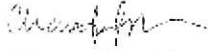


September 24, 2024

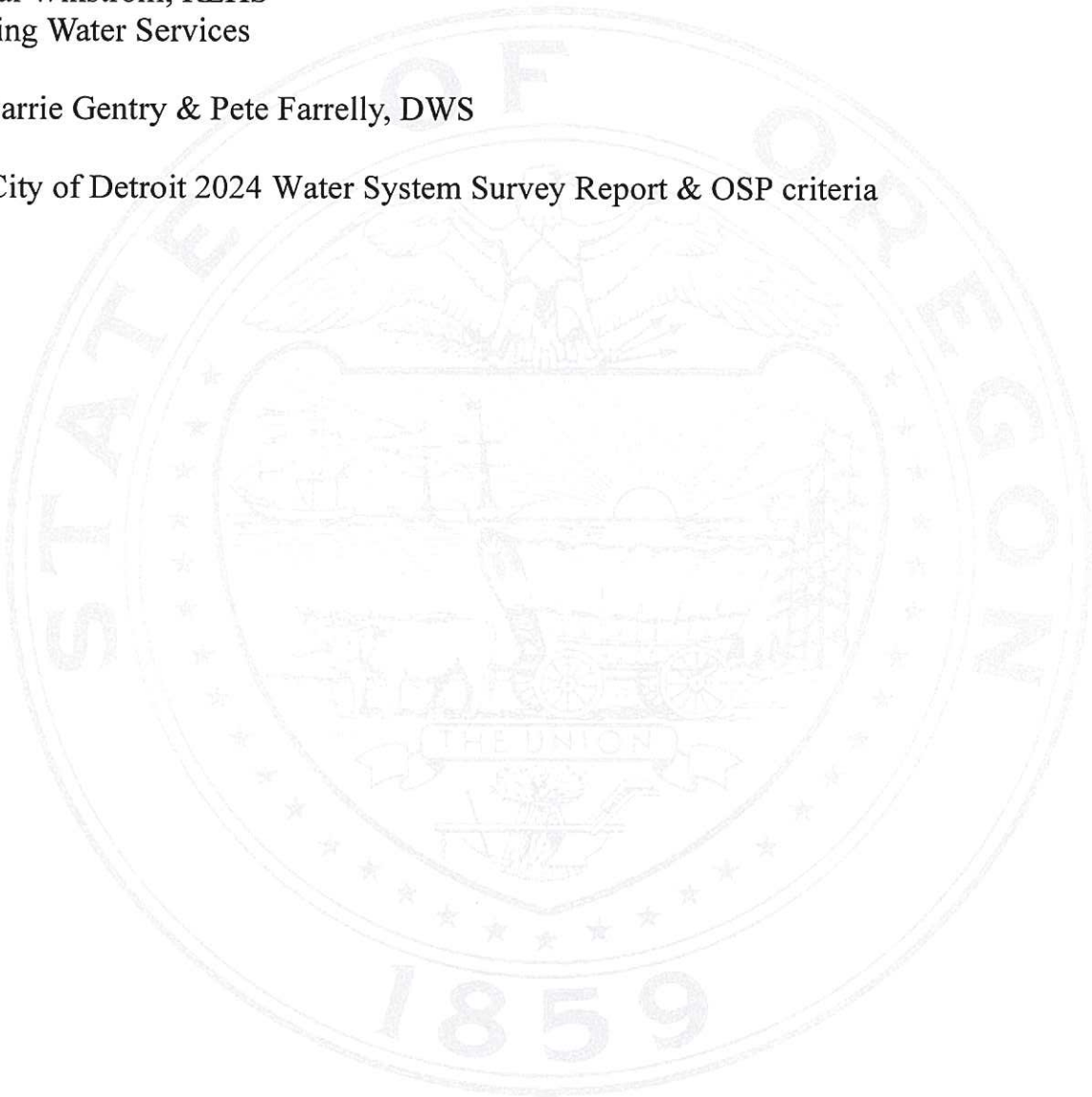
Sincerely,



Chantal Wikstrom, REHS
Drinking Water Services

CC: Carrie Gentry & Pete Farrelly, DWS

Enc: City of Detroit 2024 Water System Survey Report & OSP criteria



Deficiency Summary

Surveyor: Chantal Wikstrom, Carrie Gentry, Pete Farrelly

Date Corrective Action Plan is due: October 16, 2024

County: Marion

Yes	No	Significant Deficiencies and Rule Violations:	Date to be corrected	Date corrected
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Source: <i>Well construction:</i> N/A		
		<i>Spring/other source:</i> N/A		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Treatment: <i>Surface water treatment:</i> None identified		
		<i>Disinfection:</i> None identified		
		<i>Other treatment:</i>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Finished Water Storage: reservoir vent not screened		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Distribution: None identified		
<input type="checkbox"/>	<input type="checkbox"/>	Monitoring: None identified		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Management & Operations: None identified		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Operator Certification: None identified		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other Rule Violations: None identified		

Database Updates: <input type="checkbox"/> None <input checked="" type="checkbox"/> Inventory <input type="checkbox"/> Treatment <input type="checkbox"/> Monitoring <input type="checkbox"/> Page: 3
Comments:

