http://www.doh.wa.gov/ehp/dw/Our Main Pages/purveyor assist 2.htm](http://www.doh.wa.gov/ehp/dw/Our_Main_Pages/purveyor_assist_2.htm)

Coliform June 2011 **Information Packet** DOH 331-258-1

We developed the Coliform Information Packet (331-258) to help you better understand total coliform bacteria, what it is, how to test for it, and what to do if you find it in your water supply. You will also learn about the coliform monitoring requirements and different types of violations.

All Group A water systems are required to prepare a Coliform Monitoring Plan and a guideline in this packet will help with that.

You can get an electronic version of this packet at
www.doh.wa.gov/ehp/dw/Coliform/coliform_info.htm

Contents **Publications**

Preparation of a Coliform

Monitoring Plan for Group A Public Water Systems (guidance document) 331-036

Coliform Bacteria and Drinking

Water (fact sheet) 331-181

Coliform Monitoring Plan for the

Small Noncommunity Water System (guidance document) 331-240

Types of Coliform Violations for

Group A Public Water Systems 331-206

Coliform Sampling Procedure (brochure) 331-225

Troubleshooting Checklist for

Coliform Contamination

(fact sheet) 331-180

Routine Coliform Monitoring Requirements (fact sheet) 331-205
Emergency Disinfection of Small Systems 331-242

Correct Completion of a Coliform Sample Lab Slip 331-247
Office of Drinking Water authority over operators and water systems (fact sheet) 331-449

Follow-up to an Unsatisfactory Coliform Sample (fact sheet) 331-187
Coliform Maximum Contaminant Level Exceeded: Nonacute MCL (public notice certification form) 331-263

If you need this publication in an alternate format, call (800) 525-0127 or for TTY/TDD call (877) 833-6341.

Public notification form

You must use the *Coliform Maximum Contaminant Level Exceeded: Nonacute MCL* form (331-263) to provide public notice to your customers if you have a nonacute MCL violation. You may revise the form, but you must KEEP all the information in italics. Type or hand write information on the form. Then photocopy the completed notice and distribute to your customers. The Spanish version of the public notification is on the back of the form. You must complete the bottom section of the form and mail it, as well as a copy of the notice that you distribute, to us within 30 days of notifying your customers of a nonacute MCL violation. This is certification that you provided notification to your customers.

For more information

Most of our publications are online at <http://www.doh.wa.gov/ehp/dw/default.htm>

If you have questions, call our regional offices at:

Eastern Region: Spokane Valley (509) 329-2100

South west Region: Kent (253) 395-6750

Southwest Region: Tumwater (360) 236-3030

After-hours Emergency: (877) 481-4901



Section 9. The Vulnerability Assessment

This is an evaluation of each water system component to identify weaknesses or deficiencies that may make them susceptible to damage or failure during an emergency. It also assesses facilities for security enhancements that may guard against unauthorized entry, vandalism, or terrorism.

Facility vulnerability assessment and improvements identification

System component	Description and condition	Vulnerability	Improvements or mitigating actions	Security improvements
Source	Five groundwater wells and associated distribution system. The sources are in good condition. The distribution system need replacement due to age and condition	The wells are most vulnerable to contamination from above ground activities. The wells are not secure but could be vulnerable to acts of vandalism.	Implement wellhead protection program.	
Storage	Storage reservoirs are in good condition, but reservoir needs seismic retrofit and could fail during earthquake.	Vandals could access reservoir hatches. The reservoir could be prone to shaking and settling resulting from an earthquake.	Provide earthquake strapping to secure reservoir to the foundation.	Improve lighting, and signage to protect against unauthorized entry and access to reservoir hatches.
Treatment	There is a chlorination system in each well house. They is in good operating condition.	Chlorination systems are subject to power outages and vandalism. Tanks are secured but may tip over during an earthquake.	Purchase a back-up generator and have it wired in or have system wired with a jack where a back-up generator could be rented and plugged in. Secure tanks with earthquake straps.	

Treatment plants and pumping facilities	The chemical feed pumps are in good condition	Well #4 SO5 has security fencing and lighting but could be prone to vandalism due to its remote location.	Security cameras needed.	
Computer and telemetry system	Computer systems are located in the district office. All systems are in good operating condition. No telemetry.	Main office has adequate security measures. Computers should be better protected against cyber attack or hacking.	Improve door locks with access codes for entry.	Hire IT Consultant to secure computers.
Other considerations				



Section 10. Response Actions for Specific Events

In any event there are a series of general steps to take:

1. Confirm and analyze the type and severity of the emergency.
2. Take immediate actions to save lives.
3. Take action to reduce injuries and system damage.
4. Make repairs based on priority demand.
5. Return the system to normal operation.

The following tables identify the assessment, set forth immediate response actions, define what notifications need to be made, and describe important follow-up actions.

A. Power outage

Assessment	The system is vulnerable to power outages that could last for days. The system has no emergency generator. Storage is able to supply 3 day of water. Determine if the problem is local or with Lewis County PUD.
Immediate actions	Turn off all affected equipment If local, check fuses and circuit breakers. If PUD , Immediately call Equipment Rental for an available generator. On arrival have an electrician connect the generator to the system transfer switch using systems pigtail. Energize emergency generator. Operate in generator mode until PUD power is restored.
Notifications	Call PUD if system wide. Call electrician if local power cannot be restored or generator hookup. Call Emergency management if long term outage is anticipated. Notify customers to cut back on water use until power is restored
Follow-up actions	When power is restored, secure the emergency generator. Re-energize equipment in order of priority. Test all affected equipment for proper operation. Return generator to emergency management

B. Transmission or main break

Assessment	The main is composed of PVC pipe. Determine the size and location of the break using direct observation, leak detection and flow records.
Immediate actions	Close valves that limit the leak but maintain positive line pressure. Locate all repair fittings, pumps, barricades, trench protection etc Call in Contract excavator. Carefully excavate the main, close all valves and make repairs.
Notifications	Call for Utility Locates. Notify all affected customers that water is off for repairs and to cut back on usage until repairs are made.
Follow-up actions	Pressure test, check repair fittings, backfill trench, road repair and clean up. Flush main, chlorinate, test for microbial contaminants. Notify all affected customers that water is restored .

C. Distribution line break

Assessment	Same as Main Break
Immediate actions	
Notifications	
Follow-up actions	

D. Chlorine treatment equipment failure

Assessment	The system is chlorinated using 50 gallon drums of liquid 12.5% Sodium Hypochlorite and LMI Metering Pumps. Determine if the problem is it chemical or mechanical.
Immediate actions	Check liquid chlorine level in container. Check chlorine residual. Check metering pump for proper operation. Check metering pump for proper flow. If chlorine level is low Replace with new Chlorine drum. If mechanical put spare metering pump online.

Notifications	No notification needed unless storage tank Cl residual drops below .2 mg/l If below .2 notify D.O.H. South west Regional Office. Notify DOH and issue boil water order if CT/inactivation ratio falls below requirement.
Follow-up actions	Adjust feed rate to insure proper chlorine residuals. Make repairs to affected metering pump. Order replacement chlorine drum. Order spare rebuild kit for metering pump.

E. Filtration Equipment Failure

Assessment	N/A
Immediate actions	
Notifications	
Follow-up actions	

F. Treatment equipment

Assessment	All treatment equipment is subject to failure
Immediate actions	Assess the nature of failure, reference O&M manual for each specific piece of equipment
Notifications	Contact individual manufacture for repair details
Follow-up actions	Repair and test equipment as needed order replacement repair kits and spare parts

G. Source pump failure

Assessment	Raw water is pumped into the Treatment Building with a XX hp pump. Determine if the problem is mechanical or electrical.
Immediate actions	Check circuit breakers and fuses. Check pump for obstructions or mechanical failures. If the pump cannot be cleared or repaired on site, install the backup pump.
Notifications	Notify electrician if the problem is with system electrical circuits. Notify pump repair if the problem is in the pump (mechanical or electrical) and cannot be repaired by system personnel.
Follow-up actions	Repair original pump and then use for back up. Order a pump repair kit.

H. Microbial (coliform, E. coli) contamination

Assessment	The ground water is chlorinated and stored onsite in two -100,000 gallon storage reservoirs. Contamination can occur in the storage tank, transmission and distribution system mains or service connections.
Immediate actions	Check all chlorination equipment and chemicals. Determine the source of the contamination by implementing the Coliform Monitoring Plan. Test for coliforms. Do not batch or shock chlorinate unless prior authorization is given by DOH personnel. Retest according to Coliform Monitoring Plan if positive samples are obtained Flush mains to remove any contaminants. Maintain correct chlorine residual.
Notifications	DOH SW Regional Office Customers- issuer Boil Water notice
Follow-up actions	Check chlorine residual at numerous places. Retest according to Coliform Monitoring Plan. Notify customers when Boil Water is not necessary.

L. Drought

Assessment	Same as above
Immediate actions	Same as above
Notifications	
Follow-up actions	

M. Flood

Assessment	Well are not located in area subject to flooding
Immediate actions	
Notifications	
Follow-up actions	Clean-up debris and access and repair any damage

N. Earthquake

Assessment	The water distribution system, wells and spring are subject to earthquake damage
Immediate actions	Duck and cover until earthquake event is over. Safety first. Immediately after event check all facilities for damage. Prioritize damage repairs placing top priority on public health and safety. Make repairs.
Notifications	Contact health dept. on damage extent, contact emergency management for any assistance needed due to damage. Notify customers to conserve water if the water system is damaged.
Follow-up actions	Contact FEMA for disaster assistance.

I. Chemical contamination

Assessment	System is vulnerable to chemical contamination from vandalism or illegal dumping in the wellhead protection area and cross connection in the distribution system
Immediate actions	Notify DOH south west regional office If chemical contamination is detected in the wellhead protection area determine the source of contamination and divert flow of affected stream away from treatment plant. Treat as a crime scene Take samples to determine type of contaminant. If in the distribution system determine source of contamination. Notify customers to stop using water until source of contamination is removed Flush mains to remove contamination and then resample
Notifications	South west regional offices of DOH County Sheriff Customers
Follow-up actions	Follow recommendations of DOH or County Sheriff Notify customers when water is safe for drinking

J. Vandalism or terrorist attack

Assessment	System is subject to Vandalism in wellhead protection area, Terrorism attack is unlikely due to small population
Immediate actions	Treat the area as a crime scene
Notifications	County Sheriff and South west regional offices of DOH Notify customers if Biological or chemical contamination are suspected
Follow-up actions	Follow the instructions of Sheriff and DOH Notify customers when water is safe to drink

K. Reduction or loss of water in the watershed

Assessment	The water shed is subject to seasonal rainfall fluctuations
Immediate actions	Implement ordinance 230 water restrictions level 1
Notifications	Notify DOH that a water restriction plan was initiated Notify customers of water restrictions
Follow-up actions	Monitor water usage prepare to Implement levels 2 and 3 if needed

O. Hazardous materials spill in vicinity of sources or system lines

Assessment	System is vulnerable to spills due to vehicle accidents.
Immediate actions	Immediate action is to call fire dept. Help with spill containment to prevent spread of contaminants. Assist with clean-up
Notifications	Dept. of transportation ,Dept. of ecology, and Dept. of health
Follow-up actions	When type of chemical is known test water for that contaminant

P. Electronic equipment failure

Assessment	All electronic equipment is subject to failure
Immediate actions	Check power supply. Replace analyzers and meters with spare or new unit depending on economical viability.
Notifications	Electrician
Follow-up actions	For specific equipment repairs contact the manufacturer for repair or replacement

Q. Cyber attack

Assessment	Cyber attack is possible at this facility. PC that is connected to internet.
Immediate actions	Contact IT person for full evaluation of computer and server.
Notifications	If it's a cyber attack it's a crime scene- call law enforcement
Follow-up actions	Follow instructions from ITconsultant.



Section 11. Alternative Water Sources

Intertie to adjacent water supply system

Water systems within one-quarter mile of our system	Feasibility of connecting
The closest water systems are the City of Vader and City of Toledo. Both are 5 miles plus from Winlock.	Very low due to distance.

Alternate source(s) of water

Alternative sources	Names	Phone	Availability	Is the water safe for drinking?
Bottled water	Chrystal Springs	866 209-7127 360 388-4731	Bulk delivery or door to door	yes
Water truck or tanker 3000 gal capacity	Lewis County Emergency Management	(360) 740-1151	To be determined	Yes if from a public water system
Water buffalo's	Lewis County Emergency Management	(360) 740-1151	To be determined	Yes if from a public water system
Direct connection of raw water supply			Last ditch effort	No Unless boiled



Section 12. Curtailing Water Usage

Curtailing water use

Water curtailment measures	Actions
Ordinance 230 level 1- voluntary	Minimize water usage by curbing outside activities such as watering ,car washing, swimming pools etc.
Ordinance 230 Level 11- restrictions imposed	Restrictions imposed on all outside water usage. Restricting Days to every other day. Time of day restrictions 6-10 A.M. and 7-11 P.M.
Ordinance 230 level 111- water emergency exists	All outside water usage is discontinued. Violators subject to water service disconnection. Variance can be issued by Clerk-Treasurer or water plant manager in writing for health, sanitation, or fire protection only and to be reviewed by the council.



