

City of Battle Ground – Coliform Monitoring Plan Summary

Section 1 – Monitoring Requirements

Washington Department of Health (DOH) administrative code Chapter 246-290 WAC regarding Public Water Supplies sets water quality monitoring requirements for water sources used for public supply in compliance with federal Safe Drinking Water Act (SDWA) regulations. Monitoring requirements for coliform bacteria, fecal coliform bacteria and E. coli are based on the water source and population served. Coliform bacteria and E. coli are tested because their presence indicates a potential threat to human health.

The Battle Ground Water Department is required to collect 20 routine coliform samples each month. The City has 42 sample sites which are rotated every third month and 6 sites at local schools which are tested every month. Coliform sampling sites and the monthly testing schedule for each site are summarized in Table 1 at the end of this Coliform Monitoring Plan. A sampling site map is also included at the end of this Plan.

Section 2 - Coliform Sampling Procedures

Battle Ground takes routine monthly distribution samples along with investigative samples for newly constructed water mains. Routine samples are taken from faucets at sampling sites identified in this Coliform Monitoring Plan. All sources can be sampled directly as necessary as well as the Horsethief Reservoir.

To take samples remove strainers and washers from faucet taps beforehand. Spray the tap with a solution of sodium hypochlorite. The sample tap should be flushed several minutes before taking the sample.

Samples are collected in 100 milliliter (ml) bottles, as furnished by the testing lab. These bottles have been sterilized and sealed. Care must be taken that neither the underside of the cap nor the top edge of the bottle is touched to avoid contamination. Do not rinse out the sample bottle.

The lab sample form, including the source of water and type of sample being submitted, is filled out by the person taking the sample and sent with the sample to the testing lab as soon as possible. The lab needs to receive the sample within 30 hours for the sample to be valid. Instructions for taking samples are on the back of the form.

Battle Ground chlorinates the water at each supply well to maintain a free chlorine residual of 0.3 to 0.8 parts per million (ppm) in the water distribution system. Battle Ground is required to monitor the chlorine residual in the system on a daily basis and provide monthly reports to DOH. A minimum measurable free chlorine residual of 0.2 ppm should be present

in all parts of the distribution system. The chlorine residual of the water at the tap should be tested and noted on the sample form.

Sample sites for the monitoring program are plotted on a map of the system to ensure that sampling efforts are not overly concentrated in any one area. Sample sites should be reviewed at least annually to ensure representative sampling of all areas of the water system. A map of the sample sites is included at the end of this Coliform Monitoring Plan. Sites are tested monthly.

Section 3 – Re-sampling Requirements for Positive Samples

If coliform bacteria are present in any routine sample that has not been invalidated, the water utility must collect repeat samples at the following locations:

- Each source as required by the Groundwater Rule
- Site of previous sample with a coliform presence
- Within five active services upstream of site of sample with a coliform presence
- Within five active services downstream of site of sample with a coliform presence

A non-acute maximum contaminant level (MCL) violation occurs if two or more of the routine or repeat coliform samples in a month are positive for total coliforms. If a repeat sample is positive DOH needs to be contacted and additional repeat samples are needed.

An acute MCL violation occurs if either the routine or repeat sample is positive for fecal coliform or E. coli.

Reporting and Public Notification

The water utility is required to provide periodic reports to DOH, summarizing the results of water quality testing. If any MCLs are exceeded, both DOH and the public must be notified in accordance with procedures specified in WAC 246-290-310, WAC 246-290-320 and WAC 246-290-480. DOH has developed public notices, press releases and certifications for water systems to use.

Although each public notification should be developed with the assistance and concurrence of the DOH* Coliform Program Manager and/or Regional Engineer, at a minimum the notification should:

- Contain a clear explanation of the violation including when it occurred
- Discuss potential adverse health effects and any segments of the population that may be at higher risk
- Mandatory health effects information
- A list of actions taken to remedy the situation

- A list of steps the consumer should take including whether alternative water sources should be used (boiled/bottled)
- Provide telephone number and contact person at Battle Ground
- When a return to compliance is expected
- Standard distribution language
- If appropriate, notice would be multilingual
- Certification required for acute and non-acute public notices. Certification must be sent to DOH within 10 days of notification.

In all cases the DOH* Coliform Program Manager and/or Regional Engineer should be consulted before issuing public notices.

Acute MCL

An acute MCL violation occurs when a water system exceeds the MCL for fecal coliform or E. coli. For all water systems an acute violation occurs when two or more samples are positive for total coliform and at least one sample is positive for fecal coliform or E. coli. If any sample is positive for fecal coliform or E. coli notify DOH* as soon as possible. If an acute coliform MCL violation occurs the following steps need to be taken:

- Notify DOH* immediately.
- Notify system users within 24 hours using mandatory health effects language. A boil water advisory will be required. The notification will go out through television, radio stations, hand delivery, mailings, and other methods deemed appropriate by DOH.
- Determine possible causes for violation and correct the situation as soon as possible.