Source Deficiencies:

Well Construction Deficiencies:

- ⊕ Sanitary seal and casing not watertight
- ⊕ Does not meet setbacks from hazards
- ⊕ Wellhead not protected from flooding
- ⊕ No raw water sample tap
- ⊕ No treated sample tap (if applicable)
- ⊕ No screen on existing well vent

Spring Source Deficiencies:

- ⊕ Springbox not impervious durable material
- ⊕ No watertight access hatch/entry
- ⊕ No screened overflow
- ⊕ Does not meet setbacks from hazards
- ⊕ No raw water sample tap
- ⊕ No treated sample tap (if applicable)

Treatment Deficiencies/Violations:

Surface Water Treatment Deficiencies:

- + Turbidity standards not met - 0030(3)
- + Turbidimeters not calibrated per manufacturer or at least quarterly - 0036(5)(b)(A)(ii)
- ⊕ Incorrect location for turbidity monitoring
- ⊕ If serving > 3,300 people no alarm or auto plant shut off for low chlorine residual
- + For conventional or direct filtration: No alarm or plant shut off for high turbidity
- ⊕ For conventional filtration: Settled water not measured daily
- ⊕ For conventional or direct filtration: Turbidity profile not conducted on individual filters at least quarterly
- ⊕ For cartridge filtration: Filters not changed according to mfg. rec. pressure differential
- ⊕ For cartridge filtration: No pressure gauges before and after cartridge filter
- + For membrane filtration: Direct integrity testing does not meet requirements under -0036(5)(d)(B)
- + For membrane filtration: Indirect integrity testing does not meet requirements under -0036(5)(d)(C)
- ⊕ For diatomaceous earth filtration: Body feed not added with influent flow.

Disinfection Deficiencies/Violations:

- + DPD/EPA approved method not used - 0036(9)(e)
- + Free chlorine residual not maintained - 0032(3/5)
- + Chlorine not measured & recorded - 0036(9)
- + Minimum CT required not met all times - 0032(3/5)
- ⊕ No means to adequately determine flow rate on contact chamber effluent line
- + pH, Temperature, and chlorine residual not measured daily at first user - 0036(5)(a/b)

- ⊕ Failure to calculate CT values correctly
- ⊕ No means to adequately determine disinfection contact time under peak flow and minimum storage conditions

UV Disinfection Violations (OAR 333-0050(5)(k)):

- + Bypass around UV system
- + Lamp sleeve not cleaned
- + Lamp not replaced per manufacturer
- + No intensity sensor with alarm or shut-off

Other Treatment Violations:

- + Non-NSF approved chemicals - 0087(6)
- + Corrosion control parameters not met - 0034

Distribution System Violations:

- + System pressure < 20 psi - 0025(7)

Cross Connection (OAR 333-061-0070):

- + No ordinance or enabling authority (CWS)
- + Annual Summary Report not issued (CWS)
- + Testing records not current (CWS, NTNC, TNC)
- + No Cross Connection Control Specialist (CWS ≥ 300 connections)

Finished Water Storage Deficiencies:

- ⊕ Hatch not locked or adequately secured
- ⊕ Roof and access hatch not watertight
- ⊕ No flap valve, screen, or equivalent on drain
- ⊕ No screened vent

Monitoring Violations:

- + Monitoring not current - 0025(1)
- + Unaddressed MCL violations or LCR AL exceedances - 0030
- + No Coliform Sampling Plan - 0036(6)(a)(l)

Management & Operations Violations:

- + No operations and maintenance manual - 0065(4)
- + Emergency response plan not completed (CWS, NTNC) - 0064
- + Major modifications not approved (plan review) - 0050
- + Master plan not current (≥ 300 con.) - 0060(5)
- + Annual CCR not distributed (CWS) - 0043(1)(a)
- + PNC or out of compliance with AO
- + Public notice not issued as required - 0042

Operator Certification Violations:

- + No certified operator at required level - 0065(2)
- + No protocol for under certified operator - 0225(2)

Other Rule Violations: _____

⊕ Significant deficiency per OAR 333-061-0076
+ Rule violation per OAR 333-061-XXX

Inventory and Narrative

<input type="checkbox"/> Outstanding Performer					
Type:		Status	Size	Season:	<input checked="" type="checkbox"/> All year <input type="checkbox"/> Seasonal
<input checked="" type="checkbox"/> Community (C)		Population:	100	Begins: (mm/dd)	/
<input type="checkbox"/> Non-Transient Non-Community (NTNC)		Connections:	390	Ends: (mm/dd)	/
<input type="checkbox"/> Transient Non-Community (TNC)					
<input type="checkbox"/> Oregon Very Small (OVS)					
License:	<input checked="" type="checkbox"/> Not Lic. <input type="checkbox"/> Health Dept. <input type="checkbox"/> Ag		Service Area Characteristics:		MU
Responsible Agency:	<input checked="" type="checkbox"/> State <input type="checkbox"/> County <input type="checkbox"/> Ag		Owner Type:		Local Govt.
Minimum WS Certification Requirements:	WD: 1	WT: 1	<input type="checkbox"/> FE	<input type="checkbox"/> Small WS	<input type="checkbox"/> N/A

