

Water Quality Monitoring Plan

INTRODUCTION

This Water Quality Monitoring Plan presents the requirements for monitoring water quality at the sources and in the distribution system in accordance with the drinking water regulations contained in Washington Administrative Code (WAC) 246-290-300. This plan also provides a summary of the existing water system facilities and operation.

Existing Water System Description

Water System Information

The City of Stanwood (City) is a municipal corporation that owns and operates a public water system within its corporate boundaries. Water system data on file at the Washington State Department of Health (DOH) for the City's system is shown in **Table 1**.

Table 1
Water System Information

Information Type	Description
System Type	Group A - Community - Public Water System
System Name	City of Stanwood
County	Snohomish
DOH System ID Number	83650H
Owner Number	5635
Address	10220 – 270th Street NW, Stanwood, WA 98292
Contact	Ms. Gina Melander, Water Lead
Contact Phone Number	(425) 508-7829

Water System Operation and Control

The existing water system is divided into seven pressure zones, due to the wide range of elevations that are served (between 0 and 250 feet). The 125 Zone is served by the Bailey Altitude Valve and two pressure reducing valve (PRV) stations, the Cedarhome Drive and Burlington Northern Sante Fe railroad (BNRR) PRV and the State Route (SR) 532/530 PRV, which transfer water from the 297 Zone. Transfer is primarily through the altitude valve, and only via the PRV stations during localized drops in pressure, such as fire flow. Hatt Slough Springs, the only direct source to the 125 Zone, is currently offline.

Water Quality Monitoring Plan

The 297 Zone is supplied with water from the Bryant Wells and the Cedarhome Well, and would be supplied by the Fure Well if it were in service. The operation of the Cedarhome and Bryant Wells is controlled by the water level in the Knittle Reservoirs. The Fure Well is offline and considered an emergency source of supply. The 297 Zone supplies water to the 125 Zone via the Bailey Altitude valve and two PRV stations as necessary. Four of the smaller pressure zones are supplied by PRVs with water from the 297 Zone.

The 365 Zone is supplied by the Cedarhome and Knittle Booster Pump Stations. The pressures in the zone and the operation of the booster pump stations are regulated by the water level in the Cedarhome Reservoir.

Pressure Zones

A list of the City's existing pressure zones and their respective maximum hydraulic elevations is presented in **Table 2**. The table also shows the estimated connections and population in each pressure zone in 2013, based on a review of 2013 water supply data.

**Table 2
Pressure Zones**

Name	Maximum Hydraulic Elevation	Water Demand Allocation	Estimated Connections	Estimated Population
365 Zone	365 feet	7%	186	516
297 Zone	297 feet	50%	1,288	3,568
265 Zone	265 feet	2%	60	165
255 Zone	255 feet	3%	67	186
252 Zone	252 feet	1%	13	35
245 Zone	245 feet	4%	92	256
125 Zone	125 feet	33%	849	2,353
Totals			2,554	7,075

Water Sources

A list of the City’s existing water sources is presented in **Table 3**.

**Table 3
Water Sources**

Well	Pressure Zone	Year Drilled	Use	Existing Pumping Capacity (gpm)	Well Depth (feet)	Well Diameter (inches)	Pump Type	Pump Motor Size (hp)	Water Treatment ²	Control Facility
Hatt Slough Springs	125 Zone	1934	Temporarily Offline	260	n/a	n/a	Centrifugal	10	Cl ₂	Continuous
Bryant Well No. 1	297 Zone	1948	Active	1,350	250	12	Turbine	75	Cl ₂ /Mn/H ₂ S/As	Knittle Tanks
Fure Well	297 Zone	1951	Emergency	100	157	12	n/a	n/a	n/a	n/a
Bryant Well No. 2	297 Zone	1966	Emergency	0	200	12	n/a	n/a	n/a	n/a
Cedarhome Well	297 Zone	2008	Active	600	490	12 & 16	Turbine	100	Cl ₂	Knittle Tanks
Bryant Well No. 3 ¹	297 Zone	2013	In Design	0	275	16	n/a	n/a	Cl ₂ /Mn/H ₂ S/As	Knittle Tanks

1 = Bryant Well No. 3 has been drilled and is expected to have a capacity of 1,000 gpm when completed.
 2 = Cl₂: chlorination; Mn: manganese filtration; H₂S: hydrogen sulfide removal; As: arsenic removal.

