



NORTH BEACH WATER DISTRICT

COLIFORM MONITORING PLAN

Plan Date: July 17, 2015

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A. System Information:

Water System Name: North Beach Water District		County: Pacific		System I.D. Number: 63000C	
Name of Plan Preparer: William "Bill" Neal		Position: General Manger		Daytime Phone: (360) 665-4144	
Sources: North Wellfield: Well #1 - S-01 - Permeant (scheduled for decommissioning in 2017) Well #2 - S-02 - Decommissioned (decommissioned June 2015) Well #3 - S-03 - Permeant (scheduled for decommissioning in 2017) Well #4 - S-04 - Permeant Well #5 - S-05 - Permeant Well #6 - S-07 - Permeant Well #7 - S-08 - Permeant Well #8 - S-09 - Permeant South Wellfield: Well #1 - S-10 - Inactive (scheduled for decommissioning in 2016) Well #2 - S-11 - Inactive (scheduled for decommissioning in 2016) Well #4 - S-12 - Inactive Wiegardt Wellfield: Well #1 - Pending - Permeant Well #2 - Pending - Permeant Well #3 - Pending - Permeant	DOH Source ID No.	Source Name	Depth (ft)	Capacity (gpm)	
	S-01	NWF-1	80	100	
	S-02	NWF-2	N/A	N/A	
	S-03	NWF-3	124	90	
	S-04	NWF-4	120	135	
	S-05	NWF-5	124	135	
	S-07	NWF-6	130	110	
	S-08	NWF-7	120	65	
	S-09	NWF-8	130	90	
	S-10	SWF-1	N/A	N/A	
	S-11	SWF-2	N/A	N/A	
	S-12	SWF-4	N/A	N/A	
	Pending	WWF-1	150	165	
	Pending	WWF-2	150	165	
	Pending	WWF-3	150	165	

Storage: Mt. Baker Silo Concrete.	Reservoir ID	Dimensions	Capacity (gal.)					
	N. Wellfield #1	26' Dia. x 45' Ht	179,000					
	N. Wellfield #2	26' Dia. x 45' Ht	179,000					
	N. Wellfield #3	26' Dia. x 45' Ht	179,000					
	S. Wellfield #1	30' Dia. x 50' Ht	211,000					
Treatment: North Wellfield Iron Manganese Arsenic	Oxidation and Filtration for Iron and Manganese Removal. Oxidation by ambient air introduced through a venturi valve. (Mazzei) Media - MTM - a granular manganese dioxide media serves as a catalysis to precipitate iron and manganese via oxidation from ambient air. Arsenic removal is also achieved via adsorption of arsenic onto iron oxide in the filter bed.							
Treatment: Wiegardt Wellfield Arsenic Hydrogen Sulfide Gas	Oxidation (ambient air & KMnO ₄) and Ferric Chloride for arsenic and Hydrogen Sulfide Gas Removal.							
Pressure Zones:	One Pressure Zone							
Population	Total Estimated Population: 4,010							
Number of Routine Monthly Samples by Regulation (2015):							Sample Sites:	
Jan	6	Apr	8	Jul	9	Oct	8	20
Feb	6	May	8	Aug	9	Nov	7	
Mar	6	Jun	9	Sep	9	Dec	7	
Request DOH Approval of Triggered Source Monitoring Plan?							Yes	No ✓

[Insert image of Reservoirs]

[Insert image of Treatment Plant]

B. Laboratory Information:

Laboratory - Primary: ALS Environmental - Kelso	Office Phone: (360) 577-7222 (360) 501-3275 Chris DL
Address: 1317 13th Avenue South, Kelso, WA 98626	After Hours Phone: () - .
Website: http://www.alsglobal.com	Fax: (360) 636-1068
Hours of Operation: Monday - Friday: 8 a.m. - 5 p.m., Saturday: 8 a.m. - 12 p.m. (noon)	
Contact Name: Chris Leif	
Email Address: Chris.leaf@alsglobal.com	
Laboratory - Secondary: BSK Associates Engineers & Laboratories	Office Phone: (360) 750-0055
Address: 2517 East Evergreen BLVD. Vancouver, WA 98661	After Hours Phone: (360) 558-0318 - Renea (360) 619-8248 - Elizabeth
Web Site: www.bskassociates.com	Fax: (360) 750-0057
Hours of Operation: Monday - Friday: 9 a.m. - 5 p.m. After hours by appointment	
Contact Name: Renea Rangell	
Email Address: rrangell@bskinc.com	
Laboratory - Emergency: Water Management Laboratories	Office Phone: (253) 531-3121
Address: 1515 80 th Street Tacoma, WA 98404-3315	After Hours Phone: (253) 841-0732
Web Site:	Fax: (253) 531-5287
Hours of Operation: Monday - Friday: 9 a.m. - 5 p.m. After hours by appointment	
Contact Name: Chris Mueller	
Email Address: customerservice@watermanagementlabs.com	

C. Wholesaling of Groundwater:

	Yes	No
We are a consecutive system and purchase groundwater from another water system.		✓
If yes, Water System Name: _____ Contact Name: _____ Telephone Numbers: _____		
We sell groundwater to other public water systems.		✓
If yes, Water System Name: _____ Contact Name: _____ Telephone Numbers: _____		

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

Location/Address for Routine and Repeat Coliform Bacteria Sample Collection					
Routine Sample Site:		Upstream Repeat Site		Downstream Repeat Site:	
01	#06-3314 281 st St.	01-1	3409 281 st St.	01-2	315 281 st St.
02	#07-26200 Sandridge Rd.	02-1	26215 Sandridge Rd.	02-2	26205 Sandridge Rd.
03	#08-1719 264th Pl.	03-1	1707 264th Pl.	03-2	26300 R St.
04	#09-27900 O St.	04-1	27811 O St.	04-2	1501 279th Pl.
05	#10-1206 247th Pl.	05-1	1202 247th Pl.	05-2	1208 247th Pl.
06	#11-24010 Birch Pl.	06-1	24006 Birch Pl.	06-2	2704 240th Pl.
07	#12-23200 Birch Pl.	07-1	2811 231st Ln	07-2	2731 232nd Ln
08	#13-20500 Birch Pl.	08-1	20503 Birch Pl.	08-2	20407 Crane Pl.
09	#14-21700 O St.	09-1	21608 O St.	09-2	21610 O St.
10	#15-21401 Pacific Hwy.	10-1	21403 Pacific Hwy.	10-2	1325 213th St.
11	#16-1311 197th Pl.	11-1	1315 197th Pl.	11-2	1306 197th Pl
12	#17-2218 272nd St.	12-1	2212 272nd St.	12-2	2419 272nd St.
13	#18-27003 Sandridge Rd.	13-1	27005 Sandridge Rd.	13-2	3016 270th St.
14	#19-2807 270th St.	14-1	2812 270th St.	14-2	2608 270th St.
15	#20-26500 Vernon Ave.	15-1	26511 Vernon Ave.	15-2	26414 Vernon Ave.
16	#21-1711 255th Pl.	16-1	1716 256th Pl.	16-2	1803 255th Pl.
17	#22-245th & Ash Pl.	17-1	2709 245th St.	17-2	2705 245th St.
18	#23-24200 Sandridge Rd.	18-1	24215 Sandridge Rd.	18-2	24120 Gile Pl.
19	#24-23400 Pacific Hwy	19-1	23407 Pacific Hwy	19-2	1428 232nd Ln.
20	#25-227th & Birch Pl.	20-1	22608 Birch Pl.	20-2	2516 227th Pl.

