
Putting Forms Into Practice



Drinking Water Services
Silver Falls Conference
April 18, 2018

Oregon
Health
Authority

Situations where forms are needed?

- Coliform investigations
- Chemical detections & MCLs
- Inventory changes
- Water system surveys



Important
FORMS

Coliform investigations






Sample Date	# Samples	Sample Type	Coliform Type	Results--ID	Repeat of Sample ID	Sample Site	Facility	CI Residual
Oct 19, 2017	1	RP	Total	POSITIVE--1764040	1763524	SAMPLE STATION #1	DIST-A	
		RP	E.coli	Absent--1764040	1763524	SAMPLE STATION #1	DIST-A	
Oct 19, 2017	1	RP	Total	POSITIVE--1764039	1763524	SAMPLE STATION #4	DIST-A	
		RP	E.coli	Absent--1764039	1763524	SAMPLE STATION #4	DIST-A	
Oct 18, 2017	1	RT	Total	POSITIVE--1763525		OTTER RUN SS #2	DIST-A	
		RT	E.coli	Absent--1763525		OTTER RUN SS #2	DIST-A	
Oct 18, 2017	1	RT	Total	POSITIVE--1763524		WOOD AVE SS #4	DIST-A	
		RT	E.coli	Absent--1763524		WOOD AVE SS #4	DIST-A	
Sep 20, 2017	1	TG	Total	Absent--17-56113	1755093	RUESSE WELL	SRC-BA	
Sep 20, 2017	1	TG	Total	Absent--17-56112	1755093	SCHOOL WELL	SRC-AA	
Sep 20, 2017	1	RP	Total	POSITIVE--1756116	1755093	SAMPLE STATION #1	DIST-A	
		RP	E.coli	POSITIVE--1756116	1755093	SAMPLE STATION #1	DIST-A	
Sep 20, 2017	1	RP	Total	POSITIVE--1756115	1755093	SAMPLE STATION #2	DIST-A	
		RP	E.coli	Absent--1756115	1755093	SAMPLE STATION #2	DIST-A	
Sep 20, 2017	1	RP	Total	POSITIVE--1756114	1755093	SAMPLE STATION #3	DIST-A	
		RP	E.coli	POSITIVE--1756114	1755093	SAMPLE STATION #3	DIST-A	
Sep 18, 2017	1	RT	Total	POSITIVE--1755093		STATION #3	DIST-A	
		RT	E.coli	Absent--1755093		STATION #3	DIST-A	

Coliform investigations forms

- Evaluate WS facilities for pathways of contaminant entry
- Summarizes investigation findings & corrective actions needed
- Level 2 Investigation form is located on County & Dept. of Agriculture Resources [Coliform Resources Page](#)
- Refer to investigation procedures & other materials online

Coliform Monitoring Resources

As of April 1, 2016 a detailed investigation is required after the MCL for *E. coli* is exceeded or a second level 1 coliform investigation is triggered in a 12 month period. The individual responsible for conducting sanitary surveys at the water system where the investigation was triggered must complete the investigation within 30 days and submit the completed investigation form to DWS.

-  [Coliform Investigation Procedure](#)
-  [Level 2 Coliform Investigation Form](#) ( Fillable MS Word)
-  [Coliform Alert Response Procedure](#): General procedure for responding to routine sample coliform alerts for all groundwater systems.
-  [Coliform Response Chart](#) - For groundwater systems serving up to 1,000 persons

Two levels of coliform investigations:

- Level 1 coliform investigation (TC+)
 - WS completes investigation form
 - Regulator reviews form for completion & corrective action needed
- Level 2 coliform investigation
 - *E. coli* MCL or 2nd level 1 investigation within rolling 12-month period
 - Regulator completes investigation on site

Combinations resulting in *E. coli* MCL

Routine	Repeat
EC+	TC+
EC+	Any missing sample
EC+	EC+
TC+	EC+
TC+	TC+ (with no <i>E. coli</i> analysis)

E. coli positive (EC+), Total coliform positive (TC+)

Investigation Forms



Level 1 Coliform Investigation Form Oregon Health Authority, Drinking Water Services

Complete the coliform investigation and return the form within 30 days to your County, Dept. of Ag, or State regulatory contact

PWS Name:		PWS ID #:	41
	Name	Telephone #	
Operator in Direct Responsible Charge			
Person(s) that collected samples if different than above			
Date of Investigation:			

INVESTIGATION DETAILS		
Did any of the following events occur prior to collection of the positive total coliform samples?	Yes/No	N/A

1. Loss of pressure anywhere in the system	Y <input type="checkbox"/> N <input type="checkbox"/>	
2. Maintenance on the system that could have introduced contamination	Y <input type="checkbox"/> N <input type="checkbox"/>	
3. Repair of broken water lines	Y <input type="checkbox"/> N <input type="checkbox"/>	
4. New water lines or service connections added to the system	Y <input type="checkbox"/> N <input type="checkbox"/>	
5. Vandalism or unauthorized access to facilities	Y <input type="checkbox"/> N <input type="checkbox"/>	
6. Water line flushing or fire fighting event	Y <input type="checkbox"/> N <input type="checkbox"/>	
7. Low chlorine or chloramine residual anywhere in the system	Y <input type="checkbox"/> N <input type="checkbox"/>	
8. Failure of chlorination/UV equipment or minimums not met	Y <input type="checkbox"/> N <input type="checkbox"/>	
9. New or different source of water introduced (example: backup well)	Y <input type="checkbox"/> N <input type="checkbox"/>	
10. Loss of electrical power	Y <input type="checkbox"/> N <input type="checkbox"/>	
11. Unprotected connection to non-potable water discovered (example: private well, irrigation line, fire sprinkler system)	Y <input type="checkbox"/> N <input type="checkbox"/>	
12. Failure to test all backflow prevention devices within the last year	Y <input type="checkbox"/> N <input type="checkbox"/>	
13. Discovery of water system components submerged in water (example: well or valves in a flooded vault)	Y <input type="checkbox"/> N <input type="checkbox"/>	



Level 2 Coliform Investigation Form Oregon Health Authority, Drinking Water Services

Wells & Springs - Inspect each groundwater source for physical defects and report:	Yes/No	N/A
1. Cracks or holes in well seal or casing	Y <input type="checkbox"/> N <input type="checkbox"/>	
2. Repair/replacement of well/spring components (example: well pump)	Y <input type="checkbox"/> N <input type="checkbox"/>	
3. Wellhead flooded or water puddled near well	Y <input type="checkbox"/> N <input type="checkbox"/>	
4. Screen for well vent missing or damaged	Y <input type="checkbox"/> N <input type="checkbox"/>	
5. Feces, fecal source or other unsanitary conditions at the well/spring	Y <input type="checkbox"/> N <input type="checkbox"/>	
6. Leaking sewer lines or septic tanks near well/spring	Y <input type="checkbox"/> N <input type="checkbox"/>	
7. Cracks or holes in springbox	Y <input type="checkbox"/> N <input type="checkbox"/>	
8. Water flowing or puddled on the ground around springbox	Y <input type="checkbox"/> N <input type="checkbox"/>	

