STATE OF WASHINGTON
DEPARTMENT OF HEALTH
SOUTHWEST DRINKING WATER OPERATIONS
P.O. Box 47823 Olympia, Washington 98504-7823
PHONE (360) 236-3030 FAX (360) 236-3029

SANITARY SURVEY REPORT

March 17, 2025	City of Winlock ID #97500C	
	County:	Lewis
Rodney Cecil City of Winlock Post Office Box 777 Winlock, Washington 98596	System Type:	Community
	Operating Permit Color:	Green
	Surveyor:	Steve Deem Phyo Kyaw
	Water System Attendees:	Rodney Cecil James Agren
	Inspection Date:	February 28, 2025

This report is in follow up to my inspection of the City of Winlock (City) water system on February 28, 2025. My inspection was part of the Department's routine sanitary survey program. The purpose of this program is to inspect water system facilities and their operations and maintenance programs to ensure compliance with drinking water regulations and to help ensure that safe and reliable water is delivered to users. I appreciate the time spent with you and James showing me and Phyo the water system. Please check this report for accuracy.

The water system is well operated and maintained. You and the City are doing a good job.

As you implement the observations and recommendations, please send me documentation that demonstrates the items have been completed. Include the system name, ID number, item #, and the date the deficiencies were corrected. You can send them to Phyo Kyaw by e-mail at phyo.kyaw@doh.wa.gov or by mail at PO Box 47823, Olympia, Washington 98504-7823.

SIGNIFICANT DEFICIENCIES* - NONE

SIGNIFICANT FINDINGS - NONE**

OBSERVATIONS

1. We discussed the City's coliform monitoring plan (CMP) must be updated, WAC 245-290-300 (3)(b). An additional sampling site located in the older downtown area should be included as a routine sampling location. Repeat sampling locations for each routine sampling site should be verified. We encourage you to use a meter setter sampling device for your repeat sampling sites to eliminate issues associated with accessing customer property, lost control of water quality on private property, and compensation issues associated with flushing customer service lines. **Submit to the Office of Drinking Water (ODW) when complete**.
2. Sampling Standard Operating Procedures (SOP) must be developed and tested for repeat sampling sites once the meter setter device has been obtained. Consider collecting coliform samples from the new

meter setter testing device, label samples "engineering", and submit to a certified lab to verify the testing stations are functional, WAC 246-290-300 (3). **Submit to ODW when it is complete.**

3. Intrusion alarms should be installed on all storage tank hatches and tested every three to six months during routine inspection visits to the top of the tanks, WAC 246-290-415 (9). **Notify ODW when it is installed.**
4. We were surprised to find a seasonal creek flowing approximately 20 feet from Well S01 (Eureka #1). As you know, S01 is quite shallow with a reported depth to the first open interval of 55 feet. As we discussed, recent studies have shown that viruses, bacteria, and protozoa can travel further through soil and aquifers than we have assumed in the past. The City should collect heterotrophic plate count (HPC) samples from the well each month before any treatment to establish a baseline for microbial activity in the well, WAC 246-290-300 (1)(a). **Share results with ODW after one year.**
5. Include free chlorine residual testing at the well sites following chlorine injection to understand and document disinfection treatment performance, WAC 246-290-300(1)(a).

RECOMMENDATIONS

6. Intrusion alarms on all pump house facilities is a low cost early warning security feature that should be installed.
7. We discussed potential water stratification and resulting stagnation that can result from operating your storage tanks with a very small drawdown and fill range – currently four (4) feet. Consider increasing the band on operation. You also correctly suggested an alternative of installing continuous mixers in the tanks.
8. We were surprised to find a lot of coarse sand in the 603 storage tanks overflow and drainpipe (inside the closed flapper valve). Backflow through the flapper valve seems unlikely. Consider inspecting the pipe for damage that may have occurred during the construction (still underway) associated with the new development.

SYSTEM INFORMATION

The City's water system uses five groundwater wells all located east of downtown. Well S05 pumps into the City's reservoirs. The remaining wells pump directly into the distribution system. All wells are chlorinated (S10 is not in the 2020 water system plan (WSP)). The treatment goal is 0.2 milligrams per liter (mg/L) at the distribution ends.