E. NBWD - Sample Collection Procedure:

1. Routine coliform bacteria samples will not be collected during the following weeks:

- a. Last week in May (**Memorial Day**)
- b. First week in July (**Fourth of July**)
- c. Second week in September (**Labor Day**)
- d. Third week in September (**Rod Run**)
- e. Forth week in November (**Thanksgiving**)
- f. Forth week in December (**Christmas**)

2. Write the procedure (step-by-step method) for collecting coliform bacteria samples from samples stations; and

3. Write the procedure (step-by-step method) for collecting fecal coliform & E. coli bacteria samples from each source; and

4. Write an inventory list for all supplies needed to properly collect and deliver coliform, fecal coliform, and E. coli bacteria samples to a state certified laboratory for analysis. Include inventory storage locations for all supplies along with normal pars for each item.

F. Follow-up Action:

Compliance Maximum Contaminant Level (MCL) – All routine samples or all repeat samples collected for no more than **one** coliform, fecal coliform, or E. coli bacteria presence sample in one month are coliform, fecal coliform, or E. coli absent.

Nonacute Maximum Contaminant Level (MCL) – More than one routine has coliform bacteria sample presence and all repeat samples are coliform, fecal coliform, and E. coli bacteria absent.

Acute Maximum Contaminant Level (MCL) – Fecal coliform or E. coli bacteria in a repeat sample or coliform presence in any repeat samples collected as a follow-up to a sample with fecal coliform or E.coli bacteria presence.

1. Assure the laboratory analyzed the total coliform bacteria present sample(s) (unsatisfactory sample(s)) for fecal coliform or E.coli bacteria presence. (WAC 246-290-320 (2)(a)(i))

2. Contact the Department of Health Southwest Drinking Water Operations Office (Department) as soon as possible but not more than 24 hours after the violation is known. (WAC 246-290-320 (2)(a)(iv) & WAC 246-290-480(2)(a))

3. Inform the Board of Commissioners within 24 hours of notification of the unsatisfactory sample.

4. Collect repeat samples in accordance this plan and WAC 246-290-320 (2)(b)

a. No additional treatment, shock chlorination or other added disinfection of the water system will be allowed prior to collecting repeat samples unless authorized by the Department. (WAC 246-290-320 (2)(b)(i))

b. One set of repeat samples will be collected for each sample with a coliform bacteria presence. (WAC 246-290-320(2)(b)(iv))

c. All samples will be collected on the same day submitted for analysis within twenty-four hours after notification by the laboratory of a coliform presence or as directed by the Department. (WAC 246-290-320(2)(b)(iv))

d. Repeat samples will be collected based on the previous samples site with a coliform bacteria presence (unsatisfactory sample):

- i. the original unsatisfactory sample site;
- ii. within five active services upstream of the unsatisfactory sample site;
- iii. within five active services downstream of the unsatisfactory sample site. (WAC 246-290-320(2)(b)(iii))

e. Collect one triggered source water sample (ground water rule) for each source that was in operation when the unsatisfactory sample(s) was collected (see section "F" Ground Water Rule of this Plan). (WAC 246-290-320 (2)(a)(iii))

5. Review the notification requirements with the Department and notify as directed by the Department. (WAC 246-290-71001 & 40 CFR 141.201 through 208)

If the repeat samples do not have coliform, fecal coliform, or E. coli Bacteria presence then the first sample will be considered unconfirmed. Other than public notification requirements, no further action will be taken.

If repeat samples have coliform, fecal coliform, or E. coli bacteria presence the following actions will be taken:

1. Contact the Department as soon as possible. Determine if the violation is Acute or Nonacute. Receive Direction on compliance actions and scope of technical assistance available to the District.

2. Collect repeat samples as directed by the Department.

3. The General Manager, Field Supervisor, Treatment Plant Operator, Office Manager, and if appropriate, the District's Engineer will meet to discuss possible sources of contamination and appropriate action(s)

4. The General Manager will meet with the Department's Engineer to discuss compliance actions. (meetings in steps 3 & 4 may be conducted at the same time)

5. Monitoring Frequency following a coliform bacteria presence sample will be adjusted per the schedule found in section N of this Plan and at the direction of the Department.

G. Ground Water Rule:

Triggered Source Water Monitoring is required when one or more routine distribution samples collected under the total coliform rule are **total coliform positive**.

1. The Operator in responsible charge, or their designee, will, within 24 hours of notification of the **total coliform positive** sample, collect and submit to a certified laboratory for analysis one e-coli¹ sample form each source that was in operation when the routine sample that tested **total coliform positive** was collected.

2. Samples will be collected pretreatment at designated sample sites.

3. The samples sites will be disinfected for surface contamination and flushed to obtain a representative sample but **no source disinfection** will be performed prior to collecting the Ground Water Rule (GWR) sample.

4. Samples size must be no less than 100 milliliters (mL)

5. Samples must be submitted to an accredited laboratory for analysis by an EPA-approved method for e-coli. (See footnote)

6. Results will be forwarded to the General Manager and the Department of Health as soon as they are returned form the laboratory.

¹ see 40 CFR 141.402(c)(2) E.coli, Enterococci, Coliphage.

H. NBWD - System Flushing and Disinfecting Procedure:

[Insert written plan on how to flush and disinfect the distribution system.
(Step-by-step method)]

J. Special Contact Facilities During Health Advisory:

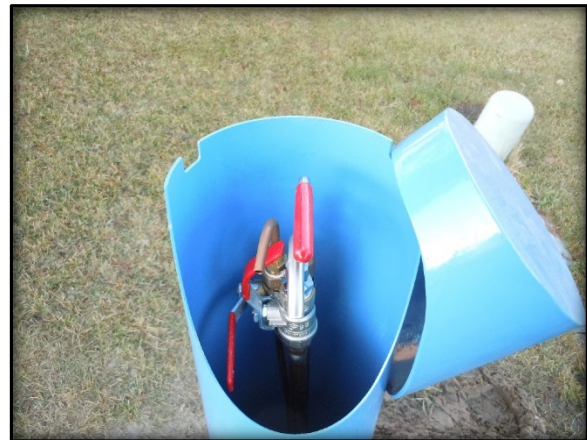
Facility	Contact Person	Phone Number(s)
Ocean Park Elementary School	Cathy Meinhardt (Principal)	360.665.4815 O. 360.665.1275 F.
Golden Sands Assisted Living		360.665.0190 O. 360. . F.
Free By The Sea	Wendy Hemsley	360.665.4494 O. 360. . F.
Family Health Center		360.665.3000 O. 360. . F.
Evergreen Court (RV Park)		360.665.6351 O. 360. . F.
Ocean Park Resort (RV Park)		360.665.4585 O. 360. . F.