PWS Name:		PWS ID #:	41
	Name	Telephone #	
Operator in Direct Responsible Charge (DRC)			
Person that collected samples if different than DRC			
Date of Investigation:			

INVESTIGATION DETAILS						
Groundwater Source Inspect each groundwater source for physical defects and report:	Well/Spring Name	Well/Spring Name	Well/Spring Name	Well/Spring Name	N/A	If Yes, describe issue
1. Cracks or holes in well seal or casing	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
2. Wellhead lacks a watertight seal	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
3. Screen for well vent missing or damaged	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
4. Wellhead subjected to flooding or standing water near well	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
5. Leaking sewer lines or septic tanks near well/spring	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
6. Feces, fecal source observed near well/spring	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
7. Unsanitary conditions at the well/spring	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
8. Contamination during pump repair/replacement or other wellhead/spring repair	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
9. Use of an unapproved or untested source	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
10. Indication of surface water entering springbox	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
11. Cracks or holes in springbox	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		

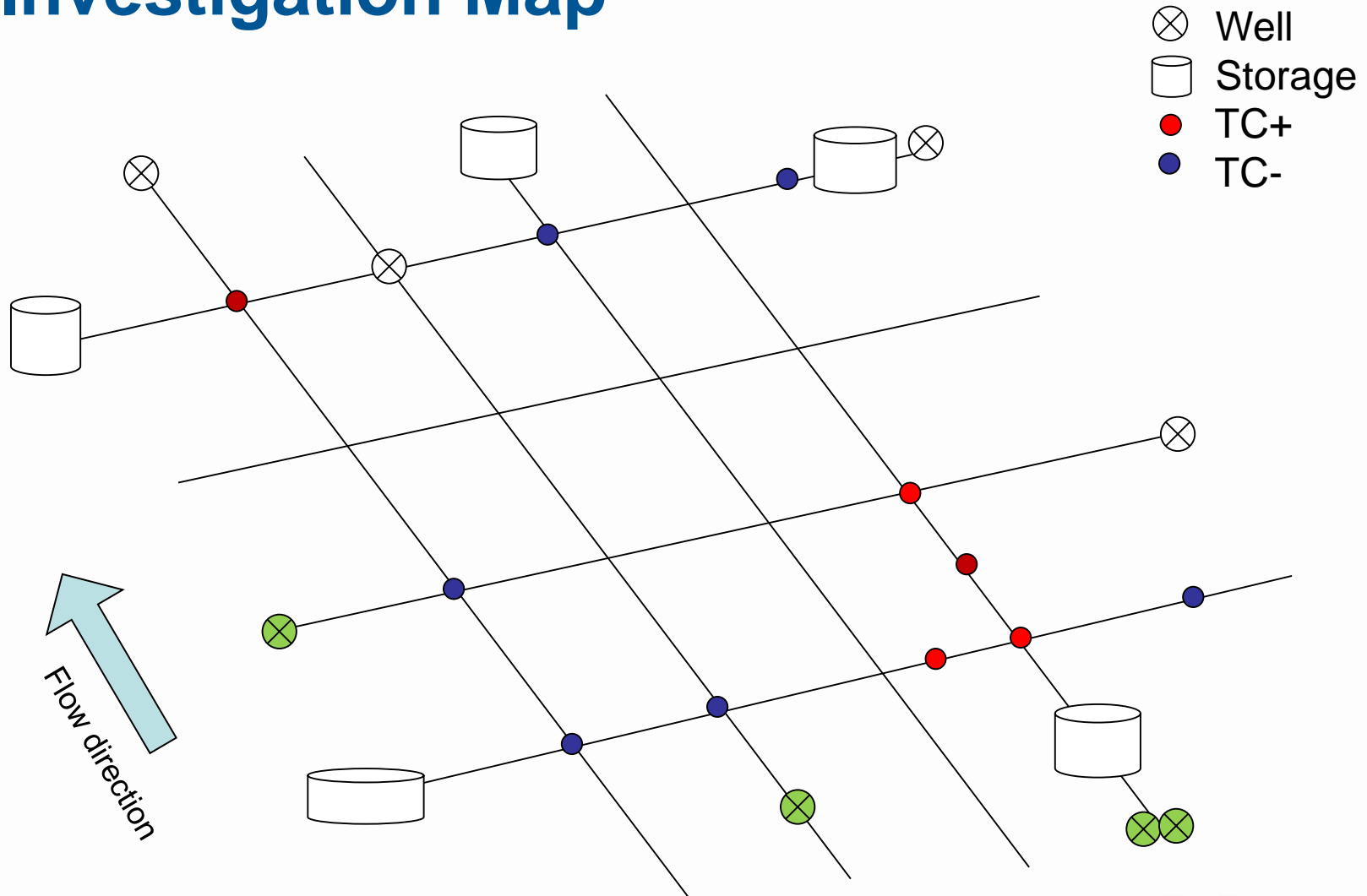
Treatment and Disinfection Inspect each treatment plant for physical defects and report:	Plant Name	Plant Name	Plant Name	Plant Name	N/A	If Yes, describe issue
1. Inability to maintain residual throughout the distribution system	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
2. Failure of disinfection equipment	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
3. Failure to monitor and replace chlorine supply	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
4. Improper chlorine residual measurements (method or frequency)	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		

Coliform investigation scenario

- Community groundwater system with no treatment
- Completed level 1 investigation in prior month
 - no issues were identified
- Triggered level 2 investigation in Sept. 2017
- Routine samples TC+ followed by repeats TC+ (no *E. coli*)
- Wells in use at the time were coliform absent
- Some waterline maintenance work had been done
- Consolidated connections from neighboring WS
- Coliform event occurred in late summer

- What information would be useful to have for on site visit?

Investigation Map



Investigation details

INVESTIGATION DETAILS

Groundwater Source Inspect each groundwater source for physical defects and report:	Well/Spring Name Well 1	Well/Spring Name Well 2	Well/Spring Name	Well/Spring Name	N/A	If Yes, describe issue
1. Cracks or holes in well seal or casing	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	All triggered source water samples collected were coliform absent.
2. Wellhead lacks a watertight seal	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
3. Screen for well vent missing or damaged	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	Wells #1 & #2 located in affected area inspected during site visit. No issues were found.
4. Wellhead subjected to flooding or standing water near well	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
5. Leaking sewer lines or septic tanks near well/spring	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
6. Feces, fecal source observed near well/spring	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	Water supplier inspected additional wells prior to site visit and no issues were identified.
7. Unsanitary conditions at the well/spring	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
8. Contamination during pump repair/replacement or other wellhead/spring repair	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
9. Use of an unapproved or untested source	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
10. Indication of surface water entering springbox	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
11. Cracks or holes in springbox	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	