For changes in operations staff contact Operator Certification: dws.opcert@odhsoha.oregon.gov

Primary Administrative Contact (mailing address):					
Contact Name:	Michelle Conner			Phone:	(503) 854-3496
Title:	City Recorder			Cell:	()
Street Address:	PO BOX 589			Emergency #:	()
City/State/Zip:	DETROIT, OR 97342			Email:	detroit@wvi.com

Center of Service Area (for public maps):	
decimal degrees	44.73583079245224, -122.15131960002637

Legal/Owner:	
Name:	City of Detroit
Website:	https://detroitoregon.us/

System Physical Address:					
Contact Name:	Robert (Bob) Bruce			Phone:	()
Title:	WTP Operator			Cell:	()
Street Address:				Emergency #:	()
City/State/Zip:				Email:	

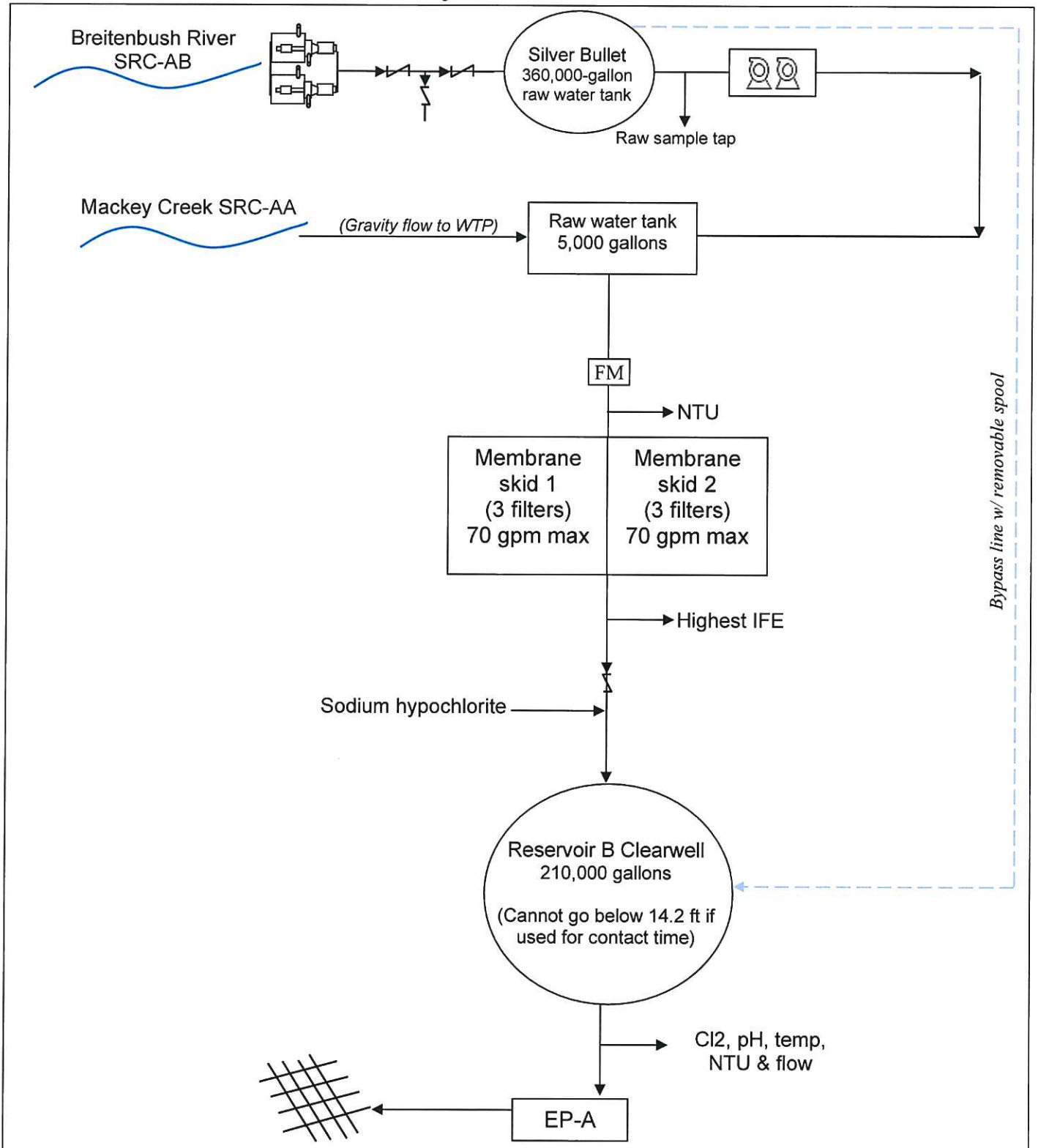
Emergency Systems Available:					
Name:	N/A			PWS ID#:	41

Narrative:

Detroit's water system consists of two surface water sources (Mackey Creek and Breitenbush River), a 140 gpm membrane treatment plant for filtration, and hypochlorination for disinfection. Storage consists of a 210,000 gallon steel reservoir where contact time is achieved.