K. Reduced Triggered Source Monitoring Justification:

No Reduced Triggered Source Monitoring Requested

L. Routine Sample Rotation Schedule:

Month	No.	Week One			Week Two			Week Three		
Jan	6	X-4	X-10	X-17		X-1	X-7	X-19		
Feb	6	X-5	X-14	X-20		X-13	X-15	X-18		
Mar	6	X-6	X-11	X-12		X-8	X-9	X-16		
Apr	8	X-2	X-4	X-10	X-17		X-1	X-3	X-7	X-19
May	8	X-5	X-11	X-14	X-20		X-8	X-13	X-15	X-18
Jun	9	X-2	X-6	X-7	X-11	X-12	X-9	X-10	X-16	X-19
Jul	9	X-4	X-5	X-11	X-14	X-20	X-3	X-8	X-13	X-18
Aug	9	X-2	X-7	X-11	X-12	X-17	X-3	X-10	X-16	X-19
Sep	9	X-1	X-5	X-8	X-14	X-20	X-4	X-11	X-15	X-18
Oct	8	X-2	X-6	X-8	X-13		X-9	X-10	X-16	X-19
Nov	7	X-1	X-5	X-8	X-20		X-3	X-11	X-17	
Dec	7	X-2	X-6	X-8	X-12		X-9	X-10	X-16	



NBWD - Sample Station - 02

M. Routine Sample Locations – Month after an Unsatisfactory Sample:

Location/Address for <u>Routine</u> Sample Site(s) When Unsatisfactory Sample Occurs the Previous Month
<p>Total number of routine samples required for any month after a sample with a coliform presence, per Table 2 in WAC 246-290-300(3)(f), is 6 to 9, the same as required during other months. So routine sample locations designated in Item E, above, will apply to months following any month with a coliform presence sample, with the following exceptions:</p> <ol style="list-style-type: none"> 1. If a routine sample with total coliform presence occurs in September, the sample schedule for October shall be the normal routine sample schedule for August. (see chart below) 2. If a routine sample with total coliform presence occurs in October, the sample schedule for November shall be the normal routine sample schedule for May. (see chart below) 3. If a routine sample with total coliform presence occurs in December, the sample schedule for January shall be the normal routine sample schedule for November. (see chart below)

Adjusted Samples Schedule When a Total Coliform-Positive Sample Occurs

If there is more than one total coliform-positive sample in one of the months shaded below than add the collection site in red in the following month.

Month	No.	Week One			Week Two			Week Three		
Jan	8	X-4	X-10	X-17	X-20	X-9	X-1	X-7	X-19	
Feb	6	X-5	X-14	X-20			X-13	X-15	X-18	
Mar	6	X-6	X-11	X-12			X-8	X-9	X-16	
Apr	8	X-2	X-4	X-10	X-17		X-1	X-3	X-7	X-19
May	8	X-5	X-11	X-14	X-20		X-8	X-13	X-15	X-18
Jun	9	X-2	X-6	X-7	X-11	X-12	X-9	X-10	X-16	X-19
Jul	9	X-4	X-5	X-11	X-14	X-20	X-3	X-8	X-13	X-18
Aug	9	X-2	X-7	X-11	X-12	X-17	X-3	X-10	X-16	X-19
Sep	9	X-1	X-5	X-8	X-14	X-20	X-4	X-11	X-15	X-18
Oct	9	X-2	X-6	X-8	X-13	X-12	X-9	X-10	X-16	X-19
Nov	8	X-1	X-5	X-8	X-20	X-18	X-3	X-11	X-17	
Dec	7	X-2	X-6	X-8	X-12		X-9	X-10	X-16	

N. E. coli Present Sample Response Plan:

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

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

0. E. coli Triggered Source Sample Response Checklist:

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

E. coli-Present Triggered Source Sample Response Checklist-Source S03				
Alternate Sources	Yes	No	N/A	To Do
We can stop using this source and still provide reliable water service to our customers.	✓			
We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months).		✓		
We can provide bottled water to all or part of the distribution system for an indefinite period.		✓		
We can quickly replace our existing source of supply with a more protected new source.		✓		
Temporary Treatment	Yes	No	N/A	To Do
This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer. If yes, at what concentration? _____ mg/L		✓		
We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system.	✓			

E. coli-Present Triggered Source Sample Response Checklist-Source S04				
Alternate Sources	Yes	No	N/A	To Do
We can stop using this source and still provide reliable water service to our customers.	✓			
We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months).		✓		
We can provide bottled water to all or part of the distribution system for an indefinite period.		✓		
We can quickly replace our existing source of supply with a more protected new source.		✓		
Temporary Treatment	Yes	No	N/A	To Do
This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer. If yes, at what concentration? _____ mg/L		✓		
We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system.	✓			

E. coli-Present Triggered Source Sample Response Checklist-Source S05				
Alternate Sources	Yes	No	N/A	To Do
We can stop using this source and still provide reliable water service to our customers.	✓			
We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months).		✓		
We can provide bottled water to all or part of the distribution system for an indefinite period.		✓		
We can quickly replace our existing source of supply with a more protected new source.		✓		
Temporary Treatment	Yes	No	N/A	To Do
This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer. If yes, at what concentration? _____ mg/L		✓		
We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system.	✓			

E. coli-Present Triggered Source Sample Response Checklist-Source S07				
Alternate Sources	Yes	No	N/A	To Do
We can stop using this source and still provide reliable water service to our customers.	✓			
We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months).		✓		
We can provide bottled water to all or part of the distribution system for an indefinite period.		✓		
We can quickly replace our existing source of supply with a more protected new source.		✓		
Temporary Treatment	Yes	No	N/A	To Do
This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer. If yes, at what concentration? _____ mg/L		✓		
We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system.	✓			

E. coli-Present Triggered Source Sample Response Checklist-Source S08				
Alternate Sources	Yes	No	N/A	To Do
We can stop using this source and still provide reliable water service to our customers.	✓			
We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months).		✓		
We can provide bottled water to all or part of the distribution system for an indefinite period.		✓		
We can quickly replace our existing source of supply with a more protected new source.		✓		
Temporary Treatment	Yes	No	N/A	To Do
This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer. If yes, at what concentration? _____ mg/L		✓		
We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system.	✓			

E. coli-Present Triggered Source Sample Response Checklist-Source S09				
Alternate Sources	Yes	No	N/A	To Do
We can stop using this source and still provide reliable water service to our customers.	✓			
We have an emergency intertie with a neighboring water system that we can use until corrective action is complete (perhaps for several months).		✓		
We can provide bottled water to all or part of the distribution system for an indefinite period.		✓		
We can quickly replace our existing source of supply with a more protected new source.		✓		
Temporary Treatment	Yes	No	N/A	To Do
This source is continuously chlorinated, and our existing facilities can provide 4-log virus treatment (CT = 6) before the first customer. If yes, at what concentration? _____ mg/L		✓		
We can quickly introduce chlorine into the water system and take advantage of the existing contact time to provide 4-log virus treatment to a large portion of the distribution system.	✓			

P. System Map:

Q. Sample Sites:



#06 3314 281st St.