Section 13. Returning to Normal Operation

Returning to normal operations

Action	Description and actions
Inspect, flush, and disinfect the system,	Water system operator and support staff inspect all system facilities, ensure all water quality tests have been done and the system has been flushed and disinfected if necessary. Water system operator makes a report to the water system manager. The Clerk-Treasurer decision on current condition of system.
Verification of water quality	The Clerk-Treasurer verifies water quality sampling results.
Coordinate with DOH	The Clerk-Treasurer coordinates with DOH on system condition and water quality results.
Notify customers	The Clerk-Treasurer meets with water system operator and communications lead to write notice to customers. The Clerk-Treasurer directs communications lead to distribute public notice.



Section 14. Training and Rehearsals

Training

Identify staff position training needs and expectations.

Position	Training needs and expectations
Clerk-Treasurer	Emergency response communications, emergency response planning, suspicious activity training, incident command, NIMS, join WARN group.
Operator	Emergency response communications, suspicious activity training, incident command, NIMS, join WARN group.
Administrative Support	Emergency response communications, emergency response planning, incident command, NIMS, join WARN group.

Emergency rehearsals

Schedule for drills, tabletop exercises, and other ways to practice emergency response:

Event	Description	People and organizations involved	Date



Section 15. Plan Approval

Plan approval

This plan is officially in effect when reviewed, approved, and signed by the following people:

Name/Title	Signature	Date
, Mayor		
Rodney Cecil, Plant Operator		
Tedi Curry, Clerk-Treasurer		

City of Winlock
Wellhead Protection Plan
Letters of Notification

List of Emergency Responders

Lewis County Emergency Management
345 West Main Street
Chehalis, WA 98532
Business: (360) 740-1151

Lewis County Fire District # 15
PO Box 708
Winlock, WA, 98596
Emergency: 911
Business: (360) 978-4221

Lewis County Sheriff
345 West Main Street
Chehalis, WA 98532
Emergency: 911
Business: 360) 748-9286

Lewis County Public Works
2025 NE Kresky Ave
Chehalis, WA 98532
Business: (360) 740-1123

Incident Response
Washington State Department of Transportation
Southwest Region
11018 NE 51st Circle
Vancouver, WA 98682- 6686
Business: (360) 905-2135

Spill Response Program
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600
Business: (360)-407-6300

List of Local Government and State Agencies

Lewis County Department of Health
350 N. Market Boulevard
Chehalis, WA 98532
Phone: (360) 740-1133

Washington State Department of Health
Office of Drinking Water
PO Box 47823
Olympia, WA 98504-7823
Phone: (360) 664-0768
Toll-Free: 1-877-481-4901

Washington State Department of Ecology
Water Resources Division
PO Box 47600
Olympia WA, 98504-7600
Phone: (360) 407-6000

Washington State Department of Health
Office of Drinking Water
Wellhead Protection Program Coordinator
PO Box 47822
Olympia, WA 98504
Phone: (360) 236-3114

APPENDIX H

CONSUMER CONFIDENCE REPORTS



Consumer Confidence Report Certification Form

**For calendar year 2013
Consumer Confidence Reports are due before July 1, 2014**

You need to complete the following:

1. Mail or otherwise directly deliver a copy of your 2013 Consumer Confidence Report (CCR) to your water system customers **before July 1, 2014**. Keep a copy for your records.
2. Mail or email a copy of your CCR to the regional office by county (information on back) **before July 1, 2014**.
3. Complete and send this certification form to the regional office with your CCR, or by **October 1, 2014** at the latest.

Note: We are better able to properly credit your water system when both documents are received together.

Certification for:

Water System Name City of Winlock
Water System ID Number 975000 Water System County Lewis
Date delivered 9-8-14
URL (if available electronically) _____

In compliance with the CCR requirements in WAC 246-290-72001 through -72012, I confirm that:

- The CCR has been appropriately delivered to customers who use this water system.
- All information contained in this report is correct.
- The monitoring data stated in the CCR matches information submitted to Washington State Department of Health, Office of Drinking Water.

Certified by:

Signature 

Printed Name Rodney Cecil

Phone 360-520-5589 Date 9-8-14

**Department of Health Office of Drinking Water
Regional Office Addresses**

For water systems located in the following counties: Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, and Yakima, send to:

Attn: Consumer Confidence Report
Washington State Department of Health
Office of Drinking Water
Eastern Regional Office
16201 E Indiana Ave Ste 1500
Spokane Valley, WA 99216

Phone: 509-329-2100
Fax: 509-329-2104

Or email signed copy to: ccr.ero@doh.wa.gov

For water systems located in the following counties: Island, King, Pierce, San Juan, Skagit, Snohomish, and Whatcom, send to:

Attn: Consumer Confidence Report
Washington State Department of Health
Office of Drinking Water
Northwest Regional Office
20425 - 72nd Ave S Ste 310
Kent, WA 98032

Phone: 253-395-6750
Fax: 253-395-6760

Or email signed copy to: ccr.nwro@doh.wa.gov

For water systems located in the following counties: Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Kitsap, Lewis, Mason, Pacific, Skamania, Thurston, and Wahkiakum, send to:

Attn: Consumer Confidence Report
Washington State Department of Health
Office of Drinking Water
Southwest Regional Office
PO Box 47823
Olympia, WA 98504-7823

Phone: 360-236-3030
Fax: 360-664-8058

Or email signed copy to: ccr.swro@doh.wa.gov

For people with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TDD/TTY call 711).

CITY OF WINLOCK

2013 Annual Water Quality Report

September 2014

Inside This Report

- 1 About this Report
- 1 Where does my Water come from?
- 2 Important Terms
- 2 Why are there Contaminants in My Drinking Water?
- 2 Do I Need to take Special Precaution?
- 2 Waivers
- 3-4 Water Quality Results
- 4 Disinfection By-products
- 5 Additional Information on Other Contaminates that may be in your Drinking Water.
- 5 Water Conservation and Efficiency
- 5 Facts on Drinking Water

About this Report

The purpose of this report is to provide information about the quality of the City of Winlocks drinking water that was serviced in 2013. This report can be very technical in nature at times, but is full of important information regarding your drinking water.

The City of Winlocks water system has always had the goal of providing safe and dependable drinking water. The City Of Winlock is able to report that it has met all State and Federal standards for drinking water provided in 2013.

Terms Simplified	
How Can I Relate to PPM's & PPB'S?	
Parts per million (ppm)	Parts per billion (ppb)
3 drops in 42 gallons	1 drop in 14,000 gallons
1 second in 12 days	1 second in 32 years
1 penny in \$10,000	1 penny in \$10,000,000
1 inch in 16 miles	1 inch in 16,000 miles

Where does my Water come from?

The City of Winlock gets its water from 4 wells. Well #1 is 119 feet deep and is located east of Tall Timber Addition. Well # 2 is 116 feet deep and is located at the intersection of Cemetery rd and Bay rd. Well # 3 is 55 feet deep and located north of the intersection of st rt 505 and Nevil Rd. Well # 4 is located in an undeveloped area of N.E 2nd st.

If you have any questions or comments regarding this report, please contact your water system operator.

Rodney Cecil
 City Of Winlock
 P.O Box 777
 Winlock, Wa 98569
 Water System ID# 97500C
(360)520-5589
Rodneycecil991@yahoo.com

Important Terms

Action Level (AL) – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

90th Percentile - Average of all sample site data for lead or copper; Example: In 9 out of 10 houses sampled, 9 were below contaminant levels.

Disinfection By-Products (DBP'S) – Organic compounds resulting from the interaction with natural organic matter in water supplies.

Maximum Contaminant Level (MCL) – The highest level of a contaminant allowed in drinking water.

Maximum Contaminant Level Goal (MCLG) – The maximum goal level for a contaminant in drinking water, below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL) – The highest level of disinfectant allowed in drinking water.

Maximum Residual Disinfectant Level Goal (MRDLG) – The level of drinking water disinfectant, below which there is no known or expected risk to health.

Parts per Million (ppm) Parts per Billion (ppb) – A part per million means that one part of a particular contaminant is present for every million parts of water. Similarly, parts per billion indicate the amount of contaminant per billion parts of water.

Picocuries per Liter (pCi/L) - A measure of radioactivity in one liter of water.

Not Applicable (N/A) – Means that the EPA has not established standards for these substances.

No Detection (ND) – Indicates that results were not detected at a level greater than or equal to the SRL.

Why are there Contaminants in my Drinking Water?

Drinking water, including bottled water, may reasonably be expected to contain, at least, small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (1-800-426-4791). The sources of drinking water (for both tap and bottled water) include: rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material; thus, can pick up substances resulting from the presence of animals or human activity.

Do I Need to take Special Precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy; persons who have undergone organ transplants; people with HIV/AIDS or other immune system disorders; some elderly, and infants; people particularly at-risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Waivers

DOH has reduced monitoring requirements for glyphosphate, herbicides, insecticides, general pesticides and volatile organic contaminants. For a full disclosure of the testing dates please call Rodney Cecil at the City of Winlock 360-520-5589.

Water Quality Results

The tables below list all the drinking water contaminants that we detected during the calendar year of this report. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk, unless otherwise noted. DOH and the EPA requires monitoring for certain contaminants less than once per year, because the concentrations of these contaminants shouldn't vary significantly from year-to-year. Some of the data, though representative of the water quality, is more than one year old.

2013 Water Quality Results						
<u>Substance</u>	<u>Units</u>	<u>EPA Regulations</u>		<u>Our Drinking Water Results</u>		
		<u>Ideal Level/Goal (MCLG)</u>	<u>Maximum Allowable (MCL)</u>	<u>Range or Other</u>	<u>Average Value or Highest Result</u>	<u>Comply</u>
Nitrate	ppm	10	10	1.0		Yes
Small amounts of Nitrate come from natural Sources.						
Total Coli form Bacteria	Number of Detections	0	2 per month	0	0	Yes
Total-coliform is used to monitor microbial quality in the water system. Winlock has a minimum of 2 samples to collect each month.						
Disinfectant Residual	ppm	Less than 4.0	4.0		.20	Yes
Chlorine is added to drinking water for disinfection.						
2013 Voluntarily Monitored Substances						
<u>Substance</u>	<u>Units</u>	<u>Our Water Results</u>				
		<u>Range Detected</u>			<u>Average Value</u>	

2010 Radium Testing						
<u>Substance</u>	<u>Units</u>	<u>Ideal Level/Goal (MCLG)</u>	<u>Maximum Allowable (MCL)</u>	<u>Range/Other</u>	<u>Average Value</u>	<u>Comply</u>
Radium 228	pCi/L	0	3	.06	.06	Yes
Radioactive contaminants, can occur naturally, or result from oil, gas production and mining activities.						

2013 Monitoring Results						
Lead & Copper		EPA Regulations		Your water Results		
Substance	Units	Ideal Level/Goal (MCLG)	Action Level (AL)	90 th % Level	Sites Exceeding the Action Level	Is Our Water Safe?
Lead	ppm	.015	.015	.0046	0 out of 10	Yes
Copper	ppm	1.3	1.3	.253	0 out of 10	Yes

Lead and Copper sources are from the corrosion from household plumbing and erosion of natural deposits from the environment.
The data represents the combined sample results for 2013.

Inorganic Chemical Monitoring for 2010					
Substance	Units	EPA Regulations		Our Drinking Water Results	
		Ideal Level/Goal (MCLG)	Maximum Allowable (MCL)	Highest Result	Comply?
Barium	ppm	2	2	<.005	Yes
Chloride	ppm	N/A	250	5.1	Yes
Sulfate	ppm	N/A	250	1.7	Yes
Zinc	ppm	N/A	5	<.01	Yes
Arsenic	ppm	.002	.01	<.002	Yes
Nickel	ppm	.04	.1	<.001	Yes
Fluoride	ppm	.2	4	<.2	Yes
Beryllium	ppm	.003	.004	<.005	Yes
Thallium	ppm	.002	.002	<.001	Yes
Mercury	ppm	.0005	.002	<.0005	Yes

Inorganic chemical are salts and metals, they can occur naturally, or result from urban storm-water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming.

Disinfection By- products

The chemical disinfectant of choice in drinking water is chlorine, used since the early 1900's to inactivate or chemically kill microorganisms. However, chlorine is a very active substance and it reacts with certain organic compounds to form other compounds, known as disinfection by-products (DBP's). The most common DBP's formed when chlorine is used, are Trihalomethanes (THM) and Haloacetic acids (HAA5). Some of these compounds have been linked to potential health effects. DBP's are regulated by the EPA and DOH. The City of Winlock did test for HAA5 and THM in 2013 with a ND in the HAA5 tests and had a ND in 3 sites tested for THM's and a level of 5.6 PPB in site Number 4. The MCL for THM's are 80 PPM so the City of Winlock is in compliance.

Additional Information on other Contaminates that may be in your Drinking Water.

Copper in drinking water is an essential nutrient, but some people who drink water containing elevated levels of copper in a relatively short amount of time could experience gastrointestinal distress. Some people with Wilson's disease should consult their doctor.