Treatment and Disinfection Inspect each treatment plant for physical defects and report:	Plant Name	Plant Name	Plant Name	Plant Name	N/A	If Yes, describe issue
1. Inability to maintain residual throughout the distribution system	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input checked="" type="checkbox"/>	No treatment is installed.
2. Failure of disinfection equipment	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Failure to monitor and replace chlorine supply	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. Improper chlorine residual measurements (method or frequency)	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Failure to meet required minimum chlorine residual at the entry point (GW only)	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input checked="" type="checkbox"/>	

Investigation details

Level 2 Coliform Investigation Form

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Treatment and Disinfection Inspect each treatment plant for physical defects and report:	Plant Name	Plant Name	Plant Name	Plant Name	N/A	If Yes, describe issue
6. Failure to meet CTs at all times (SW only)	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. Failure to meet turbidity standards (SW only)	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input checked="" type="checkbox"/>	
8. Failure to meet filtration requirements (SW only)	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input checked="" type="checkbox"/>	

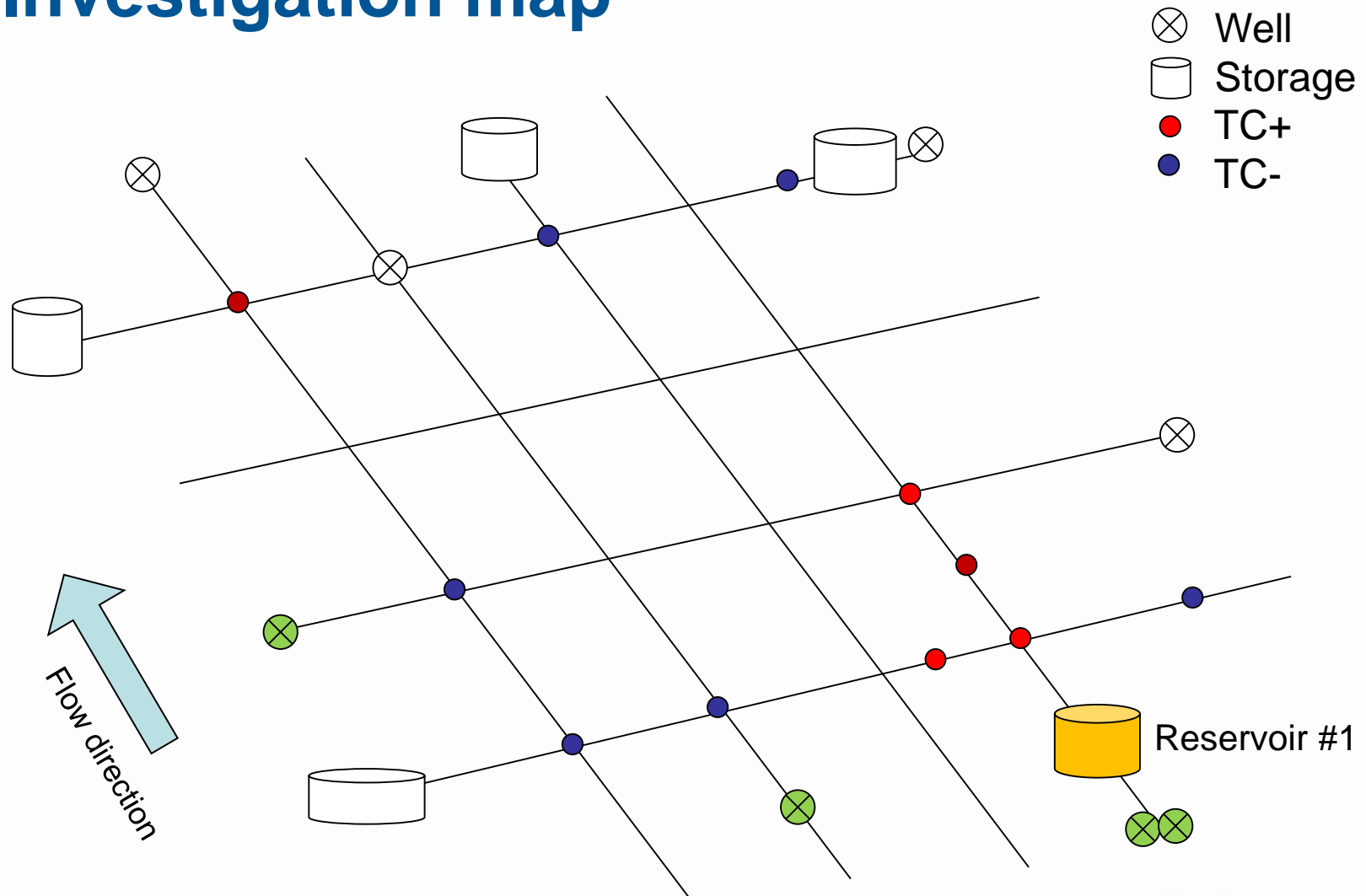
Storage Tanks Inspect each storage tank for physical defects and report:	Tank Name Res. #1	Tank Name	Tank Name	Tank Name	N/A	If Yes, describe issue
1. Holes in tank that could allow entry of insects or small animal	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	Rodents burrowing under structure covering Res. #1. Visual inspection during site visit. Other reservoirs inspected by water supplier prior to site visit include Res. #2-#4.
2. Roof access hatch or other openings inadequately sealed	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
3. Vent screens missing or damaged	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
4. Screen or flap valve on overflow pipe outlet missing or damaged	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
5. Presence of contamination in tank (example: dead animals, insects)	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	Draining Res. #1 found rodent remnants.
6. Recent maintenance or work done on the tank	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
7. Improperly cleaned or maintained storage tank	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
8. Leaks in tank that could be harboring growth	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	
9. Inadequate tank controls resulting in poor turnover	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	Controls adequate. Concerns with thermal stratification in reservoir affecting water quality.
10. Bladder pressure tank waterlogged	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	<input type="checkbox"/>	

Investigation details

Distribution System Inspect the distribution system for physical defects and report:	Yes/No	N/A	If Yes, describe issue
1. Failure to maintain adequate pressure or low pressure event (example: pump failure leading to low pressure)	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		
2. Recent main break or repair of broken water lines	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		Aug. 12 th waterline break on 2 nd street
3. New water lines or service connections added to the system	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		In February 2017, new waterlines were installed in the S and N areas. In 2017, system consolidated connections, waterlines and distribution components from adjacent system.
4. Improper construction of new, replaced, or renovated lines or service connections	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		
5. Known leaks in the distribution system	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		
6. Supervisory control and data acquisition (SCADA) and control issues	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	<input type="checkbox"/>	

Sampling Protocol Report any defects in sampling protocol:	Yes/No	N/A	If Yes, describe issue
1. Tap flushed for less than 3 minutes	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		
2. Aerator, screen, hose, or other attachment present during sampling	Y <input type="checkbox"/> N <input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Leaky or swivel faucet used	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		
4. Samples not kept cool during storage/transportation	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		
5. Inside of bottle/lid touched or lid set down	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		
6. Heavy rainfall or wind at time of sampling	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		
7. Sampled at site not on coliform sampling plan or previously unused site	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		DCVA sites used for sampling is uncommon.
8. Other sampling problems	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		

Investigation map



Investigation findings

- Rodents burrowing under steel structure covering Reservoir #1



Investigation details

SUMMARY: Based on the results of the investigation and any other available information, what is believed to be the cause(s) of the *E. coli* positive or multiple total coliform positive sample(s) from the public water system?