Due to the 2020 Labor Day Wildfires there are roughly 100 full time residents living in Detroit.

Water System Schematic



Source Information

ID	Entry Points (Location where water enters distribution and is sampled)	Source Type (Ground, Surface, GWUDI, Purchased ground, Purchased surface)	Availability (Permanent, Seasonal*, Emergency) <i>*If seasonal, indicate begin/end dates</i>			
			Begin (M/D)	End (M/D)		
A	EP Mackey & Breitenbush	SW	Permanent			

ID	Sources (Contributing to Entry Point)	Land Use*	Capacity (GPM)	Source Type (Ground, Surface, GWUDI, Purchased ground, Purchased surface)	Availability (Permanent, Seasonal, Emergency, Abandoned, Disconnected)
AA	Mackey Creek	K, M	See below	Surface	Permanent
AB	Breitenbush River	K, M	See below	Surface	Seasonal

*Land Use Codes: (A) Pristine Forest (B) Irrigated Crops (C) Non-Irrigated Crops (D) Pasture (E) Light Industry (F) Heavy Industry (G) Urban-Sewered Area (H) Rural On-Site Sewage Disposal (I) Urban On-Site Sewage Disposal (J) Rangeland (K) Managed Forest (L) Commercial (M) Recreational Use

Yes No

- Has the water system implemented strategies to protect their drinking water sources? (e.g., posting source area signs, notifying residents of hazardous waste collection events, provide residents information about maintaining their septic systems, abandoning unused wells, etc.)
- Is the water system interested in protecting their drinking water sources from contamination? If yes, contact regional geologist at 971-673-0405.

Comments:

Mackey Creek: winter 200 gpm, summer 80 gpm. Most of Mackey Creek watershed was burned and will have to be logged. High potential for landslides per DEQ Source Water Assessment 2020 update. Intake is slotted pipe w/in a screen box, above ground 6" pipe to WTP. Recommendation to move the Mackey Creek transmission line below ground.

Breitenbush River: Intake has an automatic air scrubber that occurs every hour.

Membrane Filtration Treatment Plant Inspection

WTP inspection done with Water System Survey

WTP inspection only

WTP ID: A WTP Name: TP for Mackey & Breitenbush
 Date of inspection: 9/18/2024 Inspected by: Chantal Wikstrom, Carrie Gentry, Pete Farrelly
 Plant operator: Bob Bruce
 Total points given: 30

Points	Visit Frequency	Check One
Low range (0-15)	With next survey	<input type="checkbox"/>
Mid-range (16-25)	Annually	<input type="checkbox"/>
High range (26 or more)	Every 6 months	<input checked="" type="checkbox"/>

Comments:

Source:

Describe Intake: Mackey: slotted pipe w/in a screen box, above ground 6" HDPE pipe to WTP. Breitenbush: double screen intake with air scrubber.
 Describe pumping facilities: 2 booster pumps (250 gpm), currently only using 1 pump.
 Watershed control information (protection plan, security measures, etc.): Watershed mostly USFS owned
 Factors affecting water quality (algal blooms, logging, etc.): Logging, wildfires, flooding, erosion

Treatment Information

Corrosion control Coagulation Comments: _____

Log removal credit (LRC) given: Giardia: 4 Crypto: 4 Date or PR#: 10/31/2023

Manufacturer Info	Modules in use: <u>Module Make: <u>Toray</u> Model Number: <u>HFUG-2020AN</u></u>
	<u>Year(s) of installation(s): <u>4</u></u>
	<u>Number of modules currently installed per unit/rack/skid/cell: <u>3</u> Total # of modules: <u>2</u></u>
	Unit/rack/skid/cell in use: <u>Unit Make: <u>WesTech</u> Unit Model Number: <u>AltaPac AP-III UF Skid</u></u>
	<u>Year of installation: <u>4</u> Total # of units: <u>2</u></u>

Are there any units used to reclaim backwash water or other wastewater? Yes No
 Manufacturer Contact Info: WesTech - +1-801-265-1000
Note: Compare this information to the previous survey to determine if there were more modules or different membranes installed since the last survey. Contact PR coordinator if there are changes to the number or type of membranes since last survey (V_{sys}) or if there are units used to reclaim backwash water (VCF).

Challenge Test & Plan Review Info <small>(complete in office)</small>	LT2ESWTR compliant challenge tested modules in use? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>Note: Check list of verified models and refer to plan review coordinator if non-LT2 compliant modules are in use.</i>
	Indicate the following:
	Max allowed TMP [psi]: <u>29</u>
	Max allowed flux [gallons/ft ² /day (GFD)]: <u>120</u>
	Minimum DIT test pressure [psi]: <u>17.48</u>

LRC [log]: 4
 Min LRV_{ambient} [log]:

Allowed DIT pressure decay rate (PDR) [psi/_{min}]: 0.08 ← Upper Control Limit (UCL) assigned under PR# 2023-111