Water Storage

A list of the City’s existing water storage facilities is presented below in **Table 4**.

**Table 4
Water Storage Facilities**

Reservoir Name	Pressure Zone	Year Constructed	Material	Capacity (MG)	Diameter (feet)	Base Elevation (feet)	Overflow Elevation (feet)	Overall Height (feet)
Bailey No. 1	125 Zone	1989	Concrete	0.20	45	108.0	124.0	17.5
Bailey No. 2	125 Zone	1989	Concrete	0.20	45	108.0	124.0	17.5
Knittle No. 1	297 Zone	1990	Concrete	0.20	26	251.0	297.0	50.0
Knittle No. 2	297 Zone	1997	Steel	1.00	61	251.0	297.0	47.0
Cedarhome	365 Zone	2009	Composite	0.55	53	329.5	365.0	35.5

Pump Stations

A list of the City’s existing booster pump stations is presented in **Table 5**.

**Table 5
Booster Pump Stations**

Booster Pump Station	Suction Pressure Zone	Discharge Pressure Zone	Year Constructed	Existing Pumping Capacity (gpm)	Number of Pumps	Pump Type	Pump Motor Size (hp)
Knittle BPS	297 Zone	365 Zone	1998	1,360	4	Centrifugal	(1) 3, (2) 5, (1) 50
Cedarhome BPS	297 Zone	365 Zone	2006	1,000	3	Centrifugal	(3) 20

Pressure Reducing Stations

A list of the City’s existing pressure reducing stations is presented below in **Table 6**.

**Table 6
Pressure Reducing Stations**

Name	Upper Zone (From)	Lower Zone (To)	Current Status
SR 532/530	297	125	Active
Cedarhome Dr. & BNRR	297	125	Active
272nd & 81st	297	245	Active
288th & 89th	297	252	Active
280th & 83rd	297	255	Active
282nd & Nordic Wy	297	255	Active
276th St & 80th Dr	297	265	Active
Copper Station	365	297	Active
277th & 71st	365	297	Active
281st & 70th	365	297	Active
278th & 78th	365	297	Active

Water Treatment

The City transitioned to system-wide chlorination in 2008. The Cedarhome Well, Bryant Well No. 1, and Hatt Slough Springs are currently chlorinated. Chlorination at the Hatt Slough Springs source is performed as a precautionary measure when the source is in use, even though harmful bacteria have never been detected. The spring source has been tested and determined not to be under the direct influence of surface water. Historically, the water quality at all of the sources has been excellent, aside from slightly higher than allowable manganese levels at Bryant Well No. 1 and Fure Well, and slightly higher than allowable arsenic levels at Bryant Well No. 1 prior to the completion of the Bryant Well Field Treatment Facility.

The Bryant Well Field Treatment Facility currently treats Bryant Well No. 1 for arsenic, manganese, and hydrogen sulfide using an oxidation and filtration process. This facility will also treat the future Bryant Well No. 3, the replacement for Bryant Well No. 2. Two chemicals are initially added to the raw water: sodium hypochlorite and ferric chloride. A low strength 0.8 percent sodium hypochlorite solution is created onsite using water, salt, and a chemical reactor. The ferric chloride is added to assist with arsenic removal and is purchased in 55-gallon drums. All chemicals are injected into the raw water through metering pumps. In addition to feeding chemicals, an aeration system adds dissolved oxygen from the ambient air to the raw water to reduce hydrogen sulfide concentrations. After chemical addition, the raw water is filtered through a pressure vessel containing anthracite and greensand media to remove manganese, iron, and arsenic compounds. A contact loop is provided

after filtration to ensure that chlorine fully reacts with ammonia and reaches breakpoint before the treated water reaches the first customer downstream of the plant.

The Cedarhome Well is equipped with a sodium hypochlorite on-site generation system and a contact loop similar to the Bryant Well Field Treatment Facility. No other chemicals are added to this source.

When Hatt Slough Springs is in service, chlorination is achieved by continuous injection of sodium hypochlorite (liquid chlorine) into the system during operation of the pumps at the facility. The 12.5 percent sodium hypochlorite solution is created with 1 gallon of sodium hypochlorite per 8 gallons of water. The chlorination equipment at the Hatt Slough Springs site consists of a 50-gallon dilution tank and metering pump for the disinfection process.