The City operates two reservoirs, located at the well 603 site. Both reservoirs are cast-in-place concrete, 26 feet in diameter by 75 feet tall, with a nominal capacity of 298,000 gallons each. The ground elevation at the reservoir site based on reservoir plan sheets is 459 feet, making the top of wall at an elevation of 534 feet. The reservoir overflows are 6 inches below the top of the reservoir walls, making the reservoir overflow elevation 533.5 feet and volume to overflow 296,000 gallons per reservoir. A third reservoir is located at the Cardinal Glass site. This reservoir is owned by Cardinal Glass, but by agreement with the City, up to 120,000 gallons of the 500,000-gallon capacity of the Cardinal Glass reservoir is available for use by the City. Water is pumped to the Cardinal Glass facility and pressure-reducing valves connect from the Cardinal Glass transmission main to the City's 603 Reservoir Gravity Pressure Zone, so if the pressure in the gravity pressure zone should drop sufficiently, the pressure reducing valves would open partially to allow flow from the Cardinal Glass water transmission line back to the gravity pressure zone.

The City's water system operates on five pressure zones. The lowest elevation is at the south end of downtown Winlock and is about 260 feet mean sea level (MSL). In the City's future service areas to the east and north,

elevations vary between 450 and 480 ft. MSL. The Cardinal Glass facility is at an elevation of approximately 470 feet.

The distribution system consists of a variety of pipe materials and sizes, including Asbestos Cement (AC), Polyethylene (PE), High Density Polyethylene (HDPE), Polyvinyl Chloride (PVC), Cast Iron (CI), Ductile Iron (DI), Galvanized, Steel and Other, and sizes from less than 2-inches to 14-inches. A summary of pipe by size and material, estimated from system Computer-Aided Design (CAD) drawings, is shown in Table 1-5. The largest pipe size component by length is a 10-inch pipe at 29.1 percent, largely driven by the long 10-inch pipeline extension to Cardinal Glass. The second largest component is 8-inch piping at 27.3 percent. By material, the largest portion of the system is comprised of PVC pipe at 47.5 percent, followed by HDPE and PE at 18.7 percent, again largely driven by the 10-inch HDPE pipeline to Cardinal Glass. The total estimated pipe length is 96,125 feet, which is 18.2 miles of water main.

SECTION 1: SOURCE

This system uses groundwater wells. All wells have sodium hypochlorite (NaOCl) injected into the discharge piping as a secondary disinfectant. Operators dilute 12.5 percent feed stock by adding 2 gallons of 12.5 percent NaOCl to 40 gallons of water (approximately 0.08 percent solution). To increase chlorine residuals, operators increase the solution concentration by adding 3 gallons of 12.5 percent NaOCl to 40 gallons of water.

Source ID #	Name:	Description:	Ecology Tag #	Depth to first open interval (ft)	Listed on WFI Yes No	Pump capacity (GPM)
S01	Eureka #1	Groundwater well	AFM908	55	☒ ☐	210
S05	Well #603	Groundwater well	AFM905	119	☒ ☐	200 (75 extended?)
S08	Eureka #3	Groundwater well	AFM904	150	☒ ☐	50
S09	Baichtel #2	Groundwater well	AET197	138	☒ ☐	125
S10	SR505	Groundwater well	BKL480	170	☒ ☐	125

WELLHEAD	Source #S01	Source #S05	Source #S08	Source #S09	Source #S10
	Yes No	Yes No	Yes No	Yes No	Yes No
System has well log	☐ ☒	☒ ☐	☒ ☐	☒ ☐	☒ ☐
*Well cap sealed	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
*Openings sealed	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
*Vent screened	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
Terminates 6" above grade	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
*Protected from flooding	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
Source meter	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
**Raw water sample tap	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
Check valve	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
**Protected from unauthorized access	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
Structure in good condition	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐

WELLHEAD	Source #S01	Source #S05	Source #S08	Source #S09	Source #S10
	Yes No	Yes No	Yes No	Yes No	Yes No
Sanitary control area free of contaminants (*If no, is there an approved mitigation plan for the contaminant identified)	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
**Protected from physical damage	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
Frequency of routine site visit	daily	daily	daily	daily	Daily
Frequency of source meter reading	daily	daily	daily	daily	daily

WELL PUMP EQUIPMENT	Source ID #S01	Source ID #S05	Source ID #S08	Source ID #S09	Source ID #S10
	Yes No	Yes No	Yes No	Yes No	Yes No
*Functional and reliable pump and pump controls	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
*Pump control valve or vacuum relief valve with a protected air gap at discharge	N/A	N/A	N/A	N/A	NA
Generator available	☐ ☒	☒ ☐	☐ ☒	☐ ☒	☐ ☒
Generator has automatic startup	N/A	☒ ☐	N/A	N/A	N/A
Generator fuel source	N/A	diesel	N/A	N/A	N/A

EMERGENCY SOURCES

This system has no active emergency sources.