Lead in drinking water is rarely the sole cause of lead poisoning, but if present, elevated levels of lead can cause serious health problems; especially for women who are pregnant and young children. Lead in drinking water comes primarily from materials and components associated with household plumbing. The more time water has been sitting in pipes, the more dissolved metals, such as lead, it may contain. To help reduce potential exposure to lead, if your water has been sitting for 6 hours or more, flush water through the tap for 30 seconds to 2 minutes until the water is noticeably colder, before using for drinking or cooking. Hot water is more likely to contain higher levels of lead than cold water.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue-baby syndrome. Nitrate levels may rise quickly for short periods of time, because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

To obtain more information on water quality issues, you can contact any the following agencies:

City Of Winlock

Water System operator: Rodney Cecil
Address: P.O Box 777, Winlock Wa 98569
Telephone: (360) 520-5589
Water System ID#: 97500C
Source of Water: Groundwater
Email: rodneycecil991@yahoo.com

U.S. Environmental Protection Agency
Safe Drinking Water Hotline: 1-800-426-4797
Website: www.water.epa.gov

Washington State Department of Health
Regional DOH Office: (360) 236-3030
Website: www.doh.wa.gov/ehp/dw

Water Conservation and Efficiency

Water conservation and efficiency topics are held in the sustainability meetings, if you have any ideas or comment on the topic please contact the Water Manager Rodney Cecil at (360) 520-5589

Facts on Drinking Water

- Approximately 400 billion gallons of water are used in the United States per day.
- It takes seven and a half years for the average American resident to use the same amount of water that flows over the Niagara Falls in one second (750,000 gallons).
- American residents use about 100 gallons of water per day.
- The average faucet flows at a rate of two gallons per minute. You can save up to four gallons of water every morning by turning off the faucet while you brush your teeth.
- At one drip per second, a faucet can leak 3,000 gallons per year.
- The first water pipes in the US were made from wood (bored logs that were charred with fire).
- More than 25% of bottled water comes from a municipal water supply, the place that tap water comes from.
- If you drink your daily recommended 8 glasses of water per day from the tap, it will cost you about 50 cents per year. If you choose to drink it from bottled water, it can cost you up to \$1,400 dollars per year.



Consumer Confidence Report Certification Form

**For calendar year 2014
Consumer Confidence Reports are due before July 1, 2015**

You need to complete the following:

1. Mail or otherwise directly deliver a copy of your 2014 Consumer Confidence Report (CCR) to your water system customers **before July 1, 2015**. Keep a copy for your records.
2. Mail or email a copy of your CCR to the regional office for your county (information on back) **before July 1, 2015**.
3. Complete and send this certification form to the regional office with your CCR, or by **October 1, 2015** at the latest.

Note: We are better able to properly credit your water system when both documents are received together.


Certification for:

Water System Name City of Winlock
Water System ID Number 975000 Water System County Lewis
Date delivered 4-3-15
URL (if delivered electronically) _____

In compliance with the CCR requirements in WAC 246-290-72001 through -72012, I confirm that:

- The CCR has been appropriately delivered to customers who use this water system.
- All information contained in this report is correct.
- The monitoring data stated in the CCR matches information submitted to Washington State Department of Health, Office of Drinking Water.

Certified by:

Signature 
Printed Name Rodney Cecil
Phone 360-520-5589 Date 4-3-15

CITY OF WINLOCK

2014 Annual Water Quality Report

March 2015

Inside This Report

- 1 About this Report
- 1 Where does my Water come from?
- 2 Important Terms
- 2 Why are there Contaminants in My Drinking Water?
- 2 Do I Need to take Special Precaution?
- 2 Waivers
- 3-4 Water Quality Results
- 4 Disinfection By-products
- 5 Additional Information on Other Contaminates that may be in your Drinking Water.
- 5 Water Conservation and Efficiency
- 5 Facts on Drinking Water

About this Report

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The City of Winlocks water system has always had the goal of providing safe and dependable drinking water. The City Of Winlock is able to report that it has met all State and Federal standards for drinking water provided in 2014.

Terms Simplified

How Can I Relate to PPM's & PPB'S?

Parts per million (ppm)	Parts per billion (ppb)
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1 second in 12 days	1 second in 32 years
1 penny in \$10,000	1 penny in \$10,000,000
1 inch in 16 miles	1 inch in 16,000 miles

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The City of Winlock gets its water from 4 wells. Well #1 is 119 feet deep and is located east of Tall Timber Addition. Well # 2 is 116 feet deep and is located at the intersection of Cemetery rd and Bay rd. Well # 3 is 55 feet deep and located north of the intersection of st rt 505 and Nevil Rd. Well # 4 is located in an undeveloped area of N.E 2nd st.

If you have any questions or comments regarding this report, please contact your water system operator.

Rodney Cecil
City Of Winlock
P.O Box 777
Winlock, Wa 98569
Water System ID# 97500C
(360)520-5589
Rodneycecil991@yahoo.com

Important Terms

Action Level (AL) – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

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Picocuries per Liter (pCi/L) - A measure of radioactivity in one liter of water.

Not Applicable (N/A) – Means that the EPA has not established standards for these substances.

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Why are there Contaminants in my Drinking Water?

Drinking water, including bottled water, may reasonably be expected to contain, at least, small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (1-800-426-4791). The sources of drinking water (for both tap and bottled water) include: rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material; thus, can pick up substances resulting from the presence of animals or human activity.

Do I Need to take Special Precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy; persons who have undergone organ transplants; people with HIV/AIDS or other immune system disorders; some elderly, and infants; people particularly at-risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Waivers

DOH has reduced monitoring requirements for glyphosphate, herbicides, insecticides, general pesticides and volatile organic contaminants. For a full disclosure of the testing dates please call Rodney Cecil at the City of Winlock 360-520-5589.

Water Quality Results

The tables below list all the drinking water contaminants that we detected during the calendar year of this report. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk, unless otherwise noted. DOH and the EPA requires monitoring for certain contaminants less than once per year, because the concentrations of these contaminants shouldn't vary significantly from year-to-year. Some of the data, though representative of the water quality, is more than one year old.

2014 Water Quality Results						
Substance	Units	EPA Regulations		Our Drinking Water Results		
		Ideal Level/Goal (MCLG)	Maximum Allowable (MCL)	Range or Other	Average Value or Highest Result	Comply
Nitrate	ppm	10	10	1.2	1.2	Yes
Small amounts of Nitrate come from natural Sources.						
Total Coli form Bacteria	Number of Detections	0	2 per month	1	Positive	Yes
Total-coli form is used to monitor microbial quality in the water system. NOTE: Total coliform is bacteria that is naturally present in the environment and is used as an indicator that other potentially harmful bacteria may be present. Winlock has a minimum of 2 samples to collect each month. Winlock had a positive hit for Total Coliform on 11-6-14 on one of our sites. We conducted our testing requirement as required by our coli form monitoring plan. The results of those repeat tests showed no coliform in the system. Operator error is the most likely cause of the bad test. There were no other violations for the reporting year..						
Disinfectant Residual	ppm	Less than 4.0	4.0		.30	Yes
Chlorine is added to drinking water for disinfection.						

2010 Radium Testing						
Substance	Units	Ideal Level/Goal (MCLG)	Maximum Allowable (MCL)	Range/Other	Average Value	Comply
Radium 228	pCi/L	0	3	.06	.06	Yes
Radioactive contaminants, can occur naturally, or result from oil, gas production and mining activities.						

2013 Monitoring Results						
Lead & Copper		EPA Regulations		Your water Results		
Substance	Units	Ideal Level/Goal (MCLG)	Action Level (AL)	90 th % Level	Sites Exceeding the Action Level	Is Our Water Safe?
Lead	ppm	.015	.015	.0046	0 out of 10	Yes
Copper	ppm	1.3	1.3	.253	0 out of 10	Yes

Lead and Copper sources are from the corrosion from household plumbing and erosion of natural deposits from the environment.
The data represents the combined sample results for 2013.

Inorganic Chemical Monitoring for 2010					
Substance	Units	EPA Regulations		Our Drinking Water Results	
		Ideal Level/Goal (MCLG)	Maximum Allowable (MCL)	Highest Result	Comply?
Barium	ppm	2	2	<.005	Yes
Chloride	ppm	N/A	250	5.1	Yes
Sulfate	ppm	N/A	250	1.7	Yes
Zinc	ppm	N/A	5	<.01	Yes
Arsenic	ppm	.002	.01	<.002	Yes
Nickel	ppm	.04	.1	<.001	Yes
Fluoride	ppm	.2	4	<.2	Yes
Beryllium	ppm	.003	.004	<.005	Yes
Thallium	ppm	.002	.002	<.001	Yes
Mercury	ppm	.0005	.002	<.0005	Yes

Inorganic chemical are salts and metals, they can occur naturally, or result from urban storm-water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming.

Disinfection By- products

The chemical disinfectant of choice in drinking water is chlorine, used since the early 1900's to inactivate or chemically kill microorganisms. However, chlorine is a very active substance and it reacts with certain organic compounds to form other compounds, known as disinfection by-products (DBP's). The most common DBP's formed when chlorine is used, are Trihalomethanes (THM) and Haloacetic acids (HAA5). Some of these compounds have been linked to potential health effects. DBP's are regulated by the EPA and DOH. The City of Winlock did test for HAA5 and THM in 2014 with a ND in the both the THM and HAA5 tests

Additional Information on other Contaminates that may be in your Drinking Water.

Copper in drinking water is an essential nutrient, but some people who drink water containing elevated levels of copper in a relatively short amount of time could experience gastrointestinal distress. Some people with Wilson's disease should consult their doctor.

Lead in drinking water is rarely the sole cause of lead poisoning, but if present, elevated levels of lead can cause serious health problems; especially for women who are pregnant and young children. Lead in drinking water comes primarily from materials and components associated with household plumbing. The more time water has been sitting in pipes, the more dissolved metals, such as lead, it may contain. To help reduce potential exposure to lead, if your water has been sitting for 6 hours or more, flush water through the tap for 30 seconds to 2 minutes until the water is noticeably colder, before using for drinking or cooking. Hot water is more likely to contain higher levels of lead than cold water.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue-baby syndrome. Nitrate levels may rise quickly for short periods of time, because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

To obtain more information on water quality issues, you can contact any the following agencies:

City Of Winlock

Water System operator: Rodney Cecil
 Address: P.O Box 777, Winlock Wa 98569
 Telephone: (360) 520-5589
 Water System ID#: 97500C
 Source of Water: Groundwater
 Email: rodneycecl1991@yahoo.com

U.S. Environmental Protection Agency
 Safe Drinking Water Hotline: 1-800-426-4797
 Website: www.water.epa.gov

Washington State Department of Health
 Regional DOH Office: (360) 236-3030
 Website: www.doh.wa.gov/ehp/dw

Water Conservation and Efficiency

Water conservation and efficiency topics are held in the sustainability meetings, if you have any ideas or comment on the topic please contact the Water Manager Rodney Cecil at (360) 520-5589

Facts on Drinking Water

- Approximately 400 billion gallons of water are used in the United States per day.
- It takes seven and a half years for the average American resident to use the same amount of water that flows over the Niagara Falls in one second (750,000 gallons).
- American residents use about 100 gallons of water per day.
- The average faucet flows at a rate of two gallons per minute. You can save up to four gallons of water every morning by turning off the faucet while you brush your teeth.
- At one drip per second, a faucet can leak 3,000 gallons per year.
- The first water pipes in the US were made from wood (bored logs that were charred with fire).
- More than 25% of bottled water comes from a municipal water supply, the place that tap water comes from.
- If you drink your daily recommended 8 glasses of water per day from the tap, it will cost you about 50 cents per year. If you choose to drink it from bottled water, it can cost you up to \$1,400 dollars per year.



Consumer Confidence Report Certification Form

For calendar year 2015
Consumer Confidence Reports are due before July 1, 2016

You need to complete the following:

1. Mail or otherwise directly deliver a copy of your 2015 Consumer Confidence Report (CCR) to your water system customers **before July 1, 2016**. Keep a copy for your records.
2. Mail or email a copy of your CCR to the regional office for your county (information on back) **before July 1, 2016**.
3. Complete and send this certification form to the regional office with your CCR, or by **October 1, 2016** at the latest.

Note: We are better able to properly credit your water system when both documents are received together.

Certification for:

Water System Name City of Winlock

Water System ID Number 97500 C Water System County Lewis

Date delivered 2-19-16

URL (if delivered electronically) _____

In compliance with the CCR requirements in WAC 246-290-72001 through -72012, I confirm that:

- The CCR has been appropriately delivered to customers who use this water system.
- All information contained in this report is correct.
- The monitoring data stated in the CCR matches information submitted to Washington State Department of Health, Office of Drinking Water.

Certified by:

Signature 

Printed Name Rodney Cecil

Phone 360-520-5589 Date 2-19-16

CITY OF WINLOCK

2015 Annual Water Quality Report

January 2016

Inside This Report

- 1 About this Report
- 1 Where does my Water come from?
- 2 Important Terms
- 2 Why are there Contaminants in My Drinking Water?
- 2 Do I Need to take Special Precaution?
- 2 Waivers
- 3-4 Water Quality Results
- 4 Disinfection By-products
- 5 Additional Information on Other Contaminates that may be in your Drinking Water.
- 5 Water Conservation and Efficiency
- 5 Facts on Drinking Water

About this Report

The purpose of this report is to provide information about the quality of the City of Winlock's drinking water that was serviced in 2015. This report can be very technical in nature at times, but is full of important information regarding your drinking water.