The Fure Well is considered an emergency source and it is not currently chlorinated.

SOURCE WATER QUALITY MONITORING

The City is required to perform water quality monitoring at each of its active sources for inorganic chemicals and physical substances, organic chemicals, unregulated inorganic and organic chemicals, and radionuclides. The monitoring requirements that the City must comply with are specified in WAC 246-290-300. Since all of the City's water sources are considered groundwater sources, the groundwater system monitoring requirements apply. **Table 7** summarizes the source water quality monitoring requirements for the next several years. The table is based on information available at the time that this document was prepared and may change in the future.

Water Quality Monitoring Plan

Table 7 Monitoring Schedule for 2014 through 2019

When	Monitor	Monitoring Group	Test Method	Upon Violation
2014				
Feb-14	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
May-14	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Jun-14	S01 & S02	Nitrate	NIT	Quarterly for 1 Year
Aug-14	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Sep-14	S02	SOCs	SOC - 515.2, 525.2, 531.1	Quarterly for 2 Quarters
Sep-14	S07	Nitrate	NIT	Quarterly for 1 Year
Nov-14	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
2015				
Feb-15	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Mar-15	S01	SOCs	SOC - 515.2, 525.2, 531.1	Quarterly for 2 Quarters
May-15	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Jun-15	S01 & S02	Nitrate	NIT	Quarterly for 1 Year
Jun-15	S07	IOC and Physical	IOC	Quarterly for 2 Quarters
Jul-15	Distribution System	Lead and Copper	LCR	(2)-6 Mo. Periods (40 sites ea.)
Aug-15	Distribution System	Asbestos	ABS	Quarterly for 2 Quarters
Aug-15	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Sep-15	S02	Volatile Organic Chemicals	VOC - 524.2	Quarterly for 2 Quarters
Sep-15	S07	Nitrate	NIT	Quarterly for 1 Year
Nov-15	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
2016				
Feb-16	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Mar-16	S07	Volatile Organic Chemicals	VOC - 524.2	Quarterly for 2 Quarters
May-16	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Jun-16	S02 & S07	Radionuclides	RAD	Quarterly until less than MCL
Jun-16	S01 & S02	Nitrate	NIT	Quarterly for 1 Year
Jun-16	S01	Volatile Organic Chemicals	VOC - 524.2	Quarterly for 2 Quarters
Jul-16	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Aug-16	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Sep-16	S07	Nitrate	NIT	Quarterly for 1 Year
Sep-16	S01	Gross Alpha	RAD	Quarterly until less than MCL
Nov-16	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
2017				
Feb-17	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
May-17	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Jun-17	S01 & S02	Nitrate	NIT	Quarterly for 1 Year
Jul-17	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Aug-17	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Sep-17	S07	Nitrate	NIT	Quarterly for 1 Year
Nov-17	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
2018				
Feb-18	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
May-18	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Jun-18	S01 & S02	Nitrate	NIT	Quarterly for 1 Year
Jun-18	S07	IOC and Physical	IOC	Quarterly for 2 Quarters
Jul-18	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Jul-18	Distribution System	Lead and Copper	LCR	(2)-6 Mo. Periods (40 sites ea.)
Aug-18	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Sep-18	S07	Nitrate	NIT	Quarterly for 1 Year
Nov-18	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
2019				
Feb-19	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
May-19	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Jun-19	S01 & S02	Nitrate	NIT	Quarterly for 1 Year
Jul-19	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Aug-19	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Sep-19	S07	Nitrate	NIT	Quarterly for 1 Year
Nov-19	Distribution System	Stage 2 DBPs	TTHM and HAA5	1 per Site per Quarter
Nov-19	S01	Radium 228	RAD	Quarterly until less than MCL

Monitoring Requirements and Procedures

Inorganic Chemical and Physical – A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. Monitoring for primary and secondary inorganic chemical and physical substances, except for arsenic, nitrate, and asbestos, shall be accomplished once every 3 years. If a maximum contaminated level (MCL) is exceeded, quarterly sampling is required for at least two quarters.

Monitoring for nitrate shall be accomplished once per year. The repeat monitoring frequency shall be quarterly for at least 1 year following any one sample in which the concentration is greater than or equal to 50 percent of the MCL for nitrate or nitrite.