#07 2620 Sandridge Rd



#08 1719 264th Pl.



#09 27900 0 St.



#10 1206 247th Pl.



#11 24010 Birch Pl.



#12 23200 Birch Pl.



#13 20500 Birch Pl.



#14 21700 0 St.



#15 21401 Pacific Hwy.



#16 1311 197th Pl.



#17 2218 272nd St.



#18 27003 Sandridge Rd.



#19 2807 270th St.



#20 26500 Vernon Ave.



#21 1711 255th Pl.



#22 245th & Ash Pl.



#23 24200 Sandridge Rd.



#24 23400 Pacific Hwy.

#25 227th & Birch Pl.



#26 TBD.

#27 TBD.

#28 TBD.

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R. Appendices:

DOH Fact Sheet 331-225 Coliform Sampling Procedure

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PUBLIC HEALTH
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Coliform Distribution System Sampling Procedure

September 2011

DOH 331-225
(Revised)



Coliform Sampling Procedure

We recommend that you use the following steps when collecting your sample. If instructions from your laboratory are different, please call us for clarification.

Most sample kits contain a:

- Sample bottle
- Lab slip
- Rubber band

Step One

Follow your Coliform Monitoring Plan to collect routine and repeat samples from sites throughout the distribution system.

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

Step Two

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



Step Three

Turn on the cold water only and let it run with a steady stream for at least five minutes. Before collecting the sample, turn the water down to a thin stream (about the width of a pencil), then let the water run one minute. If the system is chlorinated, measure the free chlorine residual and note the measurement on the lab slip.



Water conservation tip
You can save the flushed water in a bucket for later use.



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

Step Five
To avoid contamination while taking the sample, hold the bottle near the bottom with one hand, hold the top of the cap with the other, and then unscrew the cap.

Do not set the cap down, touch any part of the cap that touches the bottle, or let anything touch the rim of the bottle or the inside of the cap.



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

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



Laboratory forms vary. It is important to include at least the following information:

- Water system ID number
- Water system name
- Collection date and time
- Type of sample (check ONLY ONE Type: Routine, Repeat, Raw, or For Information Only)
- Sample location (street address or other location identifier)
- System type (Group A or B)

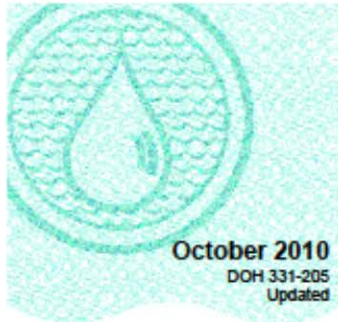
Step Eight
Secure the lab slip to the bottle with the rubber band. Deliver the sample to a certified lab or to a designated drop-off location for the lab as soon as possible. Lab analysis must begin within 30 hours of sample collection.

For more information
If you have questions about coliform sampling collection procedures, call our regional office:

Eastern Region
Spokane Valley
509-329-2100

Northwest Region
Kent
253-395-6750

Southwest Region
Tumwater
360-236-3030



Fact Sheet

Routine Coliform Monitoring Requirements

Group A public water systems are required to perform routine coliform monitoring. The minimum number of samples required each calendar month depends on the type of water system, how many people are served, and the source of the water. A month's population is the total number of residential and non-residential users. The population, number of connections, and the assigned coliform monitoring schedule for your water system can be found on your Water Facilities Inventory form.

A noncommunity water system serving less than 25 people per month that uses only protected groundwater sources may have a reduced monitoring schedule. A reduced monitoring schedule is not possible for a water system that is served by a surface water source or a groundwater source influenced by surface water.

The table below lists the minimum number of routine samples required for community, nontransient noncommunity, and transient noncommunity water systems. Refer to the table in WAC 246-290-300 if your water system is larger than listed below.

Population Served During the Month	Monthly Routine Samples	Number of Routine Samples If coliform presence found in previous month
0	0*	
1 - 1,000	1	5
1,001 - 2,500	2	5
2,501 - 3,300	3	5
3,301 - 4,100	4	5
4,101 - 4,900	5	5
4,901 - 5,800	6	6
5,801 - 6,700	7	7
6,701 - 7,600	8	8
7,601 - 8,500	9	9

* Monitoring is not required for a calendar month when a water system does not serve water to any consumers. If this is due to unusual circumstances, contact your Office of Drinking Water regional office. If your water system remains open during a month it is normally closed, sampling is required according to the above table.



HELPING TO ENSURE SAFE AND RELIABLE DRINKING WATER



June 2011 DOH 331-247 (Revised)

How to complete a Coliform Lab Slip

It is important to fill out the lab slip completely. *The Office of Drinking Water (ODW) may not be able to give you credit for the sample result if the date, time, system ID number, system name, or type of sample is missing or incomplete.*

The numbers on this sample form match the instructions below.

1 **Date Sample Collected:** Enter date sample was collected.

2 **Time Sample Collected:** Enter time sample was collected. Please check AM or PM.

3 **County:** Enter name of the county where the water system is located.

4 **Type of Water System:** Check "Group A" or "Group B"

5 **Group A and B System ID and System Name:** Include all six characters of system ID and entire water system name. You can find both on your Water Facilities Inventory (WFI) Form.

6 **Contact Person, Day and Evening Phone:** Provide the name of the sample collector, system owner or manager. Include day, evening, and cell phone numbers in case the lab or ODW need to contact someone about the results.

7 **Send Results To:** Enter name and address where the lab should send the water system's copy of the results. The lab also sends a copy of the results to ODW.

The form is titled "COLIFORM BACTERIA ANALYSIS" and is divided into several sections. Callouts 1-3 point to the top header area for date, time, and county. Callout 4 points to the "TYPE OF WATER SYSTEM" section. Callout 5 points to the "SYSTEM INFORMATION" section, specifically the system ID and name fields. Callout 6 points to the "CONTACT PERSON" section. Callout 7 points to the "SEND RESULTS TO" section. Callout 8 points to the "SAMPLE COLLECTED BY" field. Callout 9 points to the "SPECIFIC LOCATION WHERE SAMPLE COLLECTED" section. Callout 10 points to the "SPECIAL INSTRUCTIONS" section. Callout 11 points to the "TYPE OF SAMPLE" section. Callout 12 points to the "DRINKING WATER RESULTS" section at the bottom.

8 **Sample Collected By:** The name of the sample collector.

9 **Specific Location Where Sample Collected:** Include the address and type of faucet where the sample was collected. For example, "bathroom faucet at 123 Ivy Lane."

10 **Special Instructions:** Enter instructions for the lab. For example, "This is a replacement sample for an unsuitable sample" or "Use 18-hour test."

11 **Type of Sample:** Choose ONLY ONE of the following.

Routine: Mark if sample is collected *within the distribution system* for compliance to meet monthly sampling requirements. Check "yes" if chlorinated, check "no" if not. If yes, provide free chlorine residual.