Membrane Plant Info Continued: WTP- A

If no, check points

Direct Integrity Testing (DIT)	<p>Y N <input checked="" type="checkbox"/> <input type="checkbox"/> • Does the current Direct Integrity Testing (DIT) meet all of the following: <input type="checkbox"/> 30 pts</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Done each day of operation Method: <input checked="" type="checkbox"/> Pressure decay test (PDT) <input type="checkbox"/> other: _____ <input checked="" type="checkbox"/> Minimum required static DIT pressure met daily (WTP target test pressure: <u>20 psi</u>) <input checked="" type="checkbox"/> Membrane unit removed from service after DIT failure (until remedied) <input checked="" type="checkbox"/> Demonstrates membrane integrity using: <input type="checkbox"/> PDR or <input checked="" type="checkbox"/> LRV_{ambient} (provide LRV_{ambient} handout if not checked and discuss need to provide implementation plan within 45 days) <p>Record the values or set points used to indicate a failed DIT below: Y N PDR: <u>0.011</u> ^{psi/min} LRV_{ambient} <u>4.959</u> -log <input type="checkbox"/> other: _____ <input type="checkbox"/> <input type="checkbox"/> If using only a PDR, is this decay rate's corresponding LRV known? LRV = _____ -log</p> <p>Comments: _____</p>
Latest DIT Results	<p>When was the most recent passing DIT (refer to SCADA and record DIT results for 1 rack/skid/unit)? Date: <u>9/18/24</u> Latest DIT results for the following membrane unit (indicate rack/skid/unit ID# or name) <u>1</u></p> <ul style="list-style-type: none"> ✓ Beginning DIT test pressure = <u>19.9</u> psi ✓ Ending DIT test pressure = <u>N/A</u> psi Ending pressure ≥ minimum required pressure? <input type="checkbox"/> Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Unknown ✓ Duration of DIT = <u>7</u> minutes (2-5 minutes is typical) ✓ Pressure decay rate (PDR) = <u>0.08</u> ^{psi/min} PDR ≤ UCL? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown $PDR = (start\ pressure - end\ pressure) \div (duration\ of\ DIT)$ ✓ Ambient LRV (LRV_{ambient}) = <u>N/A</u> log <input type="checkbox"/> N/A LRV_{ambient} ≥ LRC? <input type="checkbox"/> Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Unknown ✓ DIT sensitivity (LRV_{DIT}) = <u>4.57</u> log <input type="checkbox"/> N/A LRV_{DIT} ≥ Min Req. LRV_{DIT}? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown <p>When were the pressure sensors that used to determine the decay rate last verified or calibrated? <u>Unknown</u> (recommend annually and per manufacturer's instructions)</p> <p>Comments: _____</p>
Indirect Integrity Testing	<p>Y N <input checked="" type="checkbox"/> <input type="checkbox"/> • Does the current Indirect Integrity Testing (e.g. turbidity monitoring) meet all the following: <input type="checkbox"/> 30 pts</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Each membrane unit/rack/skid/cell has an individual filter effluent (IFE) turbidimeter Type: <input type="checkbox"/> standard turbidimeter <input checked="" type="checkbox"/> laser turbidimeter <input checked="" type="checkbox"/> Measurements are conducted at least every 15 minutes. Freq.: <input type="checkbox"/> 1 min <input checked="" type="checkbox"/> 15 min <input type="checkbox"/> other <input checked="" type="checkbox"/> DIT done if individual filter effluent turbidity exceeds 0.15 NTU in 2 consecutive 15 min readings What IFE turbidity level triggers a DIT? <u>0.15 NTU</u> <input checked="" type="checkbox"/> DIT's triggered due to IFE turbidity over 0.15 NTU for more than 15 minutes are reported to OHA-DWS. <p>Comments: _____</p>
Operating Practices	<p>Y N <input type="checkbox"/> <input type="checkbox"/> Are flux and TMP below the following limits: Max flux: <u>unknown</u> gfd Max TMP: <u>unknown</u> psi? <input checked="" type="checkbox"/> 30</p> <p>Indicate max recommended flux from O&M <u>N/A</u> gfd & alarm set-point <u>N/A</u> gfd (enter "None" if none) Indicate max recommended TMP from O&M <u>N/A</u> psi & alarm set-point <u>N/A</u> psi (enter "None" if none)</p> <p>Y N <input checked="" type="checkbox"/> <input type="checkbox"/> Does the O&M manual include a diagnosis and repair plan? <input type="checkbox"/> 10 pts The O&M manual should include all three elements listed below: <input checked="" type="checkbox"/> DIT process and response <input checked="" type="checkbox"/> diagnostic testing <input checked="" type="checkbox"/> membrane fiber repair plan</p> <p>Comments: _____</p>
Maintenance Practices	<p>Which of the following performance metrics is monitored long-term (e.g., monitored over years)? <input checked="" type="checkbox"/> Permeability [^{flux}/TMP] <input type="checkbox"/> Resistance <input checked="" type="checkbox"/> LRV <input checked="" type="checkbox"/> TMP <input type="checkbox"/> Other: _____</p> <p>What could trigger a backwash? <input checked="" type="checkbox"/> Permeability [^{gal}/SF*day*psi] or [^{gal}/psi] <input type="checkbox"/> Resistance <input checked="" type="checkbox"/> Time <input type="checkbox"/> TMP <input type="checkbox"/> Production Comments: <u>1 hour</u></p> <p>What could trigger a clean in place (CIP)? <input checked="" type="checkbox"/> Permeability [^{gal}/SF*day*psi] or [^{gal}/psi] <input type="checkbox"/> Resistance <input checked="" type="checkbox"/> Time <input type="checkbox"/> TMP <input type="checkbox"/> Production Y N Comments: <u>80 backwashes</u></p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Are CIP chemicals NSF/ANSI Standard 60 certified? <input type="checkbox"/> 10 pts CIP chemicals used: <input checked="" type="checkbox"/> Citric <input type="checkbox"/> Muriatic <input type="checkbox"/> Caustic <input type="checkbox"/> Chlorine <input type="checkbox"/> Other: _____</p>