Monitoring for asbestos is required once every 9 years. Systems not vulnerable to asbestos contamination at the source or in the distribution system (due to asbestos cement pipe) may apply to the state for a waiver of the monitoring requirements. Since approximately 19 percent of the City's distribution system contains asbestos cement pipe, asbestos monitoring is required. The City should sample the distribution system for asbestos in August 2015. A sample must be taken at a tap served by an asbestos cement pipe where asbestos contamination is most likely to occur. If the MCL is exceeded, quarterly sampling is required for at least two quarters.

Monitoring for arsenic is required once every month at Bryant Well No. 1 after treatment. Compliance with the MCL will be based on a running annual average of these monthly samples.

Volatile Organic Chemicals – A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. Monitoring for volatile organic chemicals shall be accomplished once every 3 years for each compliance period. If an MCL is exceeded, quarterly sampling is required for at least two quarters. The state may then allow annual monitoring if the results are satisfactory. After three consecutive annual samples that comply with the MCLs, a waiver for reduced monitoring (once every 3-year compliance period) may be applied for again. The City's sources all currently have a 6-year volatile organic chemical (VOC) waiver and the next VOCs sample should be collected in June 2016 for Hatt Slough Springs, September 2015 for Bryant Well No. 1, and March 2016 for Cedarhome Well.

Synthetic Organic Chemicals – A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. Monitoring for synthetic organic chemicals (SOCs) shall be accomplished once every 3 years for each compliance period if a monitoring waiver is not provided by the state. If an MCL is exceeded, quarterly sampling is required for at least two quarters. The state may then allow annual monitoring if the results are satisfactory. After three consecutive annual samples that comply with the MCLs, a waiver for reduced monitoring may be applied for again. The City was granted a monitoring waiver for the 2014 through 2016 compliance periods for pesticides and soil fumigants. The next herbicides samples should be collected in March 2015 for Hatt Slough Springs and September 2014 for Bryant Well No. 1. Herbicides sampling at Cedarhome Well is not required during the 2014 through 2016 compliance period.

Unregulated Inorganic Chemicals – Sulfate is the only unregulated inorganic chemical that must be monitored under the current state regulations. One sample shall be taken after treatment at the entry point to the distribution system for each source at least once every 5 years, unless a waiver is granted by the state. The City monitors for sulfate when monitoring is done for regulated inorganic compounds.

Unregulated Volatile Organic Chemicals – One sample shall be taken after treatment at the entry point to the distribution system for each source at least once every 5 years. The City monitors for unregulated VOCs when samples for regulated volatile organic chemicals are taken.

Unregulated Synthetic Organic Chemicals – One sample shall be taken after treatment at the entry point to the distribution system for each source at least once every 5 years, unless a waiver is granted by the state. The City monitors for unregulated SOCs when samples for regulated SOCs are taken.

Radionuclides – A minimum of one sample shall be taken after treatment at the entry point to the distribution system for each source. Initial monitoring for gross alpha particle radioactivity, radium-226 and radium-228 required four consecutive quarterly samples. Monitoring thereafter requires four consecutive quarterly samples at least once every 48 months. The analysis for radium-226 and radium-228 may be omitted, if the results from the gross alpha particle radioactivity analysis are less than 5 pCi/L. In addition, if the results of the initial analysis are less than half of the established MCL, the required monitoring may be reduced to a single sample collected every 48 months. The initial radionuclide samples collected in 1999 resulted in levels much less than the MCL, if detectable at all, and the City may now monitor for radionuclides once every 6 years. For Hatt Slough Springs, the next gross alpha sampling is required in September 2016 and the next radium-228 sampling is required in November 2019. For both Bryant Well No. 1 and the Cedarhome Well, gross alpha and radium-228 sampling are required on June 2016.

DISTRIBUTION SYSTEM WATER QUALITY MONITORING

The City is required to perform water quality monitoring within the distribution system for coliform bacteria, disinfectant (chlorine) residual concentration, disinfection by-products, lead and copper, and asbestos in accordance with Chapter 246-290 WAC.

Monitoring Requirements and Procedures

Coliform Bacteria Routine Sampling – Specific requirements are contained in WAC 246-290-300. The City has been collecting a minimum of ten samples per month (eight in July and August) from different locations throughout the system, based on estimates of the population served.