Repeat: Mark for samples required following an "unsatisfactory" routine sample.

Check "distribution system" or "source groundwater rule," as appropriate. See *Follow-up to an unsatisfactory routine coliform sample* (DOH 331-187) if you need further instruction.

Include the lab number and collect date from the original unsatisfactory routine sample (ask your lab for this information).

Check "yes" if chlorinated, check "no" if not. If yes, provide free chlorine residual.

Raw water source: Mark for samples taken at the source, prior to any treatment. Include the two-digit source number from your WFI.

Information only: Mark for investigative, construction, repairs, private residence, engineering, or other. These samples will not count for compliance purposes.

12 (Lab Use Only) Drinking Water Results: Do NOT write in this section. This is where the lab provides the sample results.



Fact Sheet

Follow-up to an unsatisfactory routine coliform sample

A drinking water sample is unsatisfactory whenever coliform bacteria are present. If your water system receives unsatisfactory sample results, you must collect a set of repeat samples. If your water system uses groundwater, you must also collect triggered source samples from any groundwater source in use when you collected the unsatisfactory routine sample. You must collect triggered source samples before treatment. If your water system has an approved triggered monitoring plan, follow your plan.

Repeat samples confirm the presence or absence of coliform bacteria in the system. If present, the samples indicate possible causes of contamination.

Triggered source samples indicate whether the groundwater source is contaminated with a fecal indicator such as *E. coli* bacteria.

You must collect repeat and triggered source samples within 24 hours after you learn about the unsatisfactory routine sample result. Do not shock-chlorinate the system or source before collecting any samples unless you have prior approval from us.

Thoroughly inspect the water system

Try to identify potential sources of contamination, such as “openings” in the system or treatment equipment failure. For help see *Troubleshooting Checklist for Coliform Contamination (331-180)*.* If you find obvious sources of contamination, call us (see Page 2).

Review your sampling procedure

Review your sampling procedure to make sure you collect your samples correctly. For help, see *Coliform Sampling Procedure (331-225)*.*

Collect repeat samples

If you collected **ONE** routine sample this month, you *must* collect **FOUR REPEAT** samples. Three must come from the following locations:

1. The same tap as the original unsatisfactory routine sample.
2. An active service within five active connections upstream from the original unsatisfactory sample location.
3. An active service within five active connections downstream from the original unsatisfactory sample location.

If all of your water supply is from a **surface water** source, you must collect your fourth sample from the distribution system.



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If any or all of your water supply comes from a **groundwater source**, you decide whether to take the fourth sample from the distribution system or the groundwater source.

Unchlorinated systems that choose to collect this repeat from a groundwater source may count this sample as a repeat and a triggered source sample. This option is limited to one source. You should collect a raw water sample from any additional sources in use when you collected the unsatisfactory routine sample.

Chlorinated systems should collect this repeat from the distribution system. You also must collect a raw water sample from every groundwater source that was in use when you collected the unsatisfactory routine sample and test it for *E. coli*.

If you collected **TWO or MORE routine samples this month**, you *must* collect **THREE REPEAT** samples.

1. The same tap as the original unsatisfactory routine sample.
2. An active service within five active connections upstream from the original unsatisfactory sample location.
3. An active service within five active connections downstream from the original unsatisfactory sample location.

You must also collect a raw water sample from each groundwater source that in use when you collected the unsatisfactory routine sample and test it for *E. coli*.

The month after an unsatisfactory sample

The month after an unsatisfactory routine sample, you must collect at least **FIVE ROUTINE** samples from the distribution system. You must mark these samples "Routine" on the lab slips submitted with the samples. If you usually take five or more routine samples each month, follow your regular schedule.

If any of these samples are unsatisfactory, we require further investigation, repeat samples, and triggered source samples.

Call us if:

- You cannot sample as outlined above.
- You would like to discuss the triggered source sample requirement.
- Any repeat samples or triggered source samples are unsatisfactory.

Northwest Region: Kent
253-395-6750

Southwest Region: Tumwater
360-236-3030

Eastern Region: Spokane Valley
509-329-2100

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January 2011

DOH 331-206
(Updated)



Types of Coliform Violations for Group A Public Water Systems

Coliform testing

All public water systems in Washington State must be tested for coliform bacteria on a regular basis; the number of samples required depends on the population served by the water system. Coliform presence indicates contamination, which could possibly cause illness to those who drink it. For this reason, a water system must comply with coliform monitoring requirements.

Laboratories test compliance distribution samples with a presence absence test. *Satisfactory* test results indicate the sample has no coliform bacteria present. If the sample does contain coliform bacteria, it is *unsatisfactory* and will be further tested for *E. coli* or fecal coliform bacteria presence. The presence of *E. coli* or fecal coliform indicates a greater likelihood that disease-causing organisms may be present and there is a greater public health concern.

Standards called maximum contaminant levels (MCLs) have been set for the presence of *E. coli*, fecal coliform, and total coliform bacteria. The MCL is the maximum permissible level of coliform in drinking water. A water system has a violation if it exceeds the standard. The two types of MCL violations are *acute* and *non-acute*.

Acute MCL violation

The acute MCL is the standard for the presence of *E. coli* and fecal coliform bacteria in drinking water. *E. coli* and fecal coliform are indicators for recent contamination by sewage or animal waste.

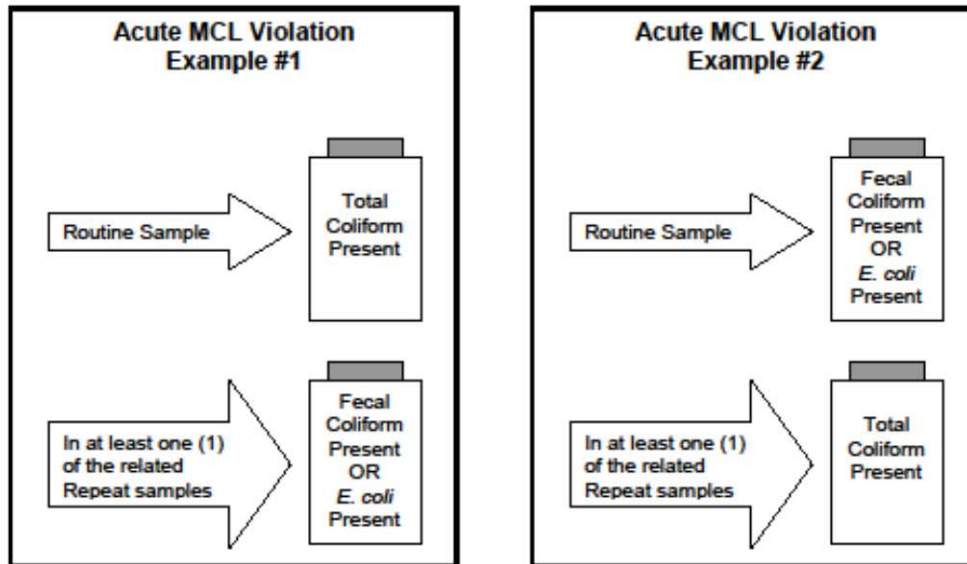
A single sample with a coliform presence, an *E. coli* presence, or a fecal coliform presence does not result in an acute MCL violation. *The acute MCL violation is determined based on the results of both the routine sample and the related set of repeat samples collected as follow-up to the unsatisfactory routine sample.*

For an acute MCL violation to occur, a sample and at least one *related* repeat sample must both have coliform bacteria present, and one of the samples must show the presence of *E. coli* or fecal coliform bacteria. If this occurs, contamination is confirmed in the water supply.