Met with DRC and certified operators. Discussed sampling completed to evaluate coliform occurrence. Coliform sampling and distribution system map were reviewed. Efforts focus on southern portion of the water system served by the two wells 1, 2 and reservoir #1.

Prior to investigation, Reservoir #1 was drained and inspected confirming rodent activity inside the concrete basin. Rodents burrowing under the berm wall may have entered finished water using the wooden ramp and/or by climbing structural support beams. Facilities were shock chlorinated and residual levels measured before and after the reservoirs.

The water system has triggered two coliform investigation. According to Oregon Administrative Rule 333-061-0032(6) (g), triggering three or more coliform investigation within a rolling 12-month period requires water suppliers to install and utilize treatment for disinfectant residual maintenance.

CORRECTIVE ACTIONS: What actions has the water system taken to correct the above mentioned issue(s)? *If additional time is needed to correct a deficiency, indicate the date that it will be corrected.*

Remove wooden access ramp to Reservoir #1 concrete basin replace with a gravel path. Shoring berm and install flashing and metal collars around support beams inside structure to prevent rodent entry. Remove landscape fabric inside the structure to deter rodents.

Pressure washed and shock chlorinate reservoir. Evaluate and remove trees that could compromise reservoirs, install sampling taps for both reservoirs.

Discussed disinfection practices and customer notification for repairs and/or chlorination activities.

Improve documents for items 1-3 below. Provide written verification that items have been corrected before January 1, 2018.

- (1) Update coliform sampling plan to incorporate new sites and/or sites previously sampled not documented in the plan.
- (2) Review and update written procedures for chlorination.
- (3) Review and update written procedures for notifying customers.

Corrective action

- Access ramp replaced with gravel
- Installed flashing & metal collars on support beams



Coliform investigations - continued

- Things to consider when filling out form:
 - Go through questions in order
 - Take photos when unsure of contaminant concern
 - Refer to survey manual & consult with DWS staff for assistance
 - Describe situation, include map and other details for investigation
 - If facility could not be inspected, note it on the form
 - Complete summary (required) & corrective action sections
 - Does summary capture the coliform event?
 - Are there corrective action due dates to track in Data Online?
 - Send final form to WS for their records

Coliform investigations - lessons learned

- Provide WS with copy of investigation form before onsite visit
- Request information for investigation
 - Distribution map to spatially evaluate coliform results
 - Sampling plan and procedures
 - Access to necessary facilities
 - Photos of facilities that are inaccessible (storage tanks, vaults)
- Investigation may trigger increased sampling
- Multiple investigations may be triggered before issue is resolved
- Unresolved issues may require installing residual maintenance
- What experiences have you encountered with coliform investigations?

Chemical detections & MCL exceedance

- Alerts you may encounter:
 - VOC detection
 - Arsenic MCL
 - Nitrate > ½ MCL
- Refer to online monitoring resources

Monitoring Resources

Drinking Water Services

County & Dept. of Agriculture Resources

Water System Surveys

Conferences and Training

Document Library

Inventory Updates

EPA Staff Resources

Coliform Resources

The information on this page is designed for and intended for use by Drinking Water Services County and Department of Agriculture partners who have specialized training and are registered as environmental health specialists. If you have questions regarding this material please contact Drinking Water Services at (971) 673-0405.

-  Chemical Monitoring Schedules for Community and Non-Transient Non-Community groundwater systems
-  Standard Monitoring Framework
-  Alerts: What to Do With Chemical Detections
-  Arsenic Testing and Follow-up at TNC and State-Regulated Water Systems

Lead and Copper Rule:

-  Lead or Copper Exceedance Procedure
-  Plumbing Replacement Program Procedure
-  Lead and Copper Tap Sample Invalidation Procedure

Chemical detection Scenario

- Detection in 2nd quarter of xylene at 0.0007 mg/L
- Alert emailed to regulator when contaminant is > MDL
- Evaluate if confirmation sample is needed
- Is additional monitoring required?

Refer to “What to Do With Chemical Detections” handout



Alerts: What to Do With Chemical Detections

What to Do With Results Greater Than Zero (Detections)

Oregon Health Authority Drinking Water Services, Updated October 2016

Problem	Action Needed	Resolution	OAR Citation	
Inorganics (including Arsenic) ^a				
Result over the MCL	Confirmation sample plus quarterly monitoring ^a . Confirmation sample must be taken within 2 weeks. Average initial + confirmation sample to determine compliance.	Review after 2 quarters for GW, after 4 quarters for SW. Sample qtrly until R&C ^b below MCL, but if running annual average (RAA) is above MCL, treatment is required. For arsenic, DWS generally requires 4 quarters for all systems before review.	OAR 333-061-0036(2)(g) OAR 333-061-0036(2)(a)(D) OAR 333-061-0036(2)(i)(B)	Confirmation sample Quarterly monitoring RAA calculation & compliance determination
Nitrate and Nitrite ^a				
Result over the MCL	Confirmation sample plus quarterly monitoring.	If avg of initial + confirmation is above MCL, treatment is required. If avg < MCL, monitor quarterly until R&C ^b below MCL.	OAR 333-061-0036(2)(g) (B&C) and OAR 333-061-0036(2)(i)(C) OAR 333-061-0036(2)(d) OAR 333-061-0036(2)(e)(C)	Confirmation sample Quarterly monitoring nitrate Quarterly monitoring nitrite & at least annually after that
Result $\geq \frac{1}{2}$ the MCL	Quarterly monitoring	Continue monitoring qtrly. Review annually to determine whether system should continue quarterly monitoring. If results are R&C ^b below the MCL (for GW) or below $\frac{1}{2}$ the MCL (for nitrates, SW), then system can return to annual monitoring.	OAR 333-061-0036(2)(d) OAR 333-061-0036(2)(e)(C and D)	Quarterly monitoring nitrate Quarterly monitoring nitrite, & at least annually after that (in same quarter as the highest previous result)
Lead and Copper ^a				
Above Action Level	Review sampling protocol. Collect source testing and WQPs ^c , submit treatment recommendation. May need public education.	Install corrosion control, or make necessary adjustments. 2 six-month rounds less than Action Level, minimum WQPs ^c set.	OAR 333-061-0036(2)(c)(G-H) and 333-061-0034(4) OAR 333-061-0036(2)(c)(F) OAR 333-061-0034(2) & (3) OAR 333-061-0034(5) OAR 333-061-0036(2)(c)(D)(ii)	Source water testing WQP requirements Treatment requirements Lead public notice/education Monitoring after installing tx
Volatile & Synthetic Organics ^a				
Result over the MCL	Confirmation sample plus quarterly monitoring. ^d	Compliance is based on running annual average.	OAR 333-061-0036 (3)(b)(F) OAR 333-061-0036 (3)(a)(F) OAR 333-061-0036 (3)(b)(E) OAR 333-061-0036 (3)(a)(E) OAR 333-061-0036 (3)(b)(H) OAR 333-061-0036 (3)(a)(H)	VOC confirmation sample SOC confirmation sample VOC quarterly monitoring SOC quarterly monitoring VOC annual compliance SOC annual compliance

Chemical detections and MCL exceedance?