The City of Winlocks water system has always had the goal of providing safe and dependable drinking water. The City Of Winlock is able to report that it has met all State and Federal standards for drinking water provided in 2015.

Terms Simplified	
How Can I Relate to PPM's & PPB'S?	
Parts per million (ppm)	Parts per billion (ppb)
3 drops in 42 gallons	1 drop in 14,000 gallons
1 second in 12 days	1 second in 32 years
1 penny in \$10,000	1 penny in \$10,000,000
1 inch in 16 miles	1 inch in 16,000 miles

Where does my Water come from?

The City of Winlock gets its water from 4 wells. Well #1 is 119 feet deep and is located east of Tall Timber Addition. Well # 2 is 116 feet deep and is located at the intersection of Cemetery rd and Bay rd. Well # 3 is 55 feet deep and located north of the intersection of St Rt 505 and Nevil Rd. Well # 4 is located in an undeveloped area of N.E 2nd st.

If you have any questions or comments regarding this report, please contact your water system operator.

Rodney Cecil
 City Of Winlock
 P.O Box 777
 Winlock, Wa 98569
 Water System ID# 97500C
 (360)520-5589

Rodneycecil991@yahoo.com

Important Terms

Action Level (AL) – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

90th Percentile – Average of all sample site data for lead or copper; Example: In 9 out of 10 houses sampled, 9 were below contaminant levels.

Disinfection By-Products (DBP'S) – Organic compounds resulting from the interaction with natural organic matter in water supplies.

Maximum Contaminant Level (MCL) – The highest level of a contaminant allowed in drinking water.

Maximum Contaminant Level Goal (MCLG) – The maximum goal level for a contaminant in drinking water, below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL) – The highest level of disinfectant allowed in drinking water.

Maximum Residual Disinfectant Level Goal (MRDLG) – The level of drinking water disinfectant, below which there is no known or expected risk to health.

Parts per Million (ppm) Parts per Billion (ppb) – A part per million means that one part of a particular contaminant is present for every million parts of water. Similarly, parts per billion indicate the amount of contaminant per billion parts of water.

Picocuries per Liter (pCi/L) – A measure of radioactivity in one liter of water.

Not Applicable (N/A) – Means that the EPA has not established standards for these substances.

No Detection (ND) – Indicates that results were not detected at a level greater than or equal to the SRL.

Why are there Contaminants in my Drinking Water?

Drinking water, including bottled water, may reasonably be expected to contain, at least, small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (1-800-426-4791). The sources of drinking water (for both tap and bottled water) include: rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material; thus, can pick up substances resulting from the presence of animals or human activity.

Do I Need to take Special Precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy; persons who have undergone organ transplants; people with HIV/AIDS or other immune system disorders; some elderly, and infants; people particularly at-risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Waivers

DOH has reduced monitoring requirements for glyphosphate, herbicides, insecticides, general pesticides and volatile organic contaminants. For a full disclosure of the testing dates please call Rodney Cecil at the City of Winlock 360-520-5589.

Water Quality Results

The tables below list all the drinking water contaminants that we detected during the calendar year of this report. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk, unless otherwise noted. DOH and the EPA requires monitoring for certain contaminants less than once per year, because the concentrations of these contaminants shouldn't vary significantly from year-to-year. Some of the data, though representative of the water quality, is more than one year old. The City of Winlock also had a sanitary survey of our water system conducted this year, and is in full compliance.

2015 Water Quality Results						
Substance	Units	EPA Regulations		Our Drinking Water Results		
		Ideal Level/Goal (MCLG)	Maximum Allowable (MCL)	Range or Other	Average Value or Highest Result	Comply
Nitrate	ppm	10	10	10	.82	Yes
Small amounts of Nitrate come from natural Sources. We tested all 4 well sites and .82 was the average with 1.3 being the highest reading.						
Total Coli form Bacteria	Number of Detections	0	2 per month	0	0	Yes
Total-coli form is used to monitor microbial quality in the water system. NOTE: Total coliform is bacteria that is naturally present in the environment and is used as an indicator that other potentially harmful bacteria may be present. Winlock has a minimum of 2 samples to collect each month. We conducted our testing requirement as required by our coli form monitoring plan. There were no violations for the reporting year..						
Disinfectant Residual	ppm	Less than 4.0	4.0	.20	.30	Yes
Chlorine is added to drinking water for disinfection.						

2015 Radium Testing						
Substance	Units	Ideal Level/Goal (MCLG)	Maximum Allowable (MCL)	Range/Other	Average Value	Comply
Radium 228	pCi/L	0	3	ND	ND	Yes
Radioactive contaminants, can occur naturally, or result from oil, gas production and mining activities. We conducted test at Eureka #3, Baitchell and the 603 site.						

2013 Monitoring Results						
Lead & Copper		EPA Regulations		Your water Results		
Substance	Units	Ideal Level/Goal (MCLG)	Action Level (AL)	90 th % Level	Sites Exceeding the Action Level	Is Our Water Safe?
Lead	ppm	.015	.015	.0046	0 out of 10	Yes
Copper	ppm	1.3	1.3	.253	0 out of 10	Yes

Lead and Copper sources are from the corrosion from household plumbing and erosion of natural deposits from the environment.
The data represents the combined sample results for 2013.

Inorganic Chemical Monitoring for 2010					
Substance	Units	EPA Regulations		Our Drinking Water Results	
		Ideal Level/Goal (MCLG)	Maximum Allowable (MCL)	Highest Result	Comply?
Barium	ppm	2	2	<.005	Yes
Chloride	ppm	N/A	250	5.1	Yes
Sulfate	ppm	N/A	250	1.7	Yes
Zinc	ppm	N/A	5	<.01	Yes
Arsenic	ppm	.002	.01	<.002	Yes
Nickel	ppm	.04	.1	<.001	Yes
Fluoride	ppm	.2	4	<.2	Yes
Beryllium	ppm	.003	.004	<.005	Yes
Thallium	ppm	.002	.002	<.001	Yes
Mercury	ppm	.0005	.002	<.0005	Yes

Inorganic chemical are salts and metals, they can occur naturally, or result from urban storm-water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming.

Disinfection By- products

The chemical disinfectant of choice in drinking water is chlorine, used since the early 1900's to inactivate or chemically kill microorganisms. However, chlorine is a very active substance and it reacts with certain organic compounds to form other compounds, known as disinfection by-products (DBP's). The most common DBP's formed when chlorine is used, are Trihalomethanes (THM) and Haloacetic acids (HAA5). Some of these compounds have been linked to potential health effects. DBP's are regulated by the EPA and DOH. The City of Winlock did test for HAA5 and THM in 2015 with a ND in the both the THM and HAA5 tests

Additional Information on other Contaminates that may be in your Drinking Water.

Copper in drinking water is an essential nutrient, but some people who drink water containing elevated levels of copper in a relatively short amount of time could experience gastrointestinal distress. Some people with Wilson's disease should consult their doctor.

Lead in drinking water is rarely the sole cause of lead poisoning, but if present, elevated levels of lead can cause serious health problems; especially for women who are pregnant and young children. Lead in drinking water comes primarily from materials and components associated with household plumbing. The more time water has been sitting in pipes, the more dissolved metals, such as lead, it may contain. To help reduce potential exposure to lead, if your water has been sitting for 6 hours or more, flush water through the tap for 30 seconds to 2 minutes until the water is noticeably colder, before using for drinking or cooking. Hot water is more likely to contain higher levels of lead than cold water.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue-baby syndrome. Nitrate levels may rise quickly for short periods of time, because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

To obtain more information on water quality issues, you can contact any the following agencies:

City Of Winlock

Water System operator: Rodney Cecil
Address: P.O Box 777, Winlock Wa 98569
Telephone: (360) 520-5589
Water System ID#: 97500C
Source of Water: Groundwater
Email: rodneycecil991@yahoo.com

U.S. Environmental Protection Agency
Safe Drinking Water Hotline: 1-800-426-4797
Website: www.water.epa.gov

Washington State Department of Health
Regional DOH Office: (360) 236-3030
Website: www.doh.wa.gov/ehp/dw

Water Conservation and Efficiency

Water conservation and efficiency topics are held in the sustainability meetings, if you have any ideas or comment on the topic please contact the Water Manager Rodney Cecil at (360) 520-5589

Facts on Drinking Water

- Approximately 400 billion gallons of water are used in the United States per day.
- It takes seven and a half years for the average American resident to use the same amount of water that flows over the Niagara Falls in one second (750,000 gallons).
- American residents use about 100 gallons of water per day.
- The average faucet flows at a rate of two gallons per minute. You can save up to four gallons of water every morning by turning off the faucet while you brush your teeth.
- At one drip per second, a faucet can leak 3,000 gallons per year.
- The first water pipes in the US were made from wood (bored logs that were charred with fire).
- More than 25% of bottled water comes from a municipal water supply, the place that tap water comes from.
- If you drink your daily recommended 8 glasses of water per day from the tap, it will cost you about 50 cents per year. If you choose to drink it from bottled water, it can cost you up to \$1,400 dollars per year.

APPENDIX I
CITY O&M FORMS

DISTRIBUTION SYSTEM VALVE RECORD

Valve Location ↓ \ Date ⇨	/	/	/	/	/	/	/	/	/	/	/	/

9 Valve Position Indications: C = Closed, O = Open, P = Partially Opened or Partially Closed

APPENDIX J

PUBLIC NOTIFICATION FORMS

NOTICE TO WATER SYSTEM USERS

CHEMICAL MONITORING VIOLATION

We, _____ Water System, I.D. _____, located in _____ County are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. In _____ we did not meet our monitoring requirements for the chemicals listed below, and therefore cannot be sure of the quality of your drinking water at that time.

- Volatile Organic Contaminants (VOCs).
- Complete Inorganic Contaminants (IOCs).
- Pesticides.
- Herbicides.
- _____ Other (List Test Panel or Specific IOC Analyte)

At this time:

- Our required _____ samples have been collected for this monitoring period.
- Samples will be collected in the future as required.
- Other information for customers:

For more information, please contact _____ at () _____ - _____ or at _____.
Owner or Operator Phone Number Address

This notice is sent to you by _____ Water System on ___ / ___ / ___

Chemical Monitoring Public Notice Certification Form

This section must be completed by the water system. Signature below indicates notice contained all required elements.

Complete the following items (check all that apply):

- Notice mailed to all water customers on ___ / ___ / ___.
- Notice hand delivered to all water customers on ___ / ___ / ___.
- Notice included in annual Consumer Confidence Report (attach copy).
- Notice posted at _____ on ___ / ___ / ___.
(By Department Approval Only)



Signature of owner or operator

Position

Date

Send copy of completed notification and certification to:

Office of Drinking Water, Water Quality Section
PO Box 47822
Olympia, WA 98504-7822
FAX 360-236-2252

Drinking Water Warning: Backflow Incident

Public Notification

The _____ Water System, ID _____, located in _____ County may be contaminated because of a backflow incident in which _____ (describe the substance) flowed back into the drinking water system. You are located in the service area potentially affected by this backflow incident.

Do Not Use Tap Water for Drinking, Laundry, or Bathing Until Further Notice. Use only purchased bottled water for drinking, making ice, brushing teeth, washing dishes, food preparation, and hand washing.

When backflow occurs, microbial or chemical contamination can be drawn into the water system. These contaminants can cause severe injury or illness.

What caused the backflow incident?

What is the affected area?

What are we doing to correct the problem?

Where can customers get bottled water?

What should you do before you begin using your tap water?

We will notify you when the water is safe to use.

For more information, please call _____ at () ____ - ____ or email _____.

Please share this notice with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments and businesses). You can post it in a public place, share copies by hand, or mail it.

The _____ Water System sent this notice to you on ___/___/___

For Water Utility Use Only:

Backflow Incident Public Notice Certification Form Within 10 days of notifying your customers, please complete this certification form and send a copy of each type of notice you distributed (hand-delivered notices, new releases, email, phone transcript, etc.) to our regional office. Call 1-800-521-0323 for the regional office address.		
Distribution was completed on ___/___/___. Were the water users notified within 24 hours? <div style="text-align: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No</div>	Check all that apply: <input type="checkbox"/> Hand delivery, <input type="checkbox"/> News release (TV, radio, newspaper, etc.), <input type="checkbox"/> Posting at _____ <input type="checkbox"/> Other _____ + _____	
_____ Signature of owner or operator	_____ Position	_____ Date

DOH Form (331-495) 6/14

For people with disabilities, this form is available on request in other formats. To submit a request, please call 800-525-0127 (TDD/TTY 711).

DRINKING WATER WARNING: LOSS OF PRESSURE

Public Notification

The _____ Water System, ID _____, located in _____ County may be contaminated because of a loss of pressure in the water system. Even if you didn't lose water pressure, your tap water may still be contaminated.

Until Further Notice, Boil Your Tap Water Before Drinking. Bring all water to a roiling boil for one minute. Let it cool before using. You should use boiled or purchased bottled water for drinking, making ice, brushing teeth, washing dishes, and food preparation. Boiling kills bacteria and other organisms in the water.