SECTION 2: DISINFECTION

NaOCl is injected at the source well discharges for voluntary and secondary disinfection. Chemical feed pumps are adjusted to be proportional to constant-rate well discharge.

#	Site or Location	Treatment type and Chemical Used	Listed on WFI Yes No	CT Provided Yes No	Approved by ODW Yes No
1	Eureka #1	Disinfection, NaOCl	☒ ☐	☐ ☒	☒ ☐
2	Well 603	Disinfection, NaOCl	☒ ☐	☐ ☒	☒ ☐
3	Eureka #3	Disinfection, NaOCl	☒ ☐	☐ ☒	☒ ☐
4	Baichtel #2	Disinfection, NaOCl	☒ ☐	☐ ☒	☒ ☐
5	S10	Disinfection, NaOCl	☒ ☐	☐ ☒	☒ ☐

CHEMICAL TREATMENT	1	2	3	4	5
	Yes No	Yes No	Yes No	Yes No	Yes No
Operated & maintained properly	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐
*RPBA or air gap between the chemical tank and fill waterline	☒ ☐	☒ ☐	☒ ☐	☒ ☐	☒ ☐

CHEMICAL TREATMENT	1		2		3		4		5	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
**Post treatment sample tap	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Redundant equipment available	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Schematic of treatment facilities available	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Adequate chlorine residual test kit available	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Test kit calibrated and maintained properly	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Chemical feed proportional to flow	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
**Approved chemicals used	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐

HYPOCHLORITE ADDITION	1	2	3	4	5
Hypochlorite concentration %	12.5	12.5	12.5	12.5	12.5
Feed solution concentration	.08	.08	.08	.08	.08
Hypochlorite solution located in separate room	☐ ☒	☐ ☒	☐ ☒	☐ ☒	☐ ☒

DISINFECTION COMPLIANCE	1		2		3		4			
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Disinfection required	☐	☒	☐	☒	☐	☒	☐	☒	☒	☐
CT required	☐	☒	☐	☒	☐	☒	☐	☒	☐	☒
Minimum CT always met	N/A		N/A		N/A		N/A		N/A	
Peak flow used to calculate CT	N/A		N/A		N/A		N/A		N/A	
Monthly report submitted	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Residuals maintained in distribution system	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐
Daily residuals recorded	☒	☐	☒	☐	☒	☐	☒	☐	☒	☐

SECTION 3: OTHER TREATMENTS

This system does not use other treatments.

SECTION 4: DISTRIBUTION SYSTEM

Aging distribution pipes are currently undergoing upgrades, which includes significant effort to replace sections of main prone to water loss.

FEATURES	Yes	No
Service area and facility map	☒	☐
Minimum pressure requirements met	☒	☐
Service meters (reading frequency bimonthly)	☒	☐
Leak detection program	☒	☐
Water system leakage (%)	22	

FEATURES	Yes	No
Adequate valving for flushing and pipe repair	☒	☐
Blow-offs on dead ends	☐	☐
Routine flushing (frequency annual)	☒	☐
Routine valve exercise (frequency annual)	☒	☐

CROSS CONNECTION CONTROL (Community Systems) System < 1,000 connections	Yes	No
System has enabling authority	☒	☐
Ongoing hazard inspections	☒	☐
High hazards identified	☒	☐
High hazards protected	☒	☐
Annual testing	☒	☐
System has installation standards	☒	☐
CCS on staff or under contract	☒	☐
Cross connections observed have been eliminated	N/A	

The City implements a novel and apparently successful backflow device testing approach. The City identified a single testing company, and offered its customers devices that give them the ability to commit to an outside testing company for annual testing. The outside company contacts customers and performs annual testing at a set cost. The outside company then sends the results to the City for compliance documentation. The City does not have to track and notify customers to conduct required annual testing. Customers do not have to find and schedule testing or run the risk of fines for non-compliance.