Example:

- Alert for detection 2nd quarter of VOC Xylene at 0.0007 mg/L
- Email notification when contaminant is above MDL 0.0005 mg/L
- Average of initial and confirmation samples below MDL
- If average is above MDL increase to sampling quarterly.

Volatile & Synthetic Organics ^a

Problem	Action Needed	Resolution
Result > Detection Limit (for VOCs); Result \geq Detection Limit (SOCs) Detect limit for VOCs is 0.0005 mg/l. Detect limits for SOCs vary.	Confirmation sample plus quarterly monitoring. ^d Vinyl chloride samples required following certain VOC detections in GW systems. ^f	If avg of initial + confirmation is below detection limit, or if original sample can be shown to be non-representative, resume routine monitoring schedule. Document the decision. If avg > detection limit, must monitor quarterly. Review after 2 Qs for GW, after 4 Qs for SW. If average > MCL, treatment is required. If R&C ^b below MCL, sample annually. Review GW after 3 yrs – reduction if no detects.

Chemical Schedule Change Form

- Download from Inventory Page
- Information to complete:
 - Schedule increase at EP
 - Begins quarter after detection
 - Provide explanation on form for schedule increase
 - Include additional information
 - Follow up after quarterly sampling is completed

Oregon Health Authority

Chemical & Bacteriological Monitoring Schedule Change Form
OHA Drinking Water Services

System _____ PWS ID# 41 ☐ ☐ ☐ ☐ ☐

Contact with _____ Phone () - _____ County _____

Staff Member _____ Agency: _____ Date _____

System Type: ☐ Community (C) ☐ Non-Transient Non Community (NTNC) ☐ Transient Non-Community (NC) ☐ State Regulated (NP)

Check if New System or Sample Pt: ☐ For new systems, include all necessary chemicals and sampling points.

Entry Point ID (In SDWIS Entry Pt ID "A" will appear as Facility ID "EP-A", Entry Pt ID "B" will appear as "EP-B" etc.)

Sample Point ID (Entry Pt ID or SRC Sampling Point ID)	Code/Chemical/Analyte (See reverse for complete list of chemical groups and analyte codes)	Frequency								Begin Date	End Date (Leave blank unless closing a previous schedule)
		Once	Monthly	Quarterly	Yearly	Once Every 3 Years	Twice Every 3 Yrs	Once Every 6 Years	Once Every 9 Years		
		<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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	/ /	/ /

Attach additional page(s) as necessary

Distribution Sampling Point ID (In SDWIS Distrib. Sampling Point "A" will be identified as: Facility ID "DIST-A")
(DBP Sample Points must include peak month that sampling is required in and sample location)

DBP2 TTHM HAA5 IDSE LCR ASBD or TCR	DIST-A or IDSE-01 2DBP-01, etc.	Sample Site ID or Street Address (Enter for DBPs only. This address will be used to tie sample results to the site)	# Samples Required	Monthly	Quarterly For DBP Indicate Peak Month Below	Semi Annual	Yearly For DBP Indicate Peak Month Below	Once Every 3 Years For DBP Indicate Peak Month Below	Once Every 6 Years	Once Every 9 Years	Begin Date	End Date
				<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	/ /	/ /

Chemical Schedule Change Form

- Provide system inventory information
- Establish sampling point, chemical, schedule frequency, begin date
- Note additional information in the comments section



Chemical & Bacteriological Monitoring Schedule Change Form OHA Drinking Water Services

System Lily Cat Farms PWS ID# 41 0 1 2 3 4
 Contact with Lily P. Coyote Phone (503) 351 - 0351 County Deschutes
 Staff Member Michelle Agency: DWS Date 4/16/2018

System Type: ☒ Community (C) ☐ Non-Transient Non Community (NTNC) ☐ Transient Non-Community (NC) ☐ State Regulated (NP)

Check if New System or Sample Pt: ☐

For new systems, include all necessary chemicals and sampling points.

Entry Point ID (In SDWIS Entry Pt ID "A" will appear as Facility ID "EP-A", Entry Pt ID "B" will appear as "EP-B" etc.)

Sample Point ID (Entry Pt ID or SRC Sampling Point ID)	Code/Chemical/Analyte <small>See reverse for complete list of chemical groups and analyte codes</small>	Frequency								Begin Date	End Date (Leave blank unless closing a previous schedule)
		Once	Monthly	Quarterly	Yearly	Once Every 3 Years	Twice Every 3 yrs	Once Every 6 Years	Once Every 9 Years		
EP-A	2955 Xylene	<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"/>	06/01/2018	<input type="text"/>
<input type="text"/>	<input type="text"/>	<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="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<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="text"/>	<input type="text"/>

Chemical Schedule Change Form

- Provide system inventory information
- Establish sampling point, chemical, schedule frequency, begin date
- Note additional information in the comments section

Comments: Detection of xylene in sample collected on 4/1/2018. Confirmation sample collected on 4/15/18. Average of initial and confirmation sample requires quarterly sampling starting 3rd quarter.

Signature: Michelle Byrd

Date: 4/16/2018

Chemical MCL Scenario

- Arsenic result in 1st quarter is 0.012 mg/L
- Confirmation sample is 0.014 mg/L
- Is average of initial detection and confirmation sample are over the MCL?
- Refer to “What to Do With Chemical Detections”



Chemical MCL Scenario

- Quarterly sampling of arsenic is needed to determine compliance by calculating Running Annual Average

Problem	Action Needed	Resolution
Inorganics (including Arsenic)^a		
Result over the MCL	Confirmation sample plus quarterly monitoring ^a . Confirmation sample must be taken within 2 weeks. Average initial + confirmation sample to determine compliance.	Review after 2 quarters for GW, after 4 quarters for SW. Sample qtrly until R&C ^b below MCL, but if running annual average (RAA) is above MCL, treatment is required. For arsenic, DWS generally requires 4 quarters for all systems before review.