When pressure loss occurs, contamination from the environment or from human or animal waste can be drawn into the water system. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. These symptoms are not only caused by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care provider.

What caused the pressure loss?

What is the affected area?

What are we doing to correct the problem?

What should you do when we restore pressure to the water system?

We will notify you when you no longer need to boil the water.

For more information, please call _____ at () _____ - _____ or email _____.

Please share this notice with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments and businesses). You can post it in a public place, share copies by hand, or mail it.

The _____ Water System sent this notice to you on ___ / ___ / ___

For Water Utility Use Only:

Pressure Loss Public Notice Certification Form Within 10 days of notifying your customers, please complete this certification form and return a copy of each type of notice you distributed (hand-delivered notice, news release, email, phone transcript, etc.) to our regional office. Call 1-800-521-0323 for the regional office address.		
Distribution was completed on ___ / ___ / ____.	Check all that apply:	
Were the water users notified within 24 hours? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Hand delivery, <input type="checkbox"/> News release (TV, radio, newspaper, etc.), <input type="checkbox"/> Posting at _____ <input type="checkbox"/> Other _____	
_____ Signature of owner or operator	_____ Position	_____ Date



PUBLIC NOTICE CERTIFICATION

E. coli-MCL Violation

Within 10 days after notifying your customers about an *E. coli*-MCL violation, you must complete this form and send it to our regional office along with a copy of each type of notice you distributed to your customers (hand-delivered notices, news releases, newspaper articles, and so on).

By completing this form, you certify that:

- You met all of the public notification requirements.
- You will meet future requirements for notifying new billing units of the violation or situation.

If the boil water advisory remains in effect more than three months, you must re-notify your water users and send another completed copy of this *Public Notice Certification* to us.

Complete the following items, sign the form and mail it to the nearest regional office, addresses below:

Water System: _____ ID # _____ County: _____		
Violation Date: ____ / ____ / ____ Violation Type _____		
This public water system certifies that it gave this public notice to water users, following state and federal requirements for delivery, content, and deadlines.		<input type="checkbox"/> Yes <input type="checkbox"/> No
Distribution was completed Yes <input type="checkbox"/> No <input type="checkbox"/> on ____ / ____ / _____.		
Check all that apply:		
<input type="checkbox"/> Hand delivery,		
<input type="checkbox"/> News release (TV, radio, newspaper)		
<input type="checkbox"/> Posting at _____ (by DOH approval only),		
<input type="checkbox"/> Other _____ (by DOH approval only).		
Were the water users notified within 24 hours? Yes <input type="checkbox"/> No <input type="checkbox"/>		
_____ Signature of owner or operator	_____ Position	_____ Date

If you need this publication in an alternative format, call 800.525.0127 (TDD/TTY call 711). This and other publications are available at www.doh.wa.gov/drinkingwater.

Northwest Regional Office:
20425 72nd Ave S Suite 310
Kent WA 98032
(253) 395-6775
Fax: (253) 395-6760
Email: dw.nwro@doh.wa.gov

Southwest Regional Office:
PO Box 47823
Olympia WA 98504-7823
(360) 236-3030
Fax (360) 664-8058
Email: swro.coli@doh.wa.gov

Eastern Regional Office:
16201 E Indiana Ave Suite 1500
Spokane Valley WA 99216
(509) 329-2100
Fax: (509) 329-2104
Email: mark.steward@doh.wa.gov

Lead and Copper Consumer Notice certification form

All Group A water systems that conduct lead and copper monitoring must provide individual sampling results to the persons at each sample location. (CFR 141.85 (d))

Notification of Results: The water system must provide the consumer notice as soon as possible, but no later than 30 days after learning the results.

Community water systems: You must provide individual sampling results to all residences for which you received lead and copper samples. In multi-unit structures, only notify each unit tested.

Nontransient noncommunity water systems (NTNCs): You must notify all consumers who use water from the sample tap, even if they do not receive a water bill. With prior approval from DOH, NTNC water systems can post the notice in public areas.

Certification to the state: DOH must receive a sample copy of one consumer notice and a signed certification form (below) within 90 days after the end of the monitoring period.

To meet this reporting requirement, you may:

- [Use the DOH Consumer Notice Template](#).
- Use the applicable EPA Consumer Notice template.
- Prepare your own Consumer Notice in conjunction with the state.

If you choose to produce your own Consumer Notice, it must include all of the following:

1. The sample results of the tap tested.
2. An explanation of the health effects of lead.
3. Steps consumers can take to reduce exposure to lead in drinking water.
4. The water system's contact information.
5. The maximum contaminant level goal (MCLG) and action level for lead, and the definitions of these two terms.

If you are responsible for multiple water systems, you can send to the Office of Drinking Water:

- A list of the water systems you provided Consumer Notices to, with name and PWS ID number.
- Send one copy of the Consumer Notice you used.
- Send one completed certification form (below).

Lead and Copper Results: Consumer Notification Certification Form

The water system must complete this section. The signature below certifies that the notice contains all required elements.

Complete the following items (check all that apply):

I mailed/delivered all Consumer Notices to the water users at all of the lead and copper sampling locations within 30 days of receiving the lead and copper results from the laboratory.

(For NTNC systems ONLY) Notice posted at _____ on ___ / ___ / ___ within 30 days of receiving the lead and copper results from the laboratory. (Only By Department Approval)

Water System

PWS ID

Signature of owner or operator

Position

Date

Send a copy of the completed notice and this certification form to: Washington State Department of Health, Office of Drinking Water, Water Quality Section, PO Box 47822, Olympia WA 98504-7822 or fax to (360) 236-2252.

NOTICE TO WATER SYSTEM USERS

LEAD AND COPPER MONITORING VIOLATION

We, _____ Water System, I.D. _____, located in _____ County are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. In _____ we did not meet our monitoring requirements for lead and copper, and therefore cannot be sure of the quality of your drinking water at that time.

At this time:

- No action is required by the users.
- Our required lead and copper samples have been collected for this monitoring period.
- Samples will be collected in the future as required.
- Other information for customers:

For more information, please contact _____ at () _____ - _____ or at _____.
Owner or Operator Phone Number Address

Please share this information with people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses.) You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is sent to you by _____ Water System on ___ / ___ / ___

Lead & Copper Monitoring Public Notice Certification Form

This section must be completed by the water system. Signature below indicates notice contained all required elements.

Complete the following items (check all that apply):

- Notice mailed to all water customers on ___ / ___ / ___.
- Notice hand delivered to all water customers on ___ / ___ / ___.
- Notice published in newspaper (attach copy)
- Notice posted at _____ on ___ / ___ / ___.
(By Department Approval Only)



Signature of owner or operator

Position

Date

Send copy of completed notification and certification to:

Lead and Copper Program
Office of Drinking Water
PO Box 47822
Olympia, WA 98504-7822
FAX 360-236-2252

AVISO PARA LOS USUARIOS DEL SISTEMA DE AGUA

VIOLACIÓN DEL MONITOREO DE PLOMO Y COBRE

Nosotros, el sistema de agua _____, con número de identificación (I.D#) _____, ubicado en el condado de _____, regularmente debemos monitorear contaminantes específicos en el agua que usted toma. Los resultados del monitoreo son un indicador para comprobar si el agua que usted toma cumple con los estándares de salud. En _____ no cumplimos con el requisito de monitorear el plomo y el cobre, y por lo tanto no podemos estar seguros de la calidad del agua que usted tomó en esa fecha.

En este momento:

- Ninguna acción se requiere de parte de los usuarios.
- Nuestras muestras de plomo y cobre requeridas han sido tomadas para este periodo de monitoreo.
- Las muestras serán tomadas en el futuro como se requiere.
- Otra información para los usuarios:

Para mayor información comuníquese con _____ al teléfono () _____ - _____ o con

(dueño u operador)

(teléfono)

(dirección)

Pase esta información a todas las personas que pudieran tomar agua de este suministro, especialmente aquellas personas que no hayan recibido este aviso (por ejemplo, personas que vivan en apartamentos, asilos de ancianos, escuelas y negocios.) Usted puede hacerlo colocando este aviso en un lugar público donde se pueda leer claramente o distribuyendo copias en persona o enviándolas por correo.

Este aviso es enviado a usted por el Sistema de Suministro de Agua _____ fecha ___ / ___ / ___.

APPENDIX K
SELECTED CITY ORDINANCES

**AN ORDINANCE OF THE CITY OF WINLOCK,
WASHINGTON, ADOPTING THE CITY OF WINLOCK
CROSS-CONNECTION AND BACKFLOW PREVENTION
MANUAL AND ESTABLISHING AN EFFECTIVE DATE
HEREOF.**

WHEREAS, the city of Winlock has provided and wishes to implement a comprehensive cross-connection and backflow central program in accordance with Revised Code of Washington (RCW) Chapter 70.54 and Washington Administrative Code (WAC) Chapter 246-290-490; and

WHEREAS, it is of benefit to all water customers that the location of all cross-connection and backflow risks to the domestic water supply be located, proper backflow protection devices installed, and regular programs of inspection and testing of backflow protection devices be conducted; now, therefore,

**THE CITY COUNCIL OF THE CITY OF WINLOCK, WASHINGTON, DO
ORDAIN AS FOLLOWS:**

Section 1. Those certain standards and guidelines entitled "City of Winlock Cross-connection and Backflow Prevention Manual" are truly adopted as official cross-connection and backflow prevention requirements and conditions for all existing and new domestic water service customers of the city. Compliance with the provisions of the manual shall be a condition of receiving the city of Winlock water supply.

Section 2. All persons receiving the city of Winlock domestic water supply shall comply with the following provisions:

- A. It shall be unlawful for any person to install a cross-connection between any private water supply system and supply system of the city.
- B. It shall be unlawful for any person to allow any contaminants to backflow from the person's private facility and/or property into the city distribution system. Any connections now existing or hereafter installed that could allow for backflow of any contaminants into the city distribution system shall be disconnected and/or eliminated. Connections which cannot be discontinued and/or eliminated shall require the installation of an approved backflow protection device and shall be regularly inspected and tested in

accordance with the City of Winlock Cross-connection and Backflow Prevention Manual.

C. It shall be unlawful for any person to maintain, construct, or install a system to supply water for human consumption in violation of RCW 70.54 or WAC 246-290-490, as the same exist or are hereafter amended.

D. Violation of any of the aforementioned provisions of this section may result in the imposition of civil and criminal penalties as set forth in Section 5 hereof. In addition, violation of any of the provisions above is declared to be subject to immediate abatement by the city. In addition to abatement and the impositonal civil or criminal penalties, the city may, at its sole discretion, discontinue or refuse service for violations occurring at such premises in accordance with Section 5 hereof.

Section 3. The City of Winlock Cross-connection and Backflow Prevention Manual attached as Exhibit "A" to this Ordinance is adopted by this reference as fully as if herein set forth. Copies of the manual shall be maintained in the office of the City Clerk and the Building Inspector of the city of Winlock. This manual shall be maintained for public inspection during normal business hours and copies shall be made available to the Water/Sewer Superintendent.

Section 4. This Ordinance shall take effect and be in full force _____ (months - days) after publication of the attached summary which is hereby approved.


Section 5. Violations of this Ordinance and the City of Winlock Cross-connection and Backflow Prevention Manual will result in a fine of Five Hundred and no/100 Dollars (\$500.00).

PASSED by the City Council of the city of Winlock, Washington, and **APPROVED** by its Mayor, at a regularly scheduled open public meeting thereof this 25 day of March, 1996.



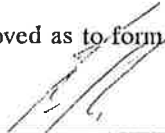
Mayor

Attest:



City Clerk-Treasurer

Approved as to form:



City Attorney

**CROSS CONNECTION CONTROL AND BACKFLOW
PREVENTION MANUAL
CITY OF WINLOCK WATER SYSTEM
Prepared by Rodney Cecil CCS 012964
2017**

REQUIREMENT FOR PROGRAM

CITY OF WINLOCK WATER SYSTEM 97500C

City of Winlock has the responsibility to protect the public water system from contamination due to cross connections. A cross connection may be defined as “*any actual or potential physical connection between a potable water line and any pipe vessel, or machine that contain or has a probability of containing a non-potable gas or liquid, such that it is possible for a non-potable water system by backflow*”

The Washington Administrative Code also states that the City of Winlock shall develop and implement a cross connection control program acceptable to the Washington Department of Health. The scope and complexity of the program shall be directly related to the size of the system and the potential public health risk. The City of Winlock, in establishing its cross connection policies, shall use as references the most recent manuals listed in the Cross control Manual adopted by the Winlock City Council. The City of Winlock shall have the option of establishing more stringent requirements.