Other Treatment Info:	WTP- A	if no, check points												
Y	N													
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Is raw water turbidity data collected at least daily? <input checked="" type="checkbox"/> On-line <input type="checkbox"/> Bench-top <input type="checkbox"/> 3 pts												
		Average raw water: _____ NTU Peak: _____ NTU												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Is combined filter effluent (CFE) monitoring location acceptable (prior to any storage)? <input type="checkbox"/> 5 pts												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Are turbidity compliance standards met? (<1 NTU 95% of time; all < 5 NTU) <input type="checkbox"/> 10 pts												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Can chart recorder document turbidity > 5.5 NTU?												
		Each skid has IFE. Setpoint at 20 NTU but can measure up to 100 NTU												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Are turbidimeters calibrated according to factory specifications or at least quarterly? <input type="checkbox"/> 5 pts												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Are calibration standards valid (not expired)?												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Is flow through turbidimeter within manufacturer's range?												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Are CT's calculated correctly? <input type="checkbox"/> 10 pts												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Is contact time based on tracer study or adequate alternative?												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• pH, temperature and chlorine residual measured at or before 1 st user?												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Is there a flow meter on effluent side of clearwell or adequate alternative (describe)?												
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is corrosion control practiced?												
<input type="checkbox"/>	<input type="checkbox"/>	• Is it operated within parameters set by DWS? <input checked="" type="checkbox"/> N/A <input type="checkbox"/> 5 pts												
		Describe method of corrosion control used:												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Do all under-certified operators follow a written decision-making protocol as established by DRC? <input type="checkbox"/> 5 pts												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• Are standard plant operating procedures written and followed? <input type="checkbox"/> 5 pts												
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Are operators on site during all hours of plant operation?												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	• If no, is there an alarm for low EP chlorine and high CFE turbidity? (> 3300 pop. for chlorine) <input type="checkbox"/> 5 pts												
		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:20%;">Alarm</th> <th style="width:20%;">Auto-dial at what #?</th> <th style="width:20%;">Plant shutdown at what #?</th> <th style="width:40%;">Verified? (yes/no)</th> </tr> </thead> <tbody> <tr> <td>High turbidity</td> <td>N/A NTU</td> <td>0.15 NTU</td> <td></td> </tr> <tr> <td>Low chlorine</td> <td>N/A mg/L</td> <td>None mg/L</td> <td></td> </tr> </tbody> </table>	Alarm	Auto-dial at what #?	Plant shutdown at what #?	Verified? (yes/no)	High turbidity	N/A NTU	0.15 NTU		Low chlorine	N/A mg/L	None mg/L	
Alarm	Auto-dial at what #?	Plant shutdown at what #?	Verified? (yes/no)											
High turbidity	N/A NTU	0.15 NTU												
Low chlorine	N/A mg/L	None mg/L												
		Comments:												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Are chemical dosages adjusted with water quality changes (jar test or equivalent)? Process identified: <input type="checkbox"/> 3 pts												
		<input type="checkbox"/> N/A												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the operator know all chemical dosages applied in mg/L? <input type="checkbox"/> 3 pts												
		<input type="checkbox"/> N/A												
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Are feed pumps calibrated at least annually? <input type="checkbox"/> 3 pts												
		<input type="checkbox"/> N/A												
Total Points =		30												

Comments:
WTP set flow rate: 70 gpm. LRV alarm: 4.0 log

Max recommended flux and TMP and set-points are unknown. Performance metrics are stored for 30 days.
Recommendation: reach out to WesTech to determine if there is a max recommended Trans Membrane Pressure (TMP) and include that as a setpoint in the HMI. The flux is the filter loading rate (gal/ft²/day aka gfd) and TMP is the headloss (psi). The significance of flux is analogous to the filter loading rate of a rapid sand filter. TMP is analogous to the pressure differential of a cartridge/bag filter. This is to assure flux and TMP do not exceed limits established by the Challenge Study or in plan review.

Recommendation: verify and calibrate pressure sensors that are used to determine the decay rate at least annually or per manufacturer's standards.

Ensure the chlorine analyzer has a low chlorine alarm setpoint.