- Fill out Chemical Schedule Change Form
 - Schedule increase for arsenic at EP starting quarter after detection occurred
 - Provide explanation for schedule increase

Changes to distribution sampling

- DBPs, lead & copper & coliform sampling
 - Include number of samples required
 - Street address (if applicable)

Distribution Sampling Point ID (In SDWIS Distrib. Sampling Point "A" will be identified as: Facility ID "DIST-A")

(DBP Sample Points must include peak month that sampling is required in and sample location)

☐ New Schedule

☒ Schedule Reduction

☐ Schedule Increase

DBP 2 TTHM HAA5 IDSE LCR ASBD or TCR	DIST-A or IDSE-01 2DBP-01, etc.	Sample Site ID or Street Address (Enter for DBPs only. This address will be used to tie sample results to the site)	# Samples Required	Monthly	Quarterly <i>For DBP Indicate Peak Month Below</i>	Semi Annual	Yearly <i>For DBP Indicate Peak Month Below</i>	Once Every 3 Years <i>For DBP Indicate Peak Month Below</i>	Once Every 6 Years	Once Every 9 Years	Begin Date	End Date
LCR	DIST-A	-	10	<input type="checkbox"/>	<input type="checkbox"/> ____	<input checked="" type="checkbox"/>	<input type="checkbox"/> ____	<input type="checkbox"/> ____	<input type="checkbox"/>	<input type="checkbox"/>	/ /	12/31/2017
LCR	DIST-A	-	5	<input type="checkbox"/>	<input type="checkbox"/> ____	<input type="checkbox"/>	<input checked="" type="checkbox"/> *	<input type="checkbox"/> ____	<input type="checkbox"/>	<input type="checkbox"/>	01/01/2018	/ /
				<input type="checkbox"/>	<input type="checkbox"/> ____	<input type="checkbox"/>	<input type="checkbox"/> ____	<input type="checkbox"/> ____	<input type="checkbox"/>	<input type="checkbox"/>	/ /	/ /

More on chemical schedule changes...

- Consider end date when closing schedule to avoid violation
- Check Data Online to see if schedule is correct
- Follow-up after changing schedule if further evaluation is needed
- Questions on required sampling? Consult with DMCE or tech staff.

Chemical Sampling Schedule Status									
Facility ID	Analyte or Group		Sampling Interval	Monitoring Period		Days Until End	Samples Required	Samples Received	Last Sample Date
				Start	End				
EP-A	EP FOR WASHINGTON ST WELL	ARSENIC	Quarterly	04/01/2018 - 06/30/2018		74	1	incomplete	03/14/2018
EP-A	EP FOR WASHINGTON ST WELL	IOC	notes	9 Years	01/01/2014 - 12/31/2022	1719	1	incomplete	05/19/2008
EP-A	EP FOR WASHINGTON ST WELL	NITRATE	Yearly	01/01/2018 - 12/31/2018		258	1	incomplete	11/08/2017
EP-A	EP FOR WASHINGTON ST WELL	NITRITE	notes	9 Years	01/01/2014 - 12/31/2022	1719	1	incomplete	07/11/2005
EP-A	EP FOR WASHINGTON ST WELL	RAD - GROSS ALPHA	3 Years	01/01/2017 - 12/31/2019		623	1	incomplete	11/08/2016
EP-A	EP FOR WASHINGTON ST WELL	RAD - RADIUM 226/228	6 Years	01/01/2014 - 12/31/2019		623	1	done	11/08/2016
EP-A	EP FOR WASHINGTON ST WELL	RAD - URANIUM	notes	9 Years	01/01/2014 - 12/31/2022	1719	1	done	11/08/2016
EP-A	EP FOR WASHINGTON ST WELL	SOC	3 Years	01/01/2017 - 12/31/2019		623	1	incomplete	11/08/2016
EP-A	EP FOR WASHINGTON ST WELL	VOLATILE ORGANICS	3 Years	01/01/2017 - 12/31/2019		623	1	incomplete	11/08/2016

Inventory changes

- Add a new system or update existing system information
- Identifying source & entry point information (2 separate forms)
- Chemical & bacteriological schedule changes
- Submit all 3 forms to DMCE for new systems.

Inventory Updates

Drinking Water Services

County & Dept. of Agriculture
Resources

Water System Surveys

Conferences and Training

Document Library

Inventory Updates

EPA Staff Resources











Coliform Resources

Monitoring Resources

The information on this page is designed for and intended for use by Drinking Water Services County and Department of Agriculture partners who have specialized training and are registered as environmental health specialists. If you have questions regarding this material please contact Drinking Water Services at (971) 673-0405.


-  Treatment Codes

The following documents are password protected:

- Chemical and Bacteriological Monitoring Schedule Change Form:  fillable MS Word -or-  printable PDF
- Entry Structure Diagram:
 - Refer to the treatment code list (above) when filling out this form.
 -  Entry Structure Diagram (includes drawing grid)
 -  Entry Structure Form and  Drawing Grid
- Source Information:  fillable MS Word -or-  printable PDF
-  Water System Information
-  Waiver request and associated  procedure to reduce monitoring from annual to once every three years after a VOC contaminant was detected.

Add a new system or update existing system information

- WS Information form
 - System type, statistics, operational period
 - identify contact person's information
 - activate/deactivate WS
 - Clarify changes or additional information in notes