All public water systems are required to develop and implement cross connection control programs (CCC) . The CCC requirements are contained in the WAC code 246-290-490 of the group A drinking water regulations. The minimum required elements of a CCC program are:

- **Element 1:** Adoption of a written legal instrument authorizing the establishment, implementation of a cross connection control program.
- **Element 2:** Development, implementation of procedures, schedules for evaluating new and existing service connections to assess the degree of hazard.
- **Element 3:** Development and implementation of procedures and schedules for elimination and/or control of cross connection.
- **Element 4:** Provisions of qualified personnel including at least one person certified as a CCS to develop and implement a cross connection control program.
- **Element 5:** Development and implementation of procedures to ensure that approved backflow preventers are inspected and/or tested as applicable.
- **Element 6:** Development and implementation of a backflow prevention assembly testing quality assurance/quality control program.
- **Element 7:** Development and implementation (when appropriate) of procedures for responding to backflow incidents.
- **Element 8:** Development and implementation of a cross connection control public education program
- **Element 9:** Development and implementation of cross connection control records.
- **Element 10:** Additional cross Connection Control requirements for reclaimed water.

Other CCC program requirements include:

The purpose of the cross connection control program is to protect the health of water consumer and the potability of the public water system through:

- Inspection and regulation of plumbing in existing and proposed piping networks by the plumbing inspector having jurisdiction.
- The City of Winlock will survey and assess each premise to assess the need for the installation of backflow prevention assemblies on the water service.
- The proper installation and surveillance of back-flow prevention assemblies installed on the water service when actual or potential cross connections within the premises exist and cannot be eliminated or isolated to the City of Winlock's satisfaction.

NOTE: Throughout this CCC program plan, the term *customer* is used. *Customer* as used herein means the property owner and/or occupant of the premises served by the City of Winlock's Water System.

Program Objectives:

The objectives of the City of Winlock's CCC program are to:

1. Reasonably reduce the risk of contamination of the public water distribution system; and
2. Reasonably reduce the City of Winlock's exposure to legal liability arising from the backflow of any contaminant origination from the customer's plumbing and then supplied to other customers; and
3. Cooperate with local public health and plumbing inspection authorities in their responsibilities to protect the customer from potential contamination through cross connections within the customer's property.

ELEMENT 2

The procedures for evaluation the backflow prevention requirements for new and existing customers are as follows:

1. For all ***new non-residential services***, The City of Winlock, will require that the customer submit with the application for water service, an evaluation (**performed at customers expense**) , by a City of Winlock CCS or a DOH-certified cross connection control specialist of the hazard posed by the proposed plumbing system. Recommendations for the installation at the meter of either a double-check valve assembly (DCVA) or a reduced-pressure principle backflow assembly (RPBA). The City of Winlock may accept the recommendations or submit to a City of Winlock CCS or a contracted CCS the recommendations for peer review and concurrence, before acceptance. (at the customers expense)

As an alternative, to the above requirement, the customer may agree to install an approved air gap (AG) or RPBA for premises isolation as a condition of service.

2. For all ***new residential services***, the City of Winlock will require that the customer submit with the Application for water service a completed ***“City of Winlock Hazard survey form”***. If the customers report form indicates special plumbing like a lawn sprinkler system or some other hazardous water use is on the premises. The customer shall submit to the City of Winlock an evaluation from either a City of Winlock CCS or a DOH certified CCS listing the type of hazard posed by the special plumbing with a recommendation for the installation at the meter of either a DCVA or RPBA. *Or commensurate in-premises protection.*
3. for all ***existing non-residential services***. The City of Winlock will require the the customer to submit To the City of Winlock within 15 days of notification, an evaluation by either of City of Winlock CCS or a DOH certified CCS detailing the hazard posed by the plumbing system with recommendations for the installation of at the meter of either a DCVA or RPBA. The City of Winlock may accept the recommendations or conduct a peer review for concurrence, before acceptance. *Or commensurate in-premises protection.*

Alternatives to the above requirements for a survey by a City of Winlock CCS or a DOH certified CCS; the customer may agree to install an AG or RPBA for premises isolation within 30 days of notification by the City of Winlock or an alternate time period acceptable to the City of Winlock.

4. For all ***existing residential services***, the City of Winlock will require that the customer submit within 15 Days of notification a ***“City of Winlock Hazard survey form”***. If the customers report form indicates special plumbing like a lawn sprinkler system or some other hazardous water use is on the premises. The customer shall submit to the City of Winlock an evaluation from either a City of Winlock CCS or a DOH certified CCS listing the type of hazard posed by the special plumbing with a recommendation for the installation at the meter of either a DCVA or RPBA. *Or commensurate in-premises protection.*

Alternatives to the above requirements for a survey by a City of Winlock CCS or a DOH certified CCS, the City of Winlock may specify the backflow preventer required for installation as a condition of service. The City will provide guidance on the type of device or assembly needed.

4. For all existing services, should the customer fail to supply the required information for hazard assessment fail to submit a completed ***“City of Winlock Hazard survey form”***. the City of Winlock may have the assessment made by a City of Winlock CCS or a DOH certified CCS and require the installation of an RPBA for premises isolation, or take other such action consistent with the previously stated policies and bill the customer for the associated costs.
5. The Customer agrees to bear all costs for the aforementioned installation, testing, repair, maintenance and Replacement of the RPBA, RPDA, DCVA or DCDA installed to protect the City of Winlock’s distribution system. This will also include any hazard re-assessments.
6. All customers will be required to sign and have filed a **“ Conditions of Providing Service”** prior to water service being provided.

CROSS-CONNECTION HAZARD SURVEY SCHEDULE FOR SUBSEQUENT HAZARD RE-ASSESSMENTS

For subsequent cross-connection hazard surveys, procedures for evaluating the backflow prevention requirements are:

- For **residential services**, the customer will be required to submit, within 15 days of notification, to the City of Winlock a completed **“City of Winlock Hazard survey form”**. This will be the same process as the initial hazard assessment. This will include any potential change in the required backflow prevention assemblies needed.
- For all **non-residential services**, The City of Winlock will require the customer to submit to the City within 15 days of notification, a hazard re-assessment by either of City of Winlock CCS or a DOH certified CCS.

The frequency of hazard re-assessments will be as shown in the table below:

Type of Service	Frequency of Re-Evaluation
Any services with reduced-pressure principle Assembly (RPBA) installed for premises Isolation.	None required as long as the RPBA passes the Annual tests and inspections.
Commercial services with double-check valve Assembly (DCVA) installed for premises Isolation.	Every two years and upon change in ownership.
Commercial services when the City of Winlock Relies upon in-premises protection	Every two years and upon change in use, ownership Or the plumbing system.
Residential services with special plumbing where The City of Winlock relies upon compliance with The Uniform Plumbing Code.	Every 1-2 years, need new questionnaire.
Residential services with DCVA installed for Premises isolation.	Every 1-2 years need new questionnaire.
Residential services with no known special Plumbing or water use on the premises	Every 1-2 years and upon change in use, ownership Or plumbing system. Need new questionnaire

The City of Winlock will inform the customer that the sole purpose of the survey of the customer’s premises is to insure that the minimum requirements for the protection of the public water system, and that any backflow devices are commensurate with the City of Winlock’s assessment of the degree of hazard. This will be done through visual inspections and/or the evaluation of the survey questionnaire.

City of Winlock will also inform the customer or any regulatory agencies of the City of Winlock’s requirements for the installation of backflow assemblies, or lack of requirements for the installation of backflow assemblies. Any action by the City of Winlocks personell does not constitute an approval of the

customers plumbing system or an assurance to the customer or any regulatory agency of the absence of cross connections.

ELEMENT 3

The following service policy shall apply to all new and existing customers:

1. The City of Winlock will require that water services to all **non-residential customers**, be isolated at the meter by a DOH approved DCVA or RPBA acceptable to the City of Winlock. All high-hazard connections of the type described in Table 9 of WAS 246-290-490 shall be isolated with a RPBA.

In lieu of isolation with a DCVA, other non-residential customers, with the concurrence of the City of Winlock’s CCS may install in-premise protection commensurate with the degree of hazard as determined by the City of Winlock’s CCS.

2. The City of Winlock will require all **residential customers** that have facilities listed in table 9 of WAC 246-290-490 to be isolated with a RPBA. All other **residential customers** with special plumbing or water use on the premises will be isolated with a DCVA. **“Special Plumbing”** includes, but is not limited to, the following: See WAC 51-56-0600 UPC

- Lawn irrigation system
- A solar heating system
- An auxiliary source of supply (well or a creek)
- Piping for livestock watering, hobby farming, etc..
- Residential fire sprinkler system
- Boat moorage property
- Swimming pools, hot tubs, landscape ponds.
- photo lab

PREMESIS ISOLATION

Degree of Hazard	Application Condition	Appropriate approved Backflow Preventer.
High Health Cross Connection Hazard	Bicksiphonage or Backpressure backflow	AG, RPBA or RPDA
Low Cross Connection Hazard	Backsiphonage or Backpressure backflow	AG, RPBA, RPDA, DCVA Or DCDA

In the event that the City of Winlock’s CCS or a DOH certified CCS determines that no hazard exists for a connection serving a premises of the type listed in table 9, the City of Winlock may grant an exception to the premises isolation requirements. The City of Winlock shall document, on a case by case basis, the reasons for granting an exception and include this in there annual report.

3. **For all customers that have a written service contract with** the City of Winlock the following premises isolation DCVA or RPBA shall be:

- Purchased and installed by the customer at the customers expense, immediately downstream of the water meter in accordance with the City of Winlock's standards described hereinafter; and
- Maintained, tested, and inspected in accordance with the City of Winlock's standards described hereinafter.

For new customers, the City of Winlock will not turn on water, except for testing purposes, at the meter until the customer complies with the above requirements.

The failure of the customer to comply with the City of Winlock's installation and maintenance requirements shall constitute a breach of contract and the city may then proceed with the enforcement option stipulated in the contract.

4. Customers without written contract will be considered to have an implied contract that requires all reasonable costs of service. The city of Winlock will install the required DCVA or RPBA on the service line upstream from the meter and charge the customer the cost of the initial installation, and all future maintenance, testing, and repair as set forth in the City of Winlock's rates and charges. The failure of the customer to pay these cost will be deemed a violation of a contract and the City of Winlock may proceed with the established delinquency of payment procedures. As an alternative to the above conditions the customer may enter into a written contract and install the required backflow preventer downstream of the meter in accordance with the City of Winlock's installation standards described hereinafter.

5. Approved backflow preventer and Installation:

All backflow preventer relied upon by the City of Winlock will comply with WAC 246-290-010. The City of Winlock will maintain a current list of backflow devices as approved by the DOH off of Drinking Water. (On file.)

All backflow preventers will be installed in:

- The orientation for which they are approved.
- A manner and location that facilitates their proper operation, maintenance and testing or inspection.
- A manner that will protect them from weather-related conditions such as flooding and freezing; and
- Compliance with applicable safety regulations.

The City of Winlock installation standards will follow the most recent editions of the Cross Connection manuals listed in the City of Winlock's resolution. All installations shall conform to standard construction drawings and specification of the City of Winlock. In the event the manufacturer's requirement are more stringent then the City will proceed with the more stringent procedures.

The City of Winlock has no regulatory responsibility or authority over the installation and operation of the customers plumbing system. The customer is solely responsible for compliance with all applicable regulations and for the prevention of contamination of his plumbing system from sources within his/her premises. Any action taken by the City of Winlock to survey plumbing, inspect or test backflow

prevention assemblies or to require premises isolation is solely for the purpose of reducing the risk of contamination of the City of Winlock's distribution system.

The City of Winlock will inform the customer that any action taken shall not be construed by the customer as guidance on the safety or reliability of the customers plumbing system. The City of Winlock will not provide advice to the customer on design and installation of plumbing other than through the general public education program discussed in element 8.

The City of Winlock will not undertake any work on the customer's property except for easements containing the City of Winlock's water distribution System.

The following table shows the schedule the City of Winlock will follow for installation of backflow preventers when they are required. This will be based on the hazard evaluation.

Type of Service	Schedule
New Connections with Cross-Connection Hazards	Before service is initiated
Existing connections with table 9 type Hazards and other high cross connection Hazards.	Within 30 days after notification
Existing connections with other than table 9 of WAC 246-290-490 or high cross Connection hazards	Within 90 days after notification
Existing fire protection system using Chemicals or supplied by unapproved Auxiliary water source	Within 90 days after notification
Existing fire protection systems not using Chemicals and supplied by the City of Winlock's water supply.	Within 6 months after notification

The city of Winlock may consider granting an extension of time for installation of backflow preventer for an existing connection if requested by the premises owner.

ELEMENT 4

1. **Program Administration:**

The responsibility for administration of the CCC program rests with the City of Winlock. Some duties may be performed by the Local Administrative Authority (LAA) or the Lewis County DOH.

2. The City of Winlock will employ or have on staff at least one person certified by DOH as a CCS to Develop and implement the CCC program. As an alternative, or when no staff or employees are properly qualified, the City of Winlock may retain a DOH certified CCS on contract to provide the necessary expertise and services.

3. The following Cross-Connection related tasks will be performed by or under the direction of the City Of Winlock's certified CCS. (On staff or under contract)

- Preparation of and recommendations regarding changes to the CCC program;
- Performance of and/or reviews of CCC hazard evaluations;
- Recommendations on the type of backflow preventer to be installed;
- Recommendations on schedules for retrofitting of backflow preventers;
- Inspections of backflow preventers for proper application and installation;
- Reviews of backflow preventer inspection and test reports;
- Reviews of backflow testing quality control information;
- Recommendations and/or the granting of exceptions to mandatory premises isolation;
- Participation in or cooperation with other water utility staff in the investigation of backflow incidents and other water quality problems;
- Completion of backflow incident reports; and
- Completion of CCC Activity and Program Summary Reports.