Disinfection

No #	Disinfection Method (Chlorine Gas, Sodium Hypochlorite, On-site Generated Sodium Hypochlorite, Calcium Hypochlorite, Chloramines, Ozone, UV, Mixed Oxidants, Other)	Location	Disinfection Source Water	Residual Maintenance	Other Purpose	Proportional to Flow	Dosage Recorded
1	Sodium Hypochlorite	WTP-A (post filtration)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

Yes No Chlorine residuals N/A

- Is a DPD or other EPA approved method used?
- NSF 60/61 certified (or equivalent)?
- Are entry point residuals recorded at least once per day (SWTR, GWR 4-log)? N/A
- Is entry point residual monitoring continuous if population > 3,300 (SWTR, GWR 4-log)? N/A
- Are distribution residuals recorded at least twice weekly?
- Are on-line chlorine analyzers verified weekly with DPD type or EPA approved test kit? N/A

Chlorine gas N/A

UV N/A

CT evaluation for disinfection N/A

Disinfection Requirement:

- (sw) 0.5 log inactivation Giardia (sw) 1.0 log inactivation Giardia
- (gw) 4.0 log inactivation viruses (sw) log inactivation Crypto: _____
- (gw) Minimum chlorine residual: _____ mg/l

Yes No

- Does the contact chamber have effluent flow meter or adequate alternative?
 If no, how is peak flow determined for CT calculations? _____

- Has a tracer study been conducted or adequate alternative? Tracer Study Date: 2014
WTP capacity 70 gpm, tracer study

Demand flow (gpm): done at 300 gpm

Baffling factor (%): _____

Volume used (gal): 147,100 gallons

Results (min): 66

- Adequate alternate method for contact time? Describe: _____

Peak hour demand flow over the past 12 months: gpm = 400 gpm - 5 days Jan '24 and 2 days Feb '24

Lowest operating volume over the past 12 months: gallons = _____

Yes No

- Is tracer study still valid?
- (SW only) Are pH, temp, and chlorine residual measured daily before or at the first user?
- Are CT values being calculated correctly (Describe how contact time is determined, below)?
- Are CT values met at all times (SWTR, GWR 4-log)?

Comments:

2014 tracer study applies to demonstrate the 0.5- log post-filtration disinfection. Use a contact time "T" of 66 minutes, applies as long as the reservoir level does not drop below 14.2 ft (147,100 gallons) and Peak Hourly Demand Flow does not increase over 10% of 300 gpm (330 gpm). The city must measure chlorine, pH and temperature daily when the plant is in use from the reservoir effluent line (considered to be the "first user") for purposes of calculating CT required.

Ensure the demand flow does not exceed 10% of 300 gpm (330 gpm) during normal operations or a new tracer study will be required.

Chlorine residuals from monthly reports 1-1.4 mg/L.

CTs and distribution residuals are checked and recorded daily.

Treatment

Process Used*	Chemical Added**	Purpose	Location in System	Code***
Hypochlorination, Post	Sodium Hypochlorite	Disinfection	WTP-A	D421
Filtration, Membrane	N/A	Particulate Removal	WTP-A	P347

*See "Treatment Plant Inspection" page for details on filtration. **See "Disinfection" page for details on disinfection equipment. ***See Treatment Codes on back.

Yes No

- Is treatment the same as last survey? (if no, explain in comments) _____
 - Is lab equipment for on-site analysis appropriate? _____
 - Is equipment maintained properly? _____
 - Is redundant equipment available? _____
 - Are chemicals NSF Standard 60 certified or equivalent? (N/A - no chemicals are used)
 - If bypass piping is present, is there a physical separation? (SWTR, GWR 4-log, chemical MCL) N/A
 - Does system practice corrosion control?
 - Is corrosion control operated within parameters set by DWS? N/A
- Describe method of corrosion control (if applicable)

Records Kept:

Yes / No

- Dosages
- Raw pH
- Raw temperature
- Raw turbidity and/or particle counts

Yes / No

- Flowrate
- Treated pH
- Treated temperature
- Treated turbidity

Comments:

There is a WTP bypass line, can have raw water from Silver Bullet flow directly to Reservoir B. Has a removable spool.

Storage and Pressure Tanks

Number	Name	Tank Type (G)round, (E)levated, (P)ressure	Tank Material (Concrete, Steel, Redwood, Plastic, Other)	Year Built	Volume (gal.)
1	Reservoir B (Clearwell)	Ground	Steel	2011	210,000

Total Volume: 210,000

Reservoir Features	Reservoir Number: 1									
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Fence/gate?.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Hatch secured (e.g. locked, bolted, etc.)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● All tank access points watertight?.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Screened vent?.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overflow?.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
● Overflow protected (screen/flap/valve)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drain to daylight?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water level gauge?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bypass piping? (● if used for contact time)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alarm for high or low levels?.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Separate inlet/outlet?.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Approved interior coating?.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exterior in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Annual interior/exterior inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cleaning schedule?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Continuously disinfected? (● post '81 redwood)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pressure Tanks										
Accessible for maintenance?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bypass piping?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drain?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pressure relief device?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Air bladder/diaphragm?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valve for adding air?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments
Glass lined interior, inspected roughly every 5 years and cleaned as needed. Last cleaned in 2020.

Unable to confirm screen size on vent. Hatch is locked and secured. Overflow into creek w/ flap.