Table 8 lists the addresses and schedule of the City's routine sampling locations, including the upstream and downstream sampling locations in the event that repeat sampling is necessary. A total of ten samples will be collected each month in accordance with the schedule shown in the table. The sampling sites are different than the previous month's sampling sites and are rotated throughout the system to achieve a thorough sampling of all parts of the system. The sample sites are also shown in **Figure 1** and correspond to the assigned numbers in the table.

**Table 8
Coliform Monitoring Sampling Locations and Schedule**

Number	Routine, Upstream, or Downstream	Address	Pressure Zone
January, May, and September			
1A	R	27927 Old Pacific Hwy	125 Zone
	<i>US</i>	27725 Old Pacific Hwy	125 Zone
	<i>DS</i>	28006 Old Pacific Hwy	125 Zone
2A	R	27020 92nd Ave NW	125 Zone
	<i>US</i>	9200 271st St NW	125 Zone
	<i>DS</i>	26906 92nd AVE NW	125 Zone
3A	R	6721 Pioneer Hwy	297 Zone
	<i>US</i>	6910 Pioneer Hwy	297 Zone
	<i>DS</i>	6618 Pioneer Hwy	297 Zone
4A	R	8107 288th St. NW	297 Zone
	<i>US</i>	28801 80th AVE NW	297 Zone
	<i>DS</i>	8525 288th St NW	297 Zone
5A	R	27029 81st Dr	365 Zone
	<i>US</i>	27105 81st Dr	365 Zone
	<i>DS</i>	27011 81st Dr	365 Zone
6A	R	7600 279th PI NW	125 Zone
	<i>US</i>	7603 278th PI NW	125 Zone
	<i>DS</i>	27932 74th AVE NW	125 Zone
7A	R	6800 285th St NW	365 Zone
	<i>US</i>	6810 285th St NW	365 Zone
	<i>DS</i>	28505 68th AVE NW	365 Zone
8A	R	28305 Nordic Way	255 Zone
	<i>US</i>	28309 Nordic Way	255 Zone
	<i>DS</i>	28201 Nordic Way	255 Zone
9A	R	9828 SR 532	365 Zone
	<i>US</i>	9822 SR 532	365 Zone
	<i>DS</i>	10320 SR 532	365 Zone
10A	R	27911 68th Ave NW	255 Zone
	<i>US</i>	27909 68th AVE NW	255 Zone
	<i>DS</i>	28002 68th AVE NW	255 Zone
February, June, and October			
1B	R	24904 Florence Rd	125 Zone
	<i>US</i>	24912 Florence Rd	125 Zone
	<i>DS</i>	24924 Florence Rd	125 Zone
2B	R	7937 265th St NW	297 Zone
	<i>US</i>	7935 265th St NW	297 Zone
	<i>DS</i>	7939 265th St NW	297 Zone
3B	R	27703 68th AVE NW	297 Zone
	<i>US</i>	6800 277th St NW	297 Zone
	<i>DS</i>	6803 278th St NW	297 Zone
4B	R	6801 287th PI NW	365 Zone
	<i>US</i>	6903 287th PI NW	365 Zone
	<i>DS</i>	28705 68th Ave NW	365 Zone
5B	R	26729 98th Dr NW	125 Zone
	<i>US</i>	9730 98th Ave NW	125 Zone
	<i>DS</i>	26700 Pioneer Hwy	125 Zone
6B	R	8117 267th St NW	125 Zone
	<i>US</i>	26628 Pioneer Hwy	125 Zone
	<i>DS</i>	28217 80th Ave NW	125 Zone
7B	R	8002 283rd St NW	297 Zone
	<i>US</i>	8006 283rd St NW	297 Zone
	<i>DS</i>	28217 80th Ave NW	297 Zone
8B	R	9828 SR 532	125 Zone
	<i>US</i>	9822 SR 532	125 Zone
	<i>DS</i>	10320 SR 532	125 Zone
9B	R	8107 288th St NW	297 Zone
	<i>US</i>	28801 80th Ave NW	297 Zone
	<i>DS</i>	8525 288th St NW	297 Zone
10B	R	28224 68th Ave NW	125 Zone
	<i>US</i>	6800 282nd PI NW	125 Zone
	<i>DS</i>	6627 284th St NW	125 Zone