		<h1 style="text-align: center;">Water System Information</h1> <h2 style="text-align: center;">DHS Drinking Water Program</h2>		<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">41</div> <div style="display: flex; gap: 5px;"> <div style="width: 30px; height: 30px; background-color: #ccc; border: 1px solid #000;"></div> <div style="width: 30px; height: 30px; background-color: #ccc; border: 1px solid #000;"></div> <div style="width: 30px; height: 30px; background-color: #ccc; border: 1px solid #000;"></div> <div style="width: 30px; height: 30px; background-color: #ccc; border: 1px solid #000;"></div> </div> </div> <div style="text-align: right; margin-top: 5px;">PWS ID</div>	
System: <div style="border: 1px solid #ccc; width: 100px; height: 20px;"></div>		<input type="checkbox"/> New system – Fill out Inventory and Source Change forms.		<input type="checkbox"/> Built before 8/21/81	
Contact with: <div style="border: 1px solid #ccc; width: 100px; height: 20px;"></div>		Phone: (<div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div>) <div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div>		County: <div style="border: 1px solid #ccc; width: 100px; height: 20px;"></div>	
Staff member: <div style="border: 1px solid #ccc; width: 100px; height: 20px;"></div>		<div style="display: flex; gap: 10px;"> <input type="checkbox"/> State <input type="checkbox"/> County <input type="checkbox"/> Dept. of Agriculture <input type="checkbox"/> Other </div>		Date: <div style="border: 1px solid #ccc; width: 100px; height: 20px;"></div>	
<div style="border: 1px solid #ccc; padding: 5px;"> <input type="checkbox"/> Change system name: New name <div style="border: 1px solid #ccc; width: 150px; height: 20px;"></div> </div>					
<div style="border: 1px solid #ccc; padding: 5px;"> <input type="checkbox"/> Change system statistics: </div>					
<div style="border: 1px solid #ccc; padding: 5px;"> Type * <input type="checkbox"/> Community (C) <input type="checkbox"/> Non-transient non-community (P) <input type="checkbox"/> Transient non-community (N) <input type="checkbox"/> State regulated (S) </div>		<div style="border: 1px solid #ccc; padding: 5px;"> Size, Etc. Population: <div style="border: 1px solid #ccc; width: 150px; height: 20px;"></div> Connections: <div style="border: 1px solid #ccc; width: 150px; height: 20px;"></div> Service Chars*: <div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div> <div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div> Ownership*: <div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div> County: <div style="border: 1px solid #ccc; width: 150px; height: 20px;"></div> </div>		<div style="border: 1px solid #ccc; padding: 5px;"> Season <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> All year Begins: <div style="border: 1px solid #ccc; width: 60px; height: 20px;"></div> mm/dd </div> <div> <input type="checkbox"/> Seasonal Ends: <div style="border: 1px solid #ccc; width: 60px; height: 20px;"></div> mm/dd </div> </div> </div>	
<div style="border: 1px solid #ccc; padding: 5px;"> Certification WT- <div style="border: 1px solid #ccc; width: 60px; height: 20px;"></div> WD- <div style="border: 1px solid #ccc; width: 60px; height: 20px;"></div> <input type="checkbox"/> FE? <input type="checkbox"/> Not lic. </div>		<div style="border: 1px solid #ccc; padding: 5px;"> License <input type="checkbox"/> DHS <input type="checkbox"/> Ag. </div>		<div style="border: 1px solid #ccc; padding: 5px;"> Coliform Sampling Period: <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly Samples Required: <div style="border: 1px solid #ccc; width: 100px; height: 20px;"></div> </div>	
<div style="border: 1px solid #ccc; padding: 5px;"> Contact change: <input type="checkbox"/> Also Owner <input type="checkbox"/> Also Operator <input type="checkbox"/> Also Direct Responsible Charge (DRC) </div>		<div style="border: 1px solid #ccc; padding: 5px;"> Responsible Agency <input type="checkbox"/> State <input type="checkbox"/> County <input type="checkbox"/> Dept. of Ag. </div>			
Name & Title: <div style="border: 1px solid #ccc; width: 150px; height: 20px;"></div>					
Mailing Address: <div style="border: 1px solid #ccc; width: 150px; height: 20px;"></div>					
City: <div style="border: 1px solid #ccc; width: 100px; height: 20px;"></div>		State: <div style="border: 1px solid #ccc; width: 50px; height: 20px;"></div>		Zip: <div style="border: 1px solid #ccc; width: 60px; height: 20px;"></div> Phone: (<div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div>) <div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div> - <div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div>	
<div style="border: 1px solid #ccc; padding: 5px;"> <input type="checkbox"/> Alternate contact change: <input type="checkbox"/> Owner <input type="checkbox"/> Operator <input type="checkbox"/> Direct Responsible Charge (DRC) </div>					
Name & Title: <div style="border: 1px solid #ccc; width: 150px; height: 20px;"></div>					
Mailing Address: <div style="border: 1px solid #ccc; width: 150px; height: 20px;"></div>					
City: <div style="border: 1px solid #ccc; width: 100px; height: 20px;"></div>		State: <div style="border: 1px solid #ccc; width: 50px; height: 20px;"></div>		Zip: <div style="border: 1px solid #ccc; width: 60px; height: 20px;"></div> Phone: (<div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div>) <div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div> - <div style="border: 1px solid #ccc; width: 30px; height: 20px;"></div>	
<div style="border: 1px solid #ccc; padding: 5px;"> <input type="checkbox"/> Activate / Deactivate: Date of activation / deactivation (required): <div style="border: 1px solid #ccc; width: 100px; height: 20px;"></div> </div>					
<div style="border: 1px solid #ccc; padding: 5px;"> <input type="checkbox"/> Deactivate System – Reason: </div>		<div style="border: 1px solid #ccc; padding: 5px;"> <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> OOB/temp. closed (N) (not seasonal closure) <input type="checkbox"/> Duplicate (D) (has another ID) </div> <div> <input type="checkbox"/> Merged (M) – PSW id: 41 <div style="border: 1px solid #ccc; width: 60px; height: 20px;"></div> <input type="checkbox"/> Abandoned (A) </div> <div> <input type="checkbox"/> No longer qualifies (S) Pop. drop, split, etc.) <input type="checkbox"/> Never qualified (U) (Incorrectly given ID) </div> </div> </div>			
<div style="border: 1px solid #ccc; padding: 5px;"> <input type="checkbox"/> Activate System </div>					
<div style="border: 1px solid #ccc; padding: 5px;"> <input type="checkbox"/> Notes: <div style="border: 1px solid #ccc; width: 150px; height: 20px;"></div> </div>					

Identify source & entry point information

- Entry Structure Diagram form
 - Identify source & EP names, type, availability, treatment
 - Grid to draw source & EP physical connection to distribution
 - Refer to instructions on 2nd page of form



Entry Structure Diagram OHA Drinking Water Program

System: _____ PWS ID 41

Contact with: _____ Ph# _____ County: _____

Staff member: _____ Date: _____

Agency ☐ State ☐ County ☐ Dept of Ag ☐ Other

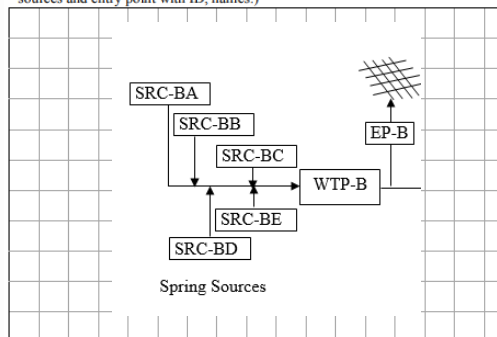
Entry Points

☐ Treatment Changes Only

ID	Name	Source Type					Availability		Treatment Codes				Designated Sample Point (if different from EP)
		Ground (G)	Surface (S)	GWUDI (U)	P. Grnd (W)	P. Surface (P)	Permanent (S)	Seasonal (S)	Emergency	Abandoned	Disconnected	None	
A		<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"/>	<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"/>	<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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please Enter Diagram Entry Points

(Shows piping structure from sources thru entry point to distribution. Mark sources and entry point with ID, names.)



Sources

(IDs for sources on an EP start with the EP ID: BC for 3rd source on EP B)

ID	Name
AA	

Comments: _____

Signature: _____ Date: _____

Chemical & bacteriological schedule changes

- Identify system information & sampling locations
- New schedules or to increase or decrease sampling
- Sampling frequency depends on chemical group & prior monitoring results (if any)
 - Chemical detections or MCL exceedances – email alert initiated
 - Refer to handout “What to do if results are greater than zero.”
 - Other considerations – refer to Standard Monitoring Framework
 - Determine monitoring period for sampling to occur
- If new system, consult with tech staff/regional engineer on sampling schedules

Water system survey forms

- 571 surveys completed in 2017
- Where to find survey forms & reference materials

Water System Surveys



Survey Manual and Related Information

Conferences and Training

Document Library

Inventory Updates

EPA Staff Resources

Coliform Resources

Monitoring Resources

Compliance Resources

Contact Us

- Water System Survey Reference Manual - *revised 03/09/2016*
- Symbols for Schematics and Sample Water System Schematics
- Counting Population and Connections for a Public Water System
- Chemical Monitoring Schedules for Community and Non-Transient Non-Community groundwater systems
- Standard Monitoring Framework - to assist with completing the water quality monitoring page of the survey
- Outstanding Performance
- Deficiency List - *revised 6/24/2015*
- Setback Issues Found in a Survey - Procedure - *New 12/15/2015*
- Membrane Survey Staff Guide - *New 12/20/17*