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The following shows how an acute MCL violation could occur:



Non-acute MCL violation

The non-acute MCL is the standard for the presence of total coliform bacteria. The presence of total coliform bacteria in a water sample generally indicates contamination from the environment (such as soils and plants). It is possible disease-causing organisms could be present as well.

Non-acute MCL violations are calculated on a monthly basis. As with acute MCL violations, a single sample with a coliform presence does not result in a violation. *All routine and repeat samples collected for a specific month count towards determining compliance with the non-acute MCL.*

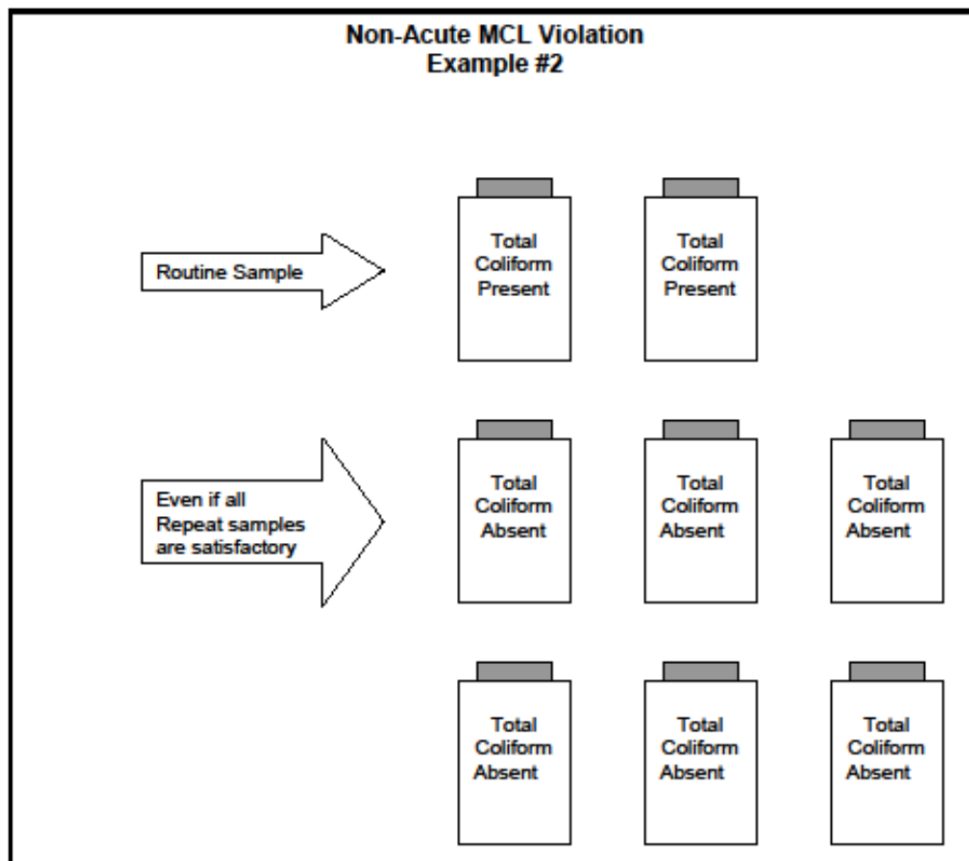
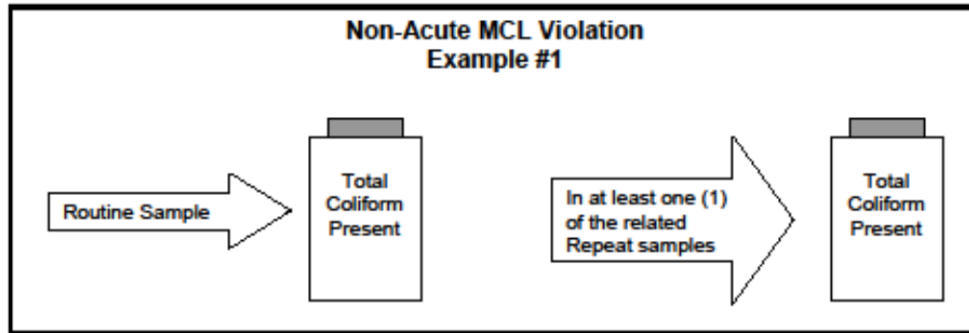
For a water system that collects less than 40 routine samples during the month:

- The water system has a non-acute MCL violation if two or more routine or repeat samples are unsatisfactory with coliform present.

For a water system that collects 40 or more routine samples during the month:

- The water system has a non-acute MCL violation if more than five percent of all routine and repeat samples are unsatisfactory with coliform present.

The following shows how a non-acute MCL violation could occur:



What to do if you have an MCL violation

If you have an MCL violation, contact your regional office as soon as possible to discuss public notification, follow-up requirements, and steps you can take to resolve the problem quickly.

There are requirements to notify everyone served by the water system:

- Acute MCL violation – public notification is required within 24 hours. Due to the public health risk, a boil water advisory will typically be issued in response to an acute MCL violation.
- Non-acute MCL violation – public notification is required to be completed as soon as practical, no later than 30 days after the water system learns of the violation.

Notification forms are available on our website at <http://www.doh.wa.gov/ehp/dw/default.htm>.

Other types of coliform violations

There are two other types of coliform violations that are related to monitoring requirements for the water system:

Major repeat violation

A water system has a major repeat violation if the water system fails to collect repeat samples in response to an unsatisfactory routine sample(s). A major repeat violation is considered a water quality violation since the routine sample showed the presence of bacteria. *Public notification is required.*

Major monitoring violation

This type of violation occurs if a water system does not collect any samples during a month when one or more are required. Monitoring is important to assure that the water served to customers is free of coliform bacteria. *Public notification is required.*

State significant noncompliance with coliform requirements

We classify violations as either water quality or monitoring violations, and identify a water system as *state significant noncompliance* if the water system has one of the following violations within a 12-month period:

- Four water quality violations (MCL or major repeat).
- Six major monitoring violations.
- A combined total of six water quality and monitoring violations.

When a water system becomes a state significant noncompliance, we will pursue enforcement.

For more information

Eastern Region, Spokane Valley: (509) 329-2100

Northwest Region, Kent: (253) 395-6750

Southwest Region, Tumwater: (360) 236-3030

If you need this publication in an alternate format, call (800) 525-0127. For TTY/TDD, call (800) 833-6388.