**Table 8 (Continued)
Coliform Monitoring Sampling Locations and Schedule**

Number	Routine, Upstream, or Downstream	Address	Pressure Zone
March, July, and November			
1C	R	28620 74th Ave	125 Zone
	US	28614 74th Ave	125 Zone
	DS	28404 74th Ave	125 Zone
2C	R	25670 84th Ave NW	125 Zone
	US	25521 Marine Dr	125 Zone
	DS	25915 Marine Dr	125 Zone
3C	R	6902 283rd PI NW	297 Zone
	US	6908 283rd PI NW	297 Zone
	DS	28301 69th Ave NW	297 Zone
4C	R	27522 72nd Ave NW	297 Zone
	US	27427 72nd Ave NW	297 Zone
	DS	7203 276th St NW	297 Zone
5C	R	26204 77th Ave NW	297 Zone
	US	7806 263rd PI NW	297 Zone
	DS	26204 77th Ave NW	297 Zone
6C	R	9828 SR 532	125 Zone
	US	9828 SR 532	125 Zone
	DS	10320 SR 532	125 Zone
7C	R	7306 282nd St NW	365 Zone
	US	7307 282nd St NW	365 Zone
	DS	7304 282nd St NW	365 Zone
8C	R	9006 271st St NW	125 Zone
	US	9005 271st St NW	125 Zone
	DS	9106 271st St NW	125 Zone
9C	R	27911 68th Ave NW	365 Zone
	US	27909 68th Ave NW	365 Zone
	DS	28002 68th Ave NW	365 Zone
10C	R	8107 288th St NW	125 Zone
	US	28801 80th Ave NW	125 Zone
	DS	8525 288th St NW	125 Zone
April, August, and December			
1D	R	9619 270th St NW	125 Zone
	US	9612 270th St NW	125 Zone
	DS	9520 271st St NW	125 Zone
2D	R	7006 Church Creek Loop	297 Zone
	US	7010 Church Creek Loop	297 Zone
	DS	6928 Church Creek Loop	297 Zone
3D	R	27908 83rd Dr NW	297 Zone
	US	27828 83rd Dr NW	297 Zone
	DS	27914 83rd Dr NW	297 Zone
4D	R	28607 75th Dr NW	297 Zone
	US	28601 75th Dr NW	297 Zone
	DS	28617 75th Dr NW	297 Zone
5D	R	7302 284th St NW	365 Zone
	US	7407 284th St NW	365 Zone
	DS	28400 72nd Dr NW	365 Zone
6D	R	9828 SR 532	125 Zone
	US	9822 SR 532	125 Zone
	DS	10320 SR 532	125 Zone
7D	R	7221 286th PI NW	365 Zone
	US	7229 286th PI NW	365 Zone
	DS	28600 72nd Dr NW	365 Zone
8D	R	7907 Port Susan PI	125 Zone
	US	7817 Pt. Susan PI	125 Zone
	DS	7919 Pt. Susan PI	125 Zone
9D	R	8107 288th St NW	365 Zone
	US	28801 80th Ave NW	365 Zone
	DS	8525 288th St NW	365 Zone
10D	R	27911 68th Ave NW	297 Zone
	US	27909 68th Ave NW	297 Zone
	DS	28002 68th Ave NW	297 Zone

Coliform Bacteria Repeat Sampling – In the event that a sample tests positive for coliform, a repeat sample shall be taken at the same location as the suspect sample and two additional samples shall be taken within five service connections upstream and downstream of the suspect sample. Source of supply samples must also be collected at each source (prior to treatment) that was in operation when the positive sample was collected. These repeat and source samples shall be taken by the end of the next business day after receiving the unsatisfactory results. If the results conclude that an MCL is exceeded (i.e., coliform are present in two or more samples for the month, including repeat samples), the City shall proceed with public notification in accordance with WAC 246-290-495.

Disinfectant Residual Concentration – Specific requirements are contained in WAC 246-290-451 for systems using groundwater that is not under the influence of surface water (i.e., not GWI). The City’s chlorination goal is to maintain a residual disinfectant concentration of at least 0.2 milligrams per liter (mg/L) throughout the distribution system. With the current operation of Bryant Well No. 1, the free chlorine residual must be at least 0.14 mg/L at the end of the Bryant Well Field Treatment Facility contact pipeline to meet DOH’s contact time (CT) requirement of 6.