SECTION 5: FINISHED WATER STORAGE

Reservoir	Reservoir Name	Description	Year Built	Total Volume (Gal)
1	East	Ground level concrete	1988	300,000
2	West	Ground level concrete	1988	300,000
3	Cardinal Glass	Elevated steel	2009	500,000
4	Gateway		2023	264,000

TOP OF RESERVOIR	Res #1		Res #2		Res #3		Res#4	
	Yes	No	Yes	No	Yes	No	Yes	No
**Hatch: Locked	☒	☐	☒	☐	☒	☐	☒	☐
*Hatch: Watertight seal or gasket	☒	☐	☒	☐	☒	☐	☒	☐
Hatch: Over-lapping cover	☒	☐	☒	☐	☒	☐	☒	☐
*Screened air vent	☒	☐	☒	☐	☒	☐	☒	☐
*Openings sealed/protected	☒	☐	☒	☐	☒	☐	☒	☐

FEATURES	Res #1		Res #2		Res #3		Res#4	
	Yes	No	Yes	No	Yes	No	Yes	No
Separate inlet/outlet	☐	☒	☐	☒	☒	☐	☒	☐
Protected drain outlet	☒	☐	☒	☐	☒	☐	☒	☐
*Protected overflow outlet	☒	☐	☒	☐	☒	☐	☒	☐
*Overflow line discharges into a sanitary sewer with an air gap	N/A		N/A		N/A		N/A	
Operational water level gauge	☒	☐	☒	☐	☒	☐	☒	☐
Bypass piping or isolation possibility	☒	☐	☒	☐	☒	☐	☒	☐
**Protected from unauthorized entry	☒	☐	☒	☐	☒	☐	☒	☐
Low level alarms	☒	☐	☒	☐	☒	☐	☒	☐
Sample tap at outlet	☐	☒	☐	☒	☒	☐	☒	☐

MAINTENANCE	Res #1		Res #2		Res #3		Res #4	
	Yes	No	Yes	No	Yes	No	Yes	No
Frequency of structural and coating inspection	5 years		5 years		5 years		5 years	
Frequency of cleaning	As needed		As needed		As needed		As needed	
Frequency of routine site visit	daily		daily		monthly		daily	
**Structure in good condition	☒	☐	☒	☐	☒	☐	☒	☐
Clear of excessive vegetation	☒	☐	☒	☐	☒	☐	☒	☐

SECTION 6: PRESSURE TANKS

Site	Location	# and size of Bladder Tanks
1	Well 603 Booster Station	1

BLADDER	Site: 1	
	Yes	No
Isolation valve	☒	☐
Pressure relief valve	☐	☒
Pressure gauge	☒	☐
In good condition	☒	☐

BUILDINGS/ENCLOSURE	Site: 1	
	Yes	No
**Facility secure	☒	☐
Structure in good condition	☒	☐

SECTION 7: BOOSTER PUMPS AND FACILITIES

Facility	Name	Description	Total Capacity (gpm)
1	Eureka 1	Booster pump station	1600
2	603 Facility	Booster pump station	1840

BOOSTER PUMPS	Facility 1		Facility 2	
	Yes	No	Yes	No
Number of pumps	2		6	
Frequency of routine site visit	As needed		daily	
Isolation valves	☒	☐	☒	☐
Pressure gauge(s)	☒	☐	☒	☐
Pressure relief valve	☒	☐	☒	☐
Pump failure alarm	☒	☐	☒	☐
*Functional pump and pump controls	☒	☐	☒	☐
Protected from flooding	☒	☐	☒	☐
Redundant pumps	☒	☐	☒	☐
Equipment in good condition	☒	☐	☒	☐
Generator available	☐	☒	☒	☐
Generator has automatic startup	N/A		☒	☐
Generator fuel source	N/A		diesel	

BUILDINGS/ENCLOSURE	Facility 1		Facility 2	
	Yes	No	Yes	No
**Facility secure	☒	☐	☒	☐
Structure in good condition	☒	☐	☒	☐

SECTION 8: WATER QUALITY MONITORING AND REPORTING

All monitoring is current and satisfactory.

Refer to the Water Quality Monitoring Schedule for your monitoring requirements and status. If you have any questions on source monitoring, please contact Sophia Petro by phone at (564) 669-0856.

CHEMICAL	
Sample Point	**Description**
1	Entries to distribution at source wells.

CHEMICAL	Sample Point 1
	Yes No
Monitoring adequate	☒ ☐
ODW WQ data reviewed	☒ ☐
Sample collection sites correct	☒ ☐
System has prior: ☐ Nitrate results above 5 mg/L ☒ Nitrite results above 0.5 mg/L – S10 3.5 mg/L ☐ Primary MCL ☐ Secondary MCL exceedance(s) ☐ Organic detections ☐ Other Enter Other	

COLIFORM	Yes No
Monitoring adequate	☐ ☐
Monitoring plan adequate	Needs update
Monitoring plan followed	☒ ☐
# of Treatment Technique Triggers (TTT)	0
# of Treatment Technique Violations (TTV)	0
# of Coliform Monitoring Violations	0
# of *E. coli* MCL Violations	0

Monthly samples increased to four (4) samples / month.