Emergency Disinfection of Small Water Systems

You should disinfect your water when:

- The water system loses pressure for any reason.
- Any part of the water system is “opened up” for maintenance or repairs.
- Backflow or backsiphonage creates a cross-connection event.
- The water system experiences an acute or nonacute total coliform MCL (maximum contaminant level) violation and an exact cause of the contamination has not been determined.

If you receive an unsatisfactory routine coliform sample result, collect the required repeat and Groundwater Rule samples before you disinfect. Contact our regional coliform staff if you’re not sure how to proceed.

Notify your customers first

If you normally don’t disinfect your water, notify all your customers first. Water with high levels of chlorine can seriously affect people with unique medical needs, such as kidney dialysis patients. All water systems should keep a list of people with unique medical needs. People with aquariums or fishponds also need to know before you chlorinate the water.

Disinfecting a well

1. Use Table 1 to calculate the volume of water in the well. You must know the total depth of the well and the depth to the static water level (water level when the pump is off). Subtract the static water depth from the total depth of the well to get the depth of water in the well.
2. Use Table 2 to calculate how much chlorine to add to the well (see “Notes related to the tables” on page 4).
3. Put the required amount bleach into a 5-gallon bucket of water. Pour the bucket of chlorine solution down the inside the well.
4. Connect a garden hose that has never been used to the nearest outside faucet and circulate the water through the hose and back into the well. This will mix the chlorine with the water and the pump will draw the chlorine to the bottom of the well.

Well Casing Diameter	Volume of water per vertical foot
6 inches	1.5 gallons
8 inches	2.6 gallons
10 inches	4.1 gallons
12 inches	5.9 gallons
14 inches	8 gallons
16 inches	10 gallons
36 inches	53 gallons

5. When you start to smell chlorine in the water coming out of the hose, use the hose to rinse the upper part of the well casing with disinfectant.

Well Volume	Desired dose Household-strength 8.25% bleach			Desired dose Commercial-strength 12% bleach		
	5 mg/L	20 mg/L	50 mg/L	5 mg/L	20 mg/L	50 mg/L
50 gallons	1 Tbsp.	4 Tbsp.	½ Cup	½ Tbsp.	2 Tbsp.	5 Tbsp.
100 gallons	2 Tbsp.	½ Cup	1 Cup	1 Tbsp.	4 Tbsp.	¾ Cup
200 gallons	4 Tbsp.	1 Cup	2 Cups	2 Tbsp.	½ Cup	1½ Tbsp.
500 gallons	½ Cup	2 Cups	5 Cups	5 Tbsp.	1¼ Cup	3 Cups
1,000 gallons	1 Cup	4 Cups	10 Cups	¾ Cup	2½ Cups	6 Cups



Disinfecting water in pressure tanks

You must disinfect the water in your pressure tanks, especially if you are responding to a coliform MCL violation or other known contamination event. You will need to drain the water from each tank and refill it with chlorinated water from your well or storage tank, depending on the layout of your water system. The chlorinated water should remain in the tanks for at least 6 hours (24 hours preferred). Drain or flush the chlorinated water from the tanks and then refill the tank with untreated water. Draining can affect air pressure, so you may need to recharge the air in your pressure tank.

Disinfecting a storage tank and distribution system

If you must chlorinate your source and your storage reservoir, disinfect the source first.

1. If the contamination doesn't appear to be from the water source, you can add disinfectant just to the storage tank rather than the water source.
2. Use Table 3 to determine the amount of chlorine needed to disinfect the storage tank. See "What chlorine dose is needed?" and "Notes related to the tables" on pages 3 and 4. If you have an extensive distribution system, calculate the volume of water in the distribution piping and add it to the volume of the storage tank. Use that total volume in Table 3 to determine how much chlorine to add to the storage tank.

Table 4 shows common water distribution main sizes and volumes per foot of pipe. Estimate the total length of water pipes in your water system and multiply the total by the appropriate value from the table. You can use as-built drawings of the water system or a map to help estimate pipe diameters and lengths.

3. Draw down the water level in the storage tank, but keep enough for fire flow, if required.

4. As the tank refills, pour the chlorine in to get some mixing.

<i>Well Volume Gallons</i>	Desired dose			Desired dose		
	Household-strength 8.25% bleach			Commercial-strength 12% bleach		
	<i>1 mg/L</i>	<i>5 mg/L</i>	<i>10 mg/L</i>	<i>1 mg/L</i>	<i>5 mg/L</i>	<i>10 mg/L</i>
5,000	1 Cup	5 Cups	10 Cups	½ Cup	3 Cups	7 Cups
10,000	2 Cups	10 Cups	1¼ Gals.	1¼ Cups	7 Cups	1 Gal.
20,000	4 Cups	1¼ Gals.	2 ½ Gals.	3 Cups	1 Gal.	1¼ Gals.
50,000	10 Cups	3¼ Gals.	6 Gals.	7 Cups	2¼ Gals.	4½ Gals.
100,000	1¼ Gals.	6 Gals.	12 Gals.	¾ Gals.	4½ Gals.	9 Gals.

5. Use a blowoff, fire hydrant, or other outside faucet to draw chlorinated

water from the tank out into the distribution system. Then, flush water from all the faucets in the water system until you detect chlorinated water. You probably will smell the chlorine, but to be more accurate use a chlorine test kit to measure chlorine residual.

6. Allow the chlorine to remain in the water system at least 6 hours (24 hours preferred). It takes time for chlorine to disinfect effectively.

7. Replace the chlorinated water with chlorine-free water from your source by using outside faucets, blowoffs, or hydrants to draw water out of the water system. During this process, make sure you don't damage a pump by drawing water down below a pump intake. Never discharge chlorinated water into any water

<i>Pipe diameter</i>	<i>Volume</i>	
	<i>Per linear foot of pipe</i>	<i>Per 100 feet of pipe</i>
1 Inch	0.04 Gallon	4 Gallons
2 Inches	0.16 Gallon	16 Gallons
4 Inches	0.65 Gallon	65 Gallons
6 Inches	1.47 Gallons	147 Gallons

body, wetland, or drainage ditch because it is extremely toxic to fish. You must dechlorinate the water prior to discharge. Depending on the chlorine levels in the water, you also may use normal water usage to replace the chlorinated water more slowly with chlorine-free water.

8. You should wait at least seven days before collecting a coliform sample—or until you know there is no chlorine remaining in the water.* The coliform sample result will indicate whether the disinfection was effective.

If you are disinfecting in response to an acute total coliform MCL violation, you should work with staff from our regional office to determine when coliform sampling should occur relative to chlorination and flushing.

When you collect a coliform sample, measure the chlorine residual and note the level on the lab slip. If you collect a coliform sample in follow-up to emergency disinfection, a measure of zero chlorine residual is worth noting on the lab slip.

* If you are using a chlorine residual test kit, and you can measure zero free chlorine residual throughout the water system sooner than seven days after the disinfection, you may collect coliform samples at that time.

Disinfecting a distribution system that has no storage tank

Some water systems use a well pump and a pressure tank to provide water and have no storage tanks. If the volume of water in the distribution system exceeds the volume of water in the well, only partially disinfected water may reach parts of the distribution system when you attempt to bring chlorinated water from the well into the system.