Survey Form Templates

- About Survey Template Packets
- Survey Template Instructions
- Outstanding Performer Template

The following documents are **password protected** (they currently open best in Firefox):

- Packet 1: C-NTNC Groundwater Survey Template - *revised 04/14/2018*
- Packet 2: C-NTNC Surface Water Survey Template - *revised 04/14/2018*
- Packet 3: TNC-NP Survey Template - *revised 04/14/2018*

Water system survey reminders

- Completed surveys are sent to DMCE to update Data Online
- Changes made include:
 - System contact information
 - Changes in use of sources & entry points
 - Changes to water quality monitoring
 - Identify deficiencies & established timeline for correction

Most Recent Water System Survey				
Survey Date:	Nov 09, 2017			
Notification Date:	Dec 18, 2017			
Regulating Agency:	DWS (REGION 1)			
Survey Frequency:	5 YR - Visit the Water System Surveys page to see the list of surveys due each year.			
Deficiencies:	Category	Deficiency	Due Date	Resolved Date
	Finished Water Storage	Hatch not locked or adequately secured	Apr 23, 2018	
	Finished Water Storage	Roof and access hatch not watertight	Apr 23, 2018	
	Finished Water Storage	No screened vent	Apr 23, 2018	
	Management & Operations	No operations and maintenance manual	Apr 23, 2018	
	Management & Operations	Emergency response plan not completed	Apr 23, 2018	
	Monitoring & Reporting	No coliform sampling plan	Apr 23, 2018	
	Other	verify year-round customers	Apr 23, 2018	

Bold text indicates that resolving this deficiency is a top priority.

When completing survey forms

- Respond to all questions
- Check for spelling or grammatical errors
- Make sure deficiencies on form are consistent with cover letter
- Verify corrective action due dates are correct
- Use comments sections to provide details for clarity
- Check schedules for changes in monitoring frequency
- Label photos & features on schematic

THANKS!

Changes to survey forms

- Windows version 10 compatibility issues
- Drop-down lists removed
- Data options & references re-inserted into forms
- Consolidated membrane questions into SW forms
- Added annual source sample question/deficiency to TNC page
- Added questions for by-pass piping around treatment & storage used for contact time
- Arranged WQ monitoring page to match order as in Data Online
- Other housekeeping items
- New forms posted on website

Changes to survey forms



XYZ Water System
Water System Survey
OHA Drinking Water Services

PWS ID: 41 #####
Survey Date: mm/dd/yy

Page 3 of 16

Inventory and Narrative

<input type="checkbox"/> Outstanding Performer			
Type:	Status	Size	Season: <input type="checkbox"/> All year <input type="checkbox"/> Seasonal
<input type="checkbox"/> Community (C)	Population: _____	Begins: (mm/dd) _____	_____ / _____
<input type="checkbox"/> Non-Transient Non-Community (NTNC)	Connections: _____	Ends: (mm/dd) _____	
<input type="checkbox"/> Transient Non-Community (TNC)			
<input type="checkbox"/> Non-EPA (NP)			
License:	<input type="checkbox"/> Not Lic. <input type="checkbox"/> Health Dept. <input type="checkbox"/> Ag	Service Area Characteristics: _____	
Responsible Agency:	<input type="checkbox"/> State <input type="checkbox"/> County <input type="checkbox"/> Ag	Owner Type: _____	
Operator Certification Requirements:	WD: _____	WT: _____	<input type="checkbox"/> FE <input type="checkbox"/> Small WS

Primary Administrative Contact (Mailing Address):	
Contact Name: _____	Phone: (____) _____
Title: _____	Cell: (____) _____
Street Address: _____	Emergency #: (____) _____
City/State/Zip: _____	Email: _____
Legal/Owner Address:	
Contact Name: _____	Phone: (____) _____
Title: _____	Cell: (____) _____
Street Address: _____	Emergency #: (____) _____
City/State/Zip: _____	Email: _____
System Physical Address:	
Contact Name: _____	Phone: (____) _____

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
			<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"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Yes	No	Chlorine residuals <input type="checkbox"/> N/A
<input type="checkbox"/>	<input type="checkbox"/>	● Is a DPD or other EPA approved method used?
<input type="checkbox"/>	<input type="checkbox"/>	● NSF 60/81 certified (or equivalent)?
<input type="checkbox"/>	<input type="checkbox"/>	● Are entry point residuals recorded at least once per day (SWTR, GWR 4-log)? <input type="checkbox"/> N/A
<input type="checkbox"/>	<input type="checkbox"/>	● Is entry point residual monitoring continuous if population > 3,300 (SWTR, GWR 4-log)? <input type="checkbox"/> N/A
<input type="checkbox"/>	<input type="checkbox"/>	● Are distribution residuals recorded at least twice weekly?
<input type="checkbox"/>	<input type="checkbox"/>	Are on-line chlorine analyzers verified weekly with DPD type or EPA approved test kit? <input type="checkbox"/> N/A
Yes	No	Chlorine gas <input type="checkbox"/> N/A
<input type="checkbox"/>	<input type="checkbox"/>	Separate room for gas storage and feeder?
<input type="checkbox"/>	<input type="checkbox"/>	Fan with on/off switch outside?
<input type="checkbox"/>	<input type="checkbox"/>	Vent located next to the floor?
<input type="checkbox"/>	<input type="checkbox"/>	Door with a window?
<input type="checkbox"/>	<input type="checkbox"/>	Gas cylinders properly secured?
<input type="checkbox"/>	<input type="checkbox"/>	Door that opens out?
<input type="checkbox"/>	<input type="checkbox"/>	Self-contained breathing apparatus?
<input type="checkbox"/>	<input type="checkbox"/>	Air scrubber system?
Yes	No	UV <input type="checkbox"/> N/A
<input type="checkbox"/>	<input type="checkbox"/>	● Does all water contact UV (no bypass)?
<input type="checkbox"/>	<input type="checkbox"/>	● Is lamp sleeve cleaned?
<input type="checkbox"/>	<input type="checkbox"/>	● Is lamp replaced per manufacturer?
<input type="checkbox"/>	<input type="checkbox"/>	● Intensity sensor with alarm or shut-off?
Yes	No	CT Evaluation for disinfection <input type="checkbox"/> N/A
<input type="checkbox"/>	<input type="checkbox"/>	● Is contact time based on a tracer study or adequate alternative? <input type="checkbox"/> N/A
<input type="checkbox"/>	<input type="checkbox"/>	Describe adequate alternative method for contact time: _____
<input type="checkbox"/>	<input type="checkbox"/>	● Is there a flow meter on effluent side of clearwell /contact chamber or adequate alternative?

Questions, comments?



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