Non-Acute MCL

A non-acute coliform MCL violation occurs when a water system exceeds the MCL for total coliform. This means two or more of the routine or repeat samples in a month are positive for total coliform bacteria. If a non-acute coliform MCL violation occurs the following steps need to be taken.

- Notify DOH* as soon as possible after determining a violation occurred
- Notify system users as soon as practical, within 30 days after the violation is known.
- Determine possible causes for violation and correct the situation as soon as possible.

Customer Complaints

It is recommended that a systematic approach be developed to handling customer complaints concerning the water system. Staff members familiar with system and operating conditions should handle calls. A record should be kept of all customer complaints and should include follow-up work undertaken to correct the problem. If a coliform sample is taken in response to a customer complaint the results should be recorded and kept in a file or database. This

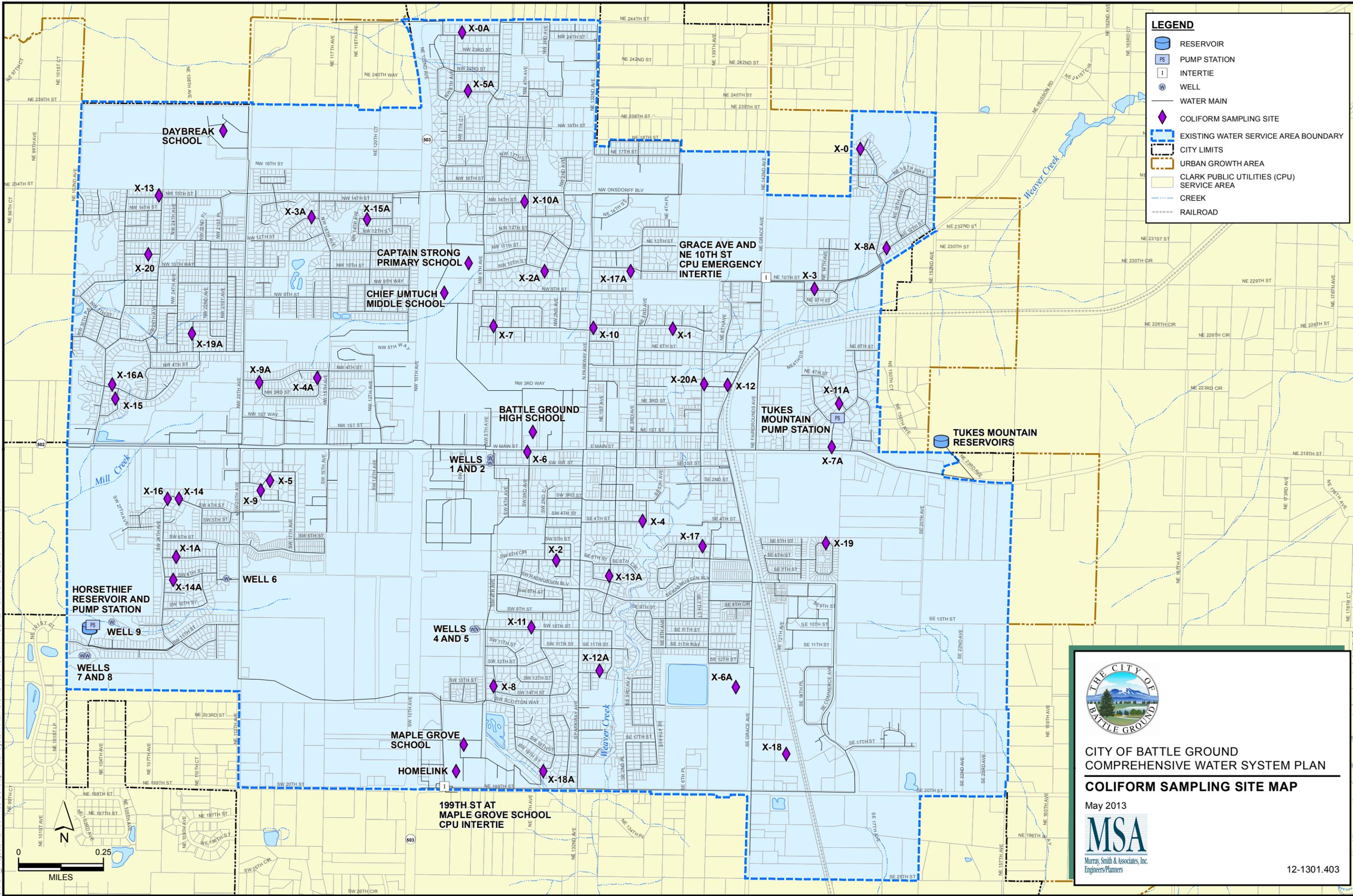
file should contain all customer complaint results. Results can then be plotted on a map to locate areas of water quality concerns.