Samples collected and submitted for coliform testing shall also be tested for disinfectant residual concentration to ensure the disinfectant residual meets the regulatory requirements and achieves the target levels planned by the City.

Lead and Copper – Specific requirements are contained in Title 40, Parts 141.86, 141.87 and 141.88 of the Code of Federal Regulations (CFR). Initial monitoring, beginning July 1, 1993, required 20 samples for each 6-month monitoring period for the City’s population. After two consecutive 6-month monitoring periods of meeting the lead and copper action levels, ten samples taken during June, July, August, or September were required once per year. After three consecutive years of monitoring and meeting the lead and copper action levels, ten samples taken during June, July, August, or September are required every 3 years. However, the City’s population has increased such that the sampling requirement is now 30 samples every 3 years.

The City completed the sampling requirements for the two consecutive 6-month monitoring periods during 1993 and 1994. Twenty samples were also collected during 1996. All samples tested well below the action levels and qualified the City for accelerated reduced monitoring, which allows a 3-year monitoring schedule.

Sample sites shall be selected based on the known existence of lead pipes, copper pipes and copper pipes with lead solder in accordance with 40 CFR 141.86(a). All samples, except for lead service line samples, shall be “first draw tap samples” taken at a cold water tap in which water has not been drawn from the tap for at least 6 hours. Lead service line samples shall be collected in one of three ways in accordance with 40 CFR 141.86(b). The locations of future sample sites shall be the same as past sample sites, unless unavoidable conditions prevent sampling at the same locations.

Fluoride Concentration – Specific requirements are contained in WAC 246-290-460 for systems that are fluoridating drinking water. The City does not currently fluoridate its water. However, if the City decides to fluoridate its water supply in the future, the concentration of fluoride shall be maintained in the range of 0.8 through 1.3 mg/L. Determinations of fluoride concentrations shall be made daily, and reports of the analyses shall be submitted to DOH within 10 days of the end of the reporting month. Monthly check samples shall be taken downstream of each fluoride injection point, at the first sample tap where adequate mixing has occurred.

Disinfection By-products – The City’s Initial Distribution System Evaluation Standard Monitoring Plan is attached.

Form 7: IDSE Report for Standard Monitoring

I. GENERAL INFORMATION

A. PWS Information*

B. Date Submitted* 6/14/10

PWSID: 83650H

PWS Name: City of Stanwood

PWS Address: 10220 270th St N W

City: Stanwood State: WA Zip: 98292

Population Served: 11817

System Type:	Source Water Type:	Buying / Selling Relationships:
<input checked="" type="checkbox"/> CWS	<input type="checkbox"/> Subpart H	<input type="checkbox"/> Consecutive System
<input type="checkbox"/> NTNCWS	<input checked="" type="checkbox"/> Ground	<input type="checkbox"/> Wholesale System
		<input checked="" type="checkbox"/> Neither

C. PWS Operations

Residual Disinfectant Type: Chlorine Chloramines Other: _____

Number of Disinfected Sources: ___ Surface ___ GWUDI 3 Ground ___ Purchased

D. Contact Person*

Name: Kevin Hushagen

Title: Utilities Superintendent

Phone #: 360-629-9782

Fax #: 360-629-0867

E-mail: kevin@ci.stanwood.wa.us

II. STAGE 2 DBPR REQUIREMENTS*

A. Number of Compliance Monitoring Sites	B. Schedule	C. Compliance Monitoring Frequency
Highest TTHM: <u>2</u>	<input type="checkbox"/> Schedule 1	<input type="checkbox"/> During peak historical month (1 monitoring period)
Highest HAA5: <u>1</u>	<input type="checkbox"/> Schedule 2	
Existing Stage 1: <u>1</u>	<input checked="" type="checkbox"/> Schedule 3	<input checked="" type="checkbox"/> Every 90 days (4 monitoring periods)
Total: <u>4</u>	<input type="checkbox"/> Schedule 4	

Form 7: IDSE Report for Standard Monitoring

Page 2 of 9

III. MONITORING RESULTS*

A. Did you deviate in any way from your approved standard monitoring plan? Yes No

If YES, explain (attach additional pages if necessary):

B. Where were your TTHM and HAA5 samples analyzed?

In-House

Is your in-house laboratory certified?

Yes

No

Certified Laboratory

Name of certified laboratory: Edge