4. The City of Winlock may delegate other CCC program activities to other personnel who are not Certified CCS'S, including clerical support staff. These activities may include:

- Administration of paperwork associated with service agreements;
- Mailing, collecting and initial screening of hazard evaluation/surveys;
- Mailing of assembly testing notices;
- Receiving and screening of assembly testing reports;
- CCC program database administration;
- Dissemination of public education material; and
- Assisting tasks associated with coordination with the LAA

6. The following table identifies the current CCS employed or retained on contract by the city of Winlock to

Manage the City of Winlock's CCC program and/or act as the CCC technical resource for the City of Winlock.

Name of CCS	Rodney Cecil
Address	Po box 777
City, State, Zip	Winlock, WA 98596
Telephone Number	360-520-5589
CCS Certification Number	012964

ELEMENT 5

All backflow preventers that the City of Winlock relies upon for protection of the water system will be subject to inspection and if applicable testing. This will also include backflow preventers installed for in-premises protection that the City of Winlock relies on for protection of the water system.

1. Inspection and testing of backflow preventer will be as follows:

- The city of Winlock CCS or DOH certified CCS will inspect backflow preventers for proper application. This will be commensurate with the degree of hazard identified in the Survey report.
- Either of DOH certified, City of Winlock Certified CCS for the City of Winlock or a Backflow Assembly tester (BAT) will perform inspections of backflow preventers for correct installation.
- A DOH certified backflow assembly tester will test all assemblies relied upon by the City of Winlock to protect the public water system.

2. Frequency of Inspection and Testing

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

The City of Winlock may require more testing when it protects against a high health hazard or when it repeatedly fails tests or inspections.

3. Responsibility for Inspection and Testing

The City of Winlock will be responsible for the inspection and testing of all backflow assemblies that are owned by the City.

The City of Winlock will require the customer to be responsible for the testing of backflow preventers owned by the customer. The testing shall be done by a DOH certified backflow assembly tester (BAT) and a report submitted to the City of Winlock within the time period set by the City of Winlock. The test report will be signed by the BAT, then signed by the customer and returned to the City of Winlock within the time period. The customer may request an extension of the due date for returning the test report by submitting a written request to the City of Winlock. City of Winlock may grant one extension for up to 30 days. The City of Winlock may also contract out this inspection/testing to a licensed BAT and have the customer billed directly.

4. Approved Test Procedures

The City of Winlock will require all assemblies to be tested in accordance with DOH approved test procedures as specified in WAC 246-290-490 (7)(d). Any proposal to use an alternative method must be approved by the City of Winlock's CCS

5. Notification of Inspection and/or Testing

The City of Winlock shall notify all customers who own backflow assemblies of the required date for the inspection and testing to be completed. Customers shall be made aware of the date the testing/inspection is to be completed when they sign up for new service and/or have a backflow assembly installed. For customers who already have backflow assemblies installed they will receive a letter from the City of Winlock with the required date for inspection/testing. The city may also have a company come out and conduct the testing and bill the customer directly.

6. Enforcement

When a customer fails to send in the inspection/test report, or any other demand that is consistent with the Cross Connection Control Plan 2017, within 15 days after the due date specified, and the City of Winlock has not approved an extension the City will Take the following enforcement action:

- The City of Winlock will send a 2nd notice giving the customer an additional 10 days to send in the required information.
- If the customer has not sent in the required information within 10 days of the due date given in the 2nd notices the City of Winlock will send a 3rd notice, by certified mail, or hand delivered to the customer giving them an additional 5 days to send in the required information. This notice will also advise the customer that failure to comply will result in the water to that service location being shut off.
- The City of Winlock will also send copies of the 3rd notice to the owner and occupants of the premises (if different from the customer) and to the LAA or Lewis County Building Department.
- If the customer and/occupants have not sent in the required information within 5 days of the due date listed in the 3rd notice the City of Winlock will implement water service shut off.
- **Optional Procedure Prior to shut Off:** The City of Winlock may offer to arrange for the inspection and/or testing of the customer-owned backflow preventers by a certified BAT and will bill the customer the actual and typical cost of inspection and/or testing in the service area plus reasonable administrative costs. Collection and utility charges will be the same for other water utility companies.

ELEMENT 6:

1. List of Pre-Approved Bat's

The City of Winlock may maintain a list of local DOH-certified Bat's that are pre-approved by the City of Winlock to perform the following activities:

- Backflow preventer inspection for proper installation; and
- Backflow assembly testing.
- Cross-Connection hazard evaluations;
- Backflow preventer inspection for proper application.

2. Pre-Approval Qualifications

Bat's and CCS, who perform work or wish to be included in the City of Winlock's pre-approved list and/or provide testing in the City of Winlock's service area must apply, or have on record the following information:

- Evidence of current DOH certification in good standing
- Make and model of testing equipment (BAT)
- Evidence of test equipment verification of accuracy and/or calibration within the past 12 months (BAT)
- Evidence of possession of valid operator's license for operating a business the City of Winlock or in Lewis County.

3. Quality Assurance

The City of Winlock's CCS will review within 30 days of receipt the backflow preventer test/report forms submitted by the customer.

The City of Winlock's CCS will provide follow up on test reports that are deficient in any way.

The City of Winlock's CCS will report incidences of fraud or gross incompetence on the part of any BAT or CCS to DOH Operator Certification Program Staff.

ELEMENT 7

1. Backflow Incident Response Plan

The City of Winlock's CCS will participate in developing a backflow incident response plan that will be part of the water system's emergency response program as required by WAC 246-290-415(2). The incident response plan will include, but will not be limited to:

- Notification of affected population.
- Notification and coordination with other agencies, such as DOH, the LAA (Lewis County Building Department) and the Local Health Jurisdiction.
- Identification of the source of contamination.
- Isolation of the source of the contamination and the affected area(s)
- Cleaning, Flushing and other measures to mitigate and correct the problem; and
- Apply corrective action to prevent future backflow occurrences.

2. Technical Resources

The City of Winlock will use the most recently published edition of the manual, *Backflow Incident Investigation Procedures*, published by the PNSW-AWWA as a supplement to the Backflow Incident Response Plan for the City of Winlock.

ELEMENT 8

1. Customer Education:

The City of Winlock will distribute with the water bills at various times throughout the year public education brochures. These brochures will include information about cross connections in the home or business, and recommendations on the type of backflow device or assembly that may be needed to address the issue and protect the public water system. The education program will emphasize the responsibility of the customer in preventing the contamination of the public water system. Training materials may be obtained from the following sources:

- PNWS-AWWA;
- Other water Utilities
- BMI backflow management
- DOH website

The information distributed by the City of Winlock will include, but not limited to, the following subjects.

- Cross Connection hazards in general
- Irrigation system hazards and corrective actions
- Fire sprinkler cross connection hazards
- Importance of annual inspection and/or testing of backflow preventers and;
- Thermal expansion in hot water systems when backflow preventers are installed for Premises isolation.

The City of Winlock will distribute information brochures to customers every 2-3 years, and to every new customer at the time the service agreement is signed.

2. Public Outreach

The city of Winlock will make every effort to participate in outreach programs. This program will cover topic that are critical to the successful implementation and maintenance of the City of Winlock's cross control program.

ELEMENT 9:

1. Types of Records and Data to be maintained.

The City of Winlock will maintain records of the following types of information required by WAC 246-290-490:

- Service connection/customer premises information including:
 1. Assessed degree of hazard; and required backflow preventer to protect the public water System.
- Backflow preventer inventory and information including:
 1. Air gap location, installation times and inspection dates. This will include results and person Conducting the inspection.
 2. Backflow assembly location, type, make, model, size and serial number, installation, Inspection and test dates, test results and data, and the person performing the inspections.
 3. Information of atmospheric vacuum breakers used for irrigation system applications, make Model, size, date of installation and inspections and person performing inspections.

The city of Winlock will maintain all records, in addition to the above, that have anything to do with the successful implementation of the City of Winlock's Cross Control Program.

2. Reports to be prepared and submitted to DOH

The City of Winlock will prepare the following reports required by WAC 246-290-490 including:

- Cross connection control program activities report for the calendar year. When requested by DOH;
- Cross connection control program summary information, when required, or when there are significant policy changes;
- Backflow incident reports to DOH and;
- Documentation when exceptions to mandatory premises isolation are granted; this will be prepared and signed by the City of Winlock's CCS or a DOH certified CCS.
- City of Winlock's CCS or a DOH certified CCS will sign all CCC related reports required by WAC 246-290-490
- City of Winlock's CCS will review all CCC related reports for correctness.

ELEMENT 10

At this time the City of Winlock does not received or distribute reclaimed water. In the event that this process is proposed then the City of Winlock will make all cross connection control requirements mandated by the permitting authority in accordance with Chapter 90-46 RCW. This will become part of the official CCC program.

OTHER PROVISIONS

1. Coordination with Local Administrative Authority

Both WAC 246-290-490 and the Uniform Plumbing Code (UPC) amended for Washington require coordination between the City of Winlock and the Local Administrative Authority (lewis county building) in all matters pertaining to cross-connection control .

The City of Winlock will provide of copy of this CCC program to The Lewis County Building Dept. via the water system plan or in a separate document. The City of Winlock will notify the Lewis County Building Dept and any changes in this policy that may have an impact on the Building department or the LAA. This may include the following information:

- Requirement imposed on a residential customer for the installation of a DCVA or a RPBA on the service, with a description of the cross-connection hazard identified.
- Upgrade of the premises isolation backflow preventer, i.e., from a DCVA to a RPBA
- Action taken to discontinue water service to a customer; and
- Backflow incident known by the City of Winlock to have contaminated the public water system or a customer's plumbing system.

2. Written Agreement with Local Administrative Authority

The City of Winlock will pursue development of a written agreement with the LAA regarding the details of the coordinating on CCC issues between the two parties. The agreement will include, but not limited to the following items:

- The purpose of the written agreement
- Identification of the parties and other interested agencies
- Delineation of responsibilities
- Procedures regarding new service connections
- Procedures regarding existing and changes to existing services
- Special policies and procedures, such as for fire protection and irrigation services
- Procedures regarding water service shut-offs, backflow incidents, and other events
- Communication between parties.

3. Prohibition of Return of Used Water

The City of Winlock will prohibit the intentional return of used water to the Cities distribution system. Per WAC 246-290-490 (2) (1). Used water is defined as water that has left the control of the City of Winlock. This included water used for heating and cooling purposes and water that may flow back into the distribution system from customers with multiple connections.

It is the policy of the City of Winlock to;

- Prohibit the intentional return of used water to the distribution system by any customer served by the public water system; and
- Require that all customers with multiple connection, where the hydraulics permit the potential return of used water, to install a backflow preventer (DVDA or RPBA) commensurate with the degree of hazard at **each point** of connection.

The City of Winlock may consider any of the following:

4. Unapproved auxiliary supplies

All water supplies other than those owned by the City of Winlock are considered unapproved auxiliary supplies as defined in WAC 246-290-010. These unapproved supplies will be required to do the following:

- Per table 9 of WAC 246-290-490, the City of Winlock will require the installation of an RPBA for premises isolation at the service connection to any customer having an unapproved auxiliary supply on the premises that interconnects to the City of Winlock's distribution system.
- **Optional Approach:** Customers with an Unapproved Water Supply **NOT** connected to the City of Winlock's water system. If RPBA are only required when the auxiliary supply is interconnected with the water supply as listed above, the City of Winlock will require the installation of a DCVA for premises isolation at the service connection for any customer with an Unapproved water supply not interconnected with the City of Winlock's water system.

5. Tanker Trucks

Tanker trucks, or any other type of water storage or transportation method, may obtain water from the city of Winlock under the following conditions:

- The vehicle is equipped with an approved AG or an approved RPBA with a current satisfactory inspection or test report.
- The vehicle will obtain water from designated watering points only.

6. Temporary Water Connection

The City of Winlock will not supply water through a temporary connection, such as those used for construction projects. Any connection to the City of Winlock's water supply must follow the same guidelines listed above in # 5. (Tanker trucks)

7. Interties and Wholesale water Customers:

The City of Winlock will require that interties with other public water systems or wholesale customers (mobile home parks) be isolated at the point of delivery by:

- A minimum of a DCVA; and
- A minimum of an RPBA if the City of Winlock considers the purchasing system or wholesale customer to pose a high health hazard to the City of Winlock' distribution system.

The City of Winlock may waive or reduce the above requirements listed in #7 if it is determined that the customer meets the following:

- Is a group A public Water system **Not** exempt fro DOH regulation as per WAC 246-290-020(2)
- Has a CCC program that complies with WAC 246-290-490 and which has been approved by DOH
- Implements the CCC program at a level satisfactory to the City of Winlock.