* DOH - Department of Health, S.W. Drinking Water Operations, Regional Engineer or Water Quality Specialist, PO Box 47823, Olympia, WA 98504-7823; (360) 664-0768. Coliform Program Manager number is (360) 753-5090. The after hours, holidays, and weekend emergency number is (877) 481-4901.

Table 1
City of Battle Ground - Coliform Sampling Sites

Sample Site	Location	Months Sampled Annually											
		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
	Maple Grove School	X	X	X	X	X	X	X	X	X	X	X	X
	Chief Umtuch Middle School	X	X	X	X	X	X	X	X	X	X	X	X
	Captain Strong Primary School	X	X	X	X	X	X	X	X	X	X	X	X
	Battle Ground High School	X	X	X	X	X	X	X	X	X	X	X	X
	Daybreak School	X	X	X	X	X	X	X	X	X	X	X	X
	HomeLink	X	X	X	X	X	X	X	X	X	X	X	X
X-0	1720 NE 16th Loop	X			X			X			X		
X-0A	720 NW 24th Street	X			X			X			X		
X-1	415 NE 7th Street	X			X			X			X		
X-1A	2306 SW 7th Street	X			X			X			X		
X-2	111 SW 6th Street	X			X			X			X		
X-2A	215 NW 10th Street	X			X			X			X		
X-3	1204 NE 9th Way	X			X			X			X		
X-3A	1604 NW 13th Street	X			X			X			X		
X-4	306 SE 4th Street	X			X			X			X		
X-4A	312 NW 16th Avenue	X			X			X			X		
X-5	121 SW 19th Avenue		X			X			X			X	
X-5A	712 NW 21st Street		X			X			X			X	
X-6	301 W Main Street #101		X			X			X			X	
X-6A	1308 SE Grace Avenue		X			X			X			X	
X-7	708 NW 5th Avenue		X			X			X			X	
X-7A	11 NE 15th Avenue		X			X			X			X	
X-8	1314 SW 5th Avenue		X			X			X			X	
X-8A	1708 NE 12th Street		X			X			X			X	
X-9	212 SW 19th Avenue			X			X			X			X
X-9A	1901 NW 4th Street			X			X			X			X
X-10	619 N Parkway Avenue			X			X			X			X
X-10A	400 NW 14th Street			X			X			X			X
X-11	208 SW 10th Street			X			X			X			X
X-11A	216 NE 16th Avenue			X			X			X			X
X-12	312 NE Grace Avenue			X			X			X			X
X-12A	104 SE 13th Street			X			X			X			X
X-13	2502 NW 15th Street	X			X			X			X		
X-13A	604 SE 2nd Avenue	X			X			X			X		
X-14	2304 SW 4th Street		X			X			X			X	
X-14A	2307 SW 8th Street		X			X			X			X	
X-15	208 NW 28th Avenue		X			X			X			X	
X-15A	1305 NW 13th Street		X			X			X			X	
X-16	402 SW 24th Avenue			X			X			X			X
X-16A	2812 NW 3rd Way			X			X			X			X
X-17	605 SE 5th Street			X			X			X			X
X-17A	219 NE 10th Street			X			X			X			X
X-18	14444 NE 199th Street- Bus Barn			X			X			X			X
X-18A	201 SW 19th Street- David Reeves			X			X			X			X
X-19	1416 SE 5th Way- Corey's	X			X			X			X		
X-19A	609 NW 23rd Avenue	X			X			X			X		
X-20	2510 NW 11th Street		X			X			X			X	
X-20A	315 NE Clark Avenue		X			X			X			X	

G:\PDX_Projects\1213011403-Develop Water System Plan\GIS\12-1301-403-WA-FIGURE 1-3.mxd 5/15/2013 1:49:31 PM DKH



LEGEND

- RESERVOIR
- PS PUMP STATION
- I INTERTIE
- W WELL
- WATER MAIN
- COLIFORM SAMPLING SITE
- EXISTING WATER SERVICE AREA BOUNDARY
- CITY LIMITS
- URBAN GROWTH AREA
- CLARK PUBLIC UTILITIES (CPU) SERVICE AREA
- CREEK
- RAILROAD



CITY OF BATTLE GROUND
 COMPREHENSIVE WATER SYSTEM PLAN
COLIFORM SAMPLING SITE MAP

May 2013

 Murray, Smith & Associates, Inc.
 Engineers/Planners