LEAD & COPPER	Yes No
Monitoring adequate	☒ ☐
Monitoring plan adequate	☒ ☐
Monitoring plan followed	☒ ☐
Results below action level	☒ ☐

DISINFECTION BYPRODUCTS	Yes No
Monitoring adequate	☒ ☐
Monitoring plan adequate	Not reviewed
Monitoring plan followed	☒ ☐
Results satisfactory	☒ ☐

SECTION 9: SYSTEM MANAGEMENT AND OPERATIONS

PROJECT/PLANNING	Yes	No
System approved	☒	☐
Current WSP/SWSMP	☒	☐
Year WSP/SWSMP approved	2020	
Emergency response plan	☒	☐

REPORTING	Yes	No	N/A
WFI reviewed and updated with purveyor	☒	☐	---
Consumer confidence report (Community only)	☒	☐	☐
Water use efficiency report (Municipal Water Suppliers)	☒	☐	☐
Cross connection control annual report (> 1000 conn)	☐	☐	☒

OPERATOR CERTIFICATION

This system is required to have WDM 2 certified operators.

If you have any questions or this information is inaccurate, please contact Operator Certification by phone at (800) 525-2536.

Name of Operator	Certification Number	Certifications	Mandatory Operator
Rodney Cecil	012964	WDM 2, CCS	☒
James Agren	15461	WDM 1	
Josh Morhous	16130	WDM 1 - IT	

WDS-Water Distribution Specialist; WDM-Water Distribution Manager; WTPO-Water Treatment Plant Operator, BTO-Basic Treatment Operator; CCS-Cross Connection Specialist; BAT-Backflow Assembly Tester

OPERATIONS	Yes	No
Operational records maintained	☒	☐
Complaints followed up	☒	☐
Complaints documented	☒	☐
# of complaints recorded at ODW (since last survey)	0	
Operation and maintenance program	☒	☐
Current survey has significant deficiencies identified	☒	☐
Previous survey deficiencies/findings corrected, if no list below	☒	☐

CLOSING

Your system qualifies for the reduced frequency of sanitary surveys under WAC 246-290-416. Your next survey is due in 5 years.

Regulations establishing a schedule of fees, including fees for sanitary surveys, were adopted March 18, 2012 (WAC 246-290-990). The amount due is $765.00. An itemized worksheet is enclosed with the invoice.

If you have any questions, please contact your regional engineering contact, Phyo Kyaw, by phone at (564-669-3849) or by e-mail at phyo.kyaw@doh.wa.gov.

Sincerely,

For
Steve Deem, P.E.
Office of Drinking Water, Engineering Technical Services

Enclosures

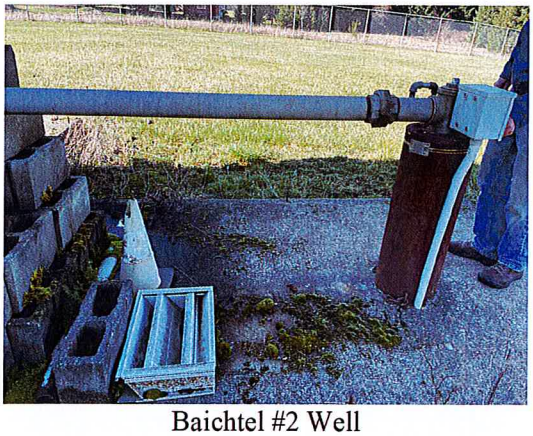
cc: Lewis County Public Health & Social Services
Phyo Kyaw, ODW

Eureka #1 Well House and Seasonal Creek

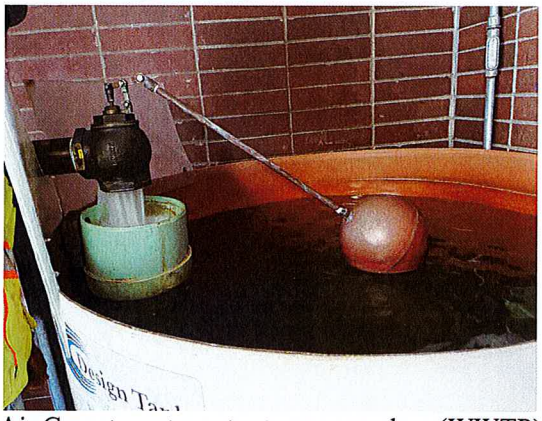
East and West Reservoirs

SR505 Well House Interior

Eureka Booster Pumps



Baichtel #2 Well



Air Gap at waste water treatment plant (WWTP)