Relationship to other Planning and Operations Program Requirements

The City of Winlock will consider requirements and consequences of the CCC program on the utilities planning and operations requirements. May include, but not limited to:

- Promoting adequate communications between CCC program personnel and other water utility staff
- Adequate training is provided to all staff to recognize potential cross connections
- Cross connection issues be considered in water quality investigations
- The the design of the system makes adequate provisions for expected head losses incurred through the installation of backflow assemblies
- That The CCC program personnel be consulted in the design of water and wastewater treatment facilities and when proposals are made to receive or distribute reclaimed water
- Monitor pressure losses during normal and abnormal conditions
- That adequate financial and administrative resources are available to carry out the CCC program

High health cross-connection hazard premises requiring premises isolation by AG or RPBA. Per WAC 246-290-490

1. Agricultural (farms and Dairies)
2. Beverage bottling plants
3. Car washes
4. Chemical plants
5. Commercial Laundries and Dry Cleaners
6. Premises where both water and potable water are provided
7. Film processing facilities
8. Food processing plants and centers (road side coffee shops ect...)
9. Hosipitals, medical centers, nursing homes, veterinary, medical and dental clinics and blood centers
10. Premises with separate irrigation systems using the purveyor's water supply with chemical addition *
11. Laboratories
12. Metal plating industries
13. Mortuaries
14. Petroleum processing or storage plants
15. piers and docks
16. Radioactive material processing plants or nuclear reactors. **
17. Survey access denied or restricted
18. Wastewater treatment plants **
19. wastewater lift station or pumping stations
20. Premises with an unapproved auxiliary water supply interconnected with the potable water supply

* For example Parks, Playgrounds, Golf courses, cemeteries, estates etc...

** RPBA's for connection serving these premises are acceptable only when used in combination with an in-plant approved air gap: otherwise, the purveyor shall require an approved air gap at the service connection.

ORDINANCE NO. 924

AN ORDINANCE OF THE CITY OF WINLOCK,
WASHINGTON, ADOPTING THE DESIGN GUIDELINES
AND ESTABLISHING THE EFFECTIVE DATE HEREOF.

THE CITY COUNCIL OF THE CITY OF WINLOCK, WASHINGTON, DO
ORDAIN AS FOLLOWS:

Section 1. The City Council of the city of Winlock, Washington, hereby adopts in total the Design Guidelines, attached hereto, marked Exhibit "A", and incorporated herein by this reference, together with any amendments hereafter made thereto.

Section 2. This Ordinance shall be in full force and effective five (5) days after passage and publication as required by law.

PASSED by the City Council of the City of Winlock, Washington, and **APPROVED** by its Mayor, at a regularly scheduled open public meeting thereof this 27th day of August, 2007.



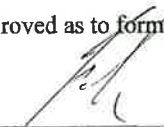
Mayor

Attest:



City Clerk-Treasurer

Approved as to form:



City Attorney
WSBA #12059

ORDINANCE NO. 1038

**AN ORDINANCE OF THE CITY OF WINLOCK,
WASHINGTON, ADOPTING THE PUBLIC SERVICES
ORDINANCE, REPEALING ORDINANCE NO'S. 954, 994,
1005, 1025 AND 1026, IN THEIR ENTIRETY AND ANY AND
ALL OTHER ORDINANCES IN CONFLICT HEREWITH,
AND ESTABLISHING THE EFFECTIVE DATE HEREOF.**

**THE CITY COUNCIL OF THE CITY OF WINLOCK, WASHINGTON, DO
ORDAIN AS FOLLOWS:**

Section 1. The City Council of the city of Winlock, Washington, hereby adopts in total the Public Services Ordinance, attached hereto, marked Exhibit "A", and incorporated herein by this reference.

Section 2. The City Council of the city of Winlock, Washington, hereby repeals Ordinance No's 954, 994, 1005, 1025 and 1026 in their entirety along with any and all other Ordinances in conflict herewith.

Section 3. This Ordinance shall be in full force and effective five (5) days after passage and publication by title as required by law.

PASSED by the City Council of the City of Winlock, Washington, and **APPROVED** by its Mayor, at a regularly scheduled open public meeting thereof this 14th day of December, 2015.

Mayor

Attest:

City Clerk-Treasurer

Approved as to form:

City Attorney, WSBA #42883

EXHIBIT "A"

Chapter 13 – Public Services

13.01 Storm Water

- 13.01.010 Definitions.
- 13.01.020 Applicability.
- 13.01.030 Charges for Specific Parcels and Uses
- 13.01.040 Billing of Charges
- 13.01.050 Nonpayment of Bills – Water Service Discontinuance Conditions
- 13.01.060 Nonpayment of Bills – Penalties for Delinquency
- 13.01.070 Utility Billing – Credit Priority for Payments

13.01.010 Definitions.

As used in this ordinance the following definitions shall apply;

- A. **"City"** means the City of Winlock, Washington.
- B. **"Customer"** means a person in whose name service is rendered, as evidenced by the signature on the application or contract for that service or, in the absence of a signed instrument by the receipt and payment of bills regularly issued in his/her/its name regardless of the identity of the actual user of the service.
- C. **"Parcel"** means the smallest separately segregated unit of plot of land having an identified owner, boundaries, and surface area which is documented for tax purposes and given a tax account (parcel) number by the county assessor.
- D. **"Developed parcel"** means any parcel which has been altered by grading or filling of the ground surface or by construction of any improvement or other impervious surface area which affects the hydraulic properties of the parcel.
- E. **"Undeveloped parcel"** means any parcel which has not been altered by grading or filling of the ground surface, or by construction or any improvements or other hydraulic properties of the parcel.

F. **“Utility”** means the storm and surface water utility.

13.01.020 Applicability.

There is hereby imposed a system of rates and charges on each parcel of real property within the city served by or to which is available for service of the storm water utility established in this chapter. The charges are found to be reasonable and necessary to fund current administration, planning, design, construction, maintenance and repair of existing storm and surface water facilities, provided however, that the city reserves the right to fix, alter, regulate and control rates and charges.

13.01.030 Charges for Specific Parcels and Uses

The city hereby establishes a utility charge per developed parcel set in the most current published City of Winlock Rate Schedule. Undeveloped parcels shall not be charged.

13.01.040 Billing of Charges

Utility rates and charges for each parcel of developed real property within the city shall be computed on a bi-monthly basis. The amount billed shall be included on the water sewer bill as a separate line item. The city shall bill the owner of the property for the payment of utility rates and charges specified in the current published City of Winlock Rate Schedule, however the owner may have the bills mailed to the tenant or agent, but this shall not relieve the owner from liability for utility rates and charges.

13.01.050 Nonpayment of Bills – Water Service Discontinuance Conditions

The city shall have the right and privilege of discontinuing water service to any premises for nonpayment of service charges for use of the storm and surface water utility in the same manner and subject to the same terms as now and hereafter prescribed by law for discontinuance of water service for nonpayment of water bills; and/or the city shall have the right to pursue the filing of and foreclosing of the lien(s) in accordance with the provisions of this chapter, the ordinances of the

City of Winlock, and the laws of the State of Washington for any unpaid and delinquent bills.

13.01.060 Nonpayment of Bills – Penalties for Delinquency

- A. The billing date is defined as the last day of the month in which the bill is sent or mailed to the property owner or his/her/its designee.
- B. The billing due date is the twentieth (20th) of the month.
- C. Late notices are mailed out on the twenty first (21st) of the month that the payment is due. A late fee will apply per the current published City of Winlock Rate Schedule. If the date falls on a weekend the late notices will be mailed out the following Monday.
- D. Bills are due and payable no later than the close of business on the 28th day of the month that the payment is due. A fee will apply to all unpaid balances per the current published City of Winlock Rate Schedule. If the date falls on a weekend the payment must be received by the close of business on the following Monday. A lien may be placed upon the property being served and water service will be discontinued until paid in full including all fees and charges. The City Clerk shall send written notice of filing to the property owner of record.
- E. For any customer which is not a water and/or sewer customer and who has not paid a bill within twenty eight days of the billing date, a lien may be placed upon the property being served by filing notice with the city clerk. The city clerk shall send written notice of filing to the property owner of record.

13.01.070 Utility Billing – Credit Priority for Payments

In the event that any utility account shall become delinquent, water service may be terminated by the city in accordance with the provisions of the city's water utility ordinance. Such utility account shall be discontinued until all delinquent rates or charges for use of the storm water service, sewer service and water service along with all applicable fees have been paid in full.

13.02
Water System

- 13.02.010 Definitions**
- 13.02.020 New Water Connection**
- 13.02.030 New Water Connection Discount**
- 13.02.040 Estimated ERU's**
- 13.02.050 New Water Connection Purchase**
- 13.02.060 Commencement of Bi-Monthly Billings**
- 13.02.070 Abandoned Water Connection**
- 13.02.080 Pro-Rated Reconnection Fee**
- 13.02.090 Forfeiture of Hookup Fees**
- 13.02.100 Unused Water Service**
- 13.02.110 Temporary Non-Use of Water Connection**

13.02.010 Definitions.

A. "ERU" (Equivalent Residential Unit) shall have the following meaning. A unit of water capacity determined by the City to be equivalent to the capacity (or average capacity) typically used by, or allocated to a single-family residential unit. For the purpose of this Ordinance, an ERU of water capacity shall be equal to 1,000 cubic feet of water per month calculated on yearly consumption of up to 12,000 cubic feet as determined through the standard water billing process.

B. "ABANDONED WATER CONNECTION" A water connection (hookup) is considered abandoned if it has not been in service for a period of twelve (12) months.

13.02.020 New Water Connection

The connection fee to the water system of the city is established in the current published City of Winlock Rate Schedule and shall be placed into the Water Capital Improvement Fund for future improvements to the water system.

13.02.030 New Water Connection Discount

In order to receive the discount set in the most current published City of Winlock Rate Schedule, the water connection must be made while the ditch is open and the mainline accessible. The discount does not relieve the property owner from paying for the time and materials to install the connection plus a twenty percent (20%) administrative fee.

13.02.040 Estimated ERU's

The number of ERU's used to determine the charges for water and sewer connection fees shall be based on actual usage if such usage history is available. If no history or information is available, the number of ERU's shall be based on the estimated usage, as determined by the applicant. In the cases where estimates of usage are used to determine the number of ERU's, an evaluation of usage shall occur after the connection is in use for six(6) months, and again in one (1) year or when sufficient usage history is otherwise available to determine the actual usage and number of ERU's. If, after an evaluation has been made, the actual determined number of ERU's is greater than the estimated number of ERU's, additional charges for connection fees shall be required and levied against the owner or person responsible for the connection. If any such additional charges are not paid, the water and sewer service shall be subject to disconnection. If in the initial year, after an evaluation has been made, the actual determined number of ERU's is less than the estimated number of ERU's, a reimbursement equal to the difference in charges for the estimated number of ERU's and charges for the actual number of ERU's shall be made to the owner or person responsible for the connection.

13.02.050 New Water Connection Purchase

All connection fees to the water system can only be purchased at the time of issuance of the building permit.

13.02.060 Commencement of Bi-Monthly Billings

Bi-monthly utility billings will commence no later than six (6) months from the date of issuance of the building permit unless the lot owner has obtained a building permit extension, in which case utility bills will commence no later than twelve (12) months from the date of the original building permit.

13.02.070 Abandoned Water Connection

A water connection (hookup) is considered abandoned if it has not been in service for a period of twelve (12) months.

If a hookup is disconnected or abandoned the hookup fee is forfeited to the city and the property owner will not be authorized to have water service without paying the lesser of (1) a new hookup fee, or (2) a pro-rated fee (described below). The owner shall also be required to pay any and all costs such as parts and labor required for reconnection to the system plus a twenty percent (20%) administrative fee.

13.02.080 Pro-Rated Reconnection Fee

To calculate the "pro-rated fee" multiply the number of billing cycles from the first day of non-service by the current water rate and reduce by fifty percent (50%).

13.02.090 Forfeiture of Hookup Fees

Any water service that is unused or disconnected for more than twelve (12) months shall be deemed to be abandoned and any hookup fee previously paid to the city shall be forfeited and the customer will not be authorized to have water service without paying a (1) new hookup fee, or (2) a pro-rated fee described above. The customer shall also be required to pay any and all costs such as parts and labor as required for reconnection to the system plus a twenty percent (20%) administration fee.

13.02.100 Unused Water Service

A water service shall not be considered "unused" when a customer pays a monthly dormant fee in an amount equal to one-half of the current monthly fee provided however, that the customer may not pay a dormant fee for more than ninety-six (96) months. It shall be the sole responsibility of the customer to request a dormant fee billing.

13.02.110 Temporary Nonuse of Water Connection (Snowbird Service)

A residential customer may apply to the city for a temporary partial suspension of the monthly charge for a period of time, not to exceed six (6) months, during which the customer's residence is vacant and the water service is unused. The customer must submit a written application to the city setting forth the period of time in which the residence will be vacant. A customer shall be granted only one partial suspension of fees during any calendar year. The customer's application for partial suspension must be submitted to the city not less than five (5) days in advance of the requested suspension.

During the period of the approved partial suspension the customer's water base charge shall be reduced to fifty percent (50%) of the current charges plus applicable Utility Tax. Provided, however, that in the event it is discovered by the city that the customer has used the water service during the approved suspension period, the customer shall be responsible for the full water charges during the period of suspension, together with the surcharge of twenty-five percent (25%).