Use Table 4 to estimate the volume of water in your distribution system. After disinfecting the well and pressure tanks, draw chlorinated water into the farthest part of the distribution system (Step 5). Then immediately re-disinfect the well and draw chlorinated water into the distribution system closest to the well. Measure the chlorine residual with a chlorine residual test kit to make sure you have enough chlorine everywhere in the water system. Now follow steps 6 through 8.

For more information

If you have questions about disinfecting your water system, call our coliform or engineering staff at:

Eastern Region: Spokane Valley 509-329-2100

Northwest Region: Kent 253-395-6750

Southwest Region: Tumwater 360-236-3030

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

American Water Works Association (AWWA) references to help you disinfect water system facilities:

- AWWA Standard C654-13, “Disinfection of Wells”
- AWWA Standard C651-05, “Disinfecting Water Mains”
- AWWA Standard C652-11, “Disinfection of Water-Storage Facilities”

These AWWA standards assume the well, storage tank, or other component is isolated from the rest of the water system during disinfection. For that reason, AWWA cites much higher chlorine doses than those listed in this publication. Do not use high doses if there is a chance that any water system user could consume, or otherwise use, the water.

What chlorine dose is needed?

- A chlorine dose of 1 to 2 mg/L is sufficient for a nonacute MCL violation of the Total Coliform Rule or if you suspect contamination from pressure loss during a power outage
- Larger chlorine doses may be required to address a bacteriological cross-connection event, flooding of water system facilities, or an acute MCL violation. Please consult with our regional office in these cases.

Notes related to the tables

Volume of bleach needed, $V_1 = (C_2 \times V_2) / C_1$, in gallons, where:

C_2 = desired chlorine dose, ppm

V_2 = the volume water to be treated, gallons

C_1 = the concentration of the bleach solution, ppm

To calculate the bleach required for volumes not in the tables

Add the volumes together (for 150 gallons, add the required bleach for 100 gallons to that needed for 50 gallons); or extrapolate between values on the table.

Well volume = $7.48 \times H \times 3.14 \times (D/12)^2 / 4$, in gallons, where:

H = the height of water standing in the well, in feet

D = the well casing diameter, in inches

6 percent household bleach = 60,000 parts per million hypochlorite

12 percent bleach = 120,000 parts per million hypochlorite

1 cubic foot of water = 7.48 gallons

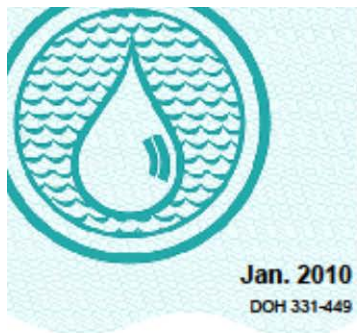
1 gallon = 16 cups

1 cup = 16 tablespoons or 8 fluid ounces

1 Tablespoon (Tbsp) = $\frac{1}{2}$ fluid ounce (14.8 mL)



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Fact Sheet

Office of Drinking Water authority over operators and water systems

The Department of Health Office of Drinking Water (ODW) is responsible for ensuring that public water systems provide their customers an adequate and safe drinking water supply at all times. When necessary, we act or direct water system owners and operators to resolve known or suspected public health threats. Our authority comes from the:

- Federal Safe Drinking Water Act (SDWA)
- Code of Federal Regulations (CFR)
- Washington State laws (Revised Code of Washington (RCW))
- Department of Health rules (Washington Administrative Code (WAC))

Overall authority

Federal regulations establish primary drinking water requirements for Group A public water systems (40 CFR 141.1). The U.S. Environmental Protection Agency (EPA) delegated primary authority to administer and enforce these regulations to ODW (SDWA Public Law 93-523).

We also administer state Board of Health and Department of Health rules that cover the operation of public water systems. We have authority to adopt rules necessary to protect public health by ensuring safe and reliable drinking water (RCW 43.20.050(2)). The rules set drinking water standards and requirements for monitoring, reporting, responding to emergencies, and so on.

Enforcement

To protect public health, we enforce laws and State Board of Health rules and orders (RCW 43.70.130). When a water system does not comply with a public water system law or rule, we may take appropriate enforcement action (WAC 246-290-050).

All water systems must meet minimum monitoring requirements (chapter 246-290 WAC). We may require additional monitoring and follow-up when contamination is present or suspected in the water system (WAC 246-290-300(1)). If we believe conditions threaten public health, including contaminated water supplies, we can investigate and access facilities (RCW 43.70.170). We can also direct water systems to take specific steps when coliform is detected in any sample (WAC 246-290-310(2)).

The presence of coliform bacteria means possible contamination and requires follow-up action (WAC 246-290-320 and 40 CFR 141.21(b)). If a routine or repeat coliform sample is total coliform positive, we require the system to have the total coliform-positive culture medium analyzed to determine if fecal coliform or *E. coli* are present (WAC 246-290 320 and 40 CFR 141.21(e)).



HELPING TO ENSURE SAFE AND RELIABLE DRINKING WATER

State and federal regulations require water systems to deliver a public notice to their customers within 24 hours after a water quality analysis shows the presence of acute contamination or any other situation that could lead to an acute health concern (WAC 246-290-71001 and 40 CFR 141.201 and 141.202(a)). Water systems must initiate consultation with ODW within 24 hours after learning of the violation to determine if we will require additional follow-up action.

Water systems must take the follow-up actions ODW determines appropriate (WAC 246-290-320(1)). Water systems must contact us when they:

- Violate the maximum contaminant level (MCL) for total coliform when fecal coliform or *E. coli* are present in the water distribution system.
- Fail to test for fecal coliform or *E. coli* when any repeat sample tests positive for coliform.
- Violate the MCL for nitrate, nitrite, or total nitrate and nitrite.
- Fail to take a confirmation sample within 24 hours after receiving the first sample showing they exceeded the nitrate, nitrite, or total nitrate and nitrite MCL.
- Have a maximum residual disinfectant level (MRDL) violation or exceedance.
- Have a turbidity MCL or treatment technique violation.
- Have a waterborne disease outbreak or other waterborne emergency.
- Detect *E. coli* or coliphage in source water samples.
- Have other violations or situations ODW determines to have serious adverse effects on human health because of short-term exposure.

If we determine there is significant potential for a situation to cause serious adverse effects on human health because of short-term exposure, we may require the water system to issue a health advisory (40 CFR 141.202(a) Table 1(9)). Systems must include specific health effects language in required public notice (WAC 246-290-72012 and 40 CFR 141.205(d)(2) and (3)).



For More Information

Contact the nearest ODW Regional office:

- Eastern Region (509) 329-2100
- Northwest Region (253) 395-6750
- Southwest Region (360) 236-3030

The Department of Health is an equal opportunity agency. For persons with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TTY 1-800-833-8388). For additional copies of this publication, call 1-800-521-0323. This and other publications are available at <http://www.doh.wa.gov/ehp/dw>