Distribution System Information

Service Area and Facility Map

Yes	No		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the system have a service area and facility map (indicate features on map):	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Water lines (including size and material)	<input type="checkbox"/> Sources-wells & withdrawal points
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Treatment facilities	<input checked="" type="checkbox"/> Pressure zones
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Storage facilities (reservoirs)	<input checked="" type="checkbox"/> Pressure regulating valves
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Sampling points	<input checked="" type="checkbox"/> Booster pumps

Distribution Data

Yes	No		Comments
<input checked="" type="checkbox"/>	<input type="checkbox"/>	● System pressure ≥ 20 psi?	70-120 psi (see comments)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Water system leakage <10%?	25% unaccounted for water
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hydrants or blowoffs on all dead ends? <input type="checkbox"/> N/A	Hydrants
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Routine flushing? (How often)	Annually-2x annually
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Adequate valving?	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Routine valve turning? (How often)	As needed
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the distribution system have asbestos cement (AC) pipe? <i>If yes, verify asbestos sampling is completed on Water Quality Monitoring Page (CWS, NTNC).</i>	1 AC line by Humbug

Cross Connection Control (CWS, NTNC, and TNC)

Yes	No	N/A		Comments
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	● Assemblies tested annually? (CWS, NTNC, TNC)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	● Ordinance or enabling authority? (CWS)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	● Annual Summary Report submitted? (CWS)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	● Certified Cross Connection Control Specialist? (CWS ≥ 300 connections)	Bob Bruce #4854

Comments:
2 pressure zones.
2023 ASR: 22 DCs tested/passed.

Water Quality Monitoring

Contaminant	N/A	Number & Frequency	Next Tests Due
Entry Point Sampling:			
Arsenic	<input type="checkbox"/>	1 sample every 9 years	2032
Inorganic Chemicals (Including Nitrite) (sw)	<input type="checkbox"/>	1 sample every 9 years	2032
Nitrate.....	<input type="checkbox"/>	Annually	2025
Radionuclides (Community Water Systems Only):			
Gross Alpha	<input type="checkbox"/>	1 sample every 9 years	2030
Radium 226/228.....	<input type="checkbox"/>	1 sample every 9 years	2024
Uranium.....	<input type="checkbox"/>	1 sample every 9 years	2030
SOCs.....	<input type="checkbox"/>	1 sample every 3 years	2026
VOCs (sw)	<input type="checkbox"/>	1 sample annually	2025
Distribution System Sampling:			
Coliform Bacteria.....	<input type="checkbox"/>	1 sample monthly	On-going
Asbestos (for AC pipe/asbestos geologic areas) ...	<input type="checkbox"/>	1 sample every 9 years	2029
TTHMs and HAA5s	<input type="checkbox"/>	Annually (Sept 1-30)	September 2024
Lead and Copper # sites: <u>10</u>	<input type="checkbox"/>	July - December 2024	July - December 2024
Other Sampling:			
TOC.....	<input checked="" type="checkbox"/>		
Turbidity	<input type="checkbox"/>	On-going	On-going
Other (specify) _____	<input checked="" type="checkbox"/>		

Yes **No** ● Is all required monitoring current?
Yes **No** Are samples collected at the correct locations in the system?

Yes **No** ● Have all MCL violations or LCR AL exceedances been addressed? N/A
Yes **No** DBP's collected at correct locations? N/A

Yes **No** ● Does the system have a written coliform sampling plan?
 Does the plan include:

Yes	No	Yes	No
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Sample collection protocol		Rotation schedule
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Distribution map		Repeat locations
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Sample site locations		Source locations <input type="checkbox"/> N/A

Comments:
 DBP sample site: City Hall
 Recommendation: include sampling selection protocols in the coliform sampling plan.
 Working on lead service line inventory, will be completed and sent in by October deadline.

Management & Operations

O&M Manual and Emergency Response Plan

Yes No

- | | | |
|-------------------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | ● Does system have an operation and maintenance manual? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Does system have an emergency response plan? (● CWS, NTNC) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Do any system components have auxiliary power?
If yes, describe: Portable generator for WTP |

Operator Certification

Yes No N/A

- | | | | |
|-------------------------------------|--------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ● Is the DRC identified and certified at the appropriate level?
If the DRC is a contract operator, how do they work with the system? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ● Does system have written protocols for under-certified operators? |

Plan Review/Master Plan

Yes No N/A

- | | | | |
|-------------------------------------|--------------------------|--------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ● Have all major modifications been approved by DWS? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ● Does the system have a current (<20 yr. old) master plan? (Not required if < 300 connections)
What year was the plan completed? 2009 |

Compliance Status

Yes No N/A

- | | | | |
|-------------------------------------|--------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ● Is water system in compliance (all orders resolved and not a priority non-complier)? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ● Does the system issue public notice as required? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ● Are consumer confidence reports sent to users each year? |

Comments:

Violations: March 2024 monthly SW report late - returned to compliance in May.

Recommendation: water system infrastructure has changed, ensure the master plan includes these updates.

Recommendation: develop an Operations and Maintenance (O & M) manual for the entire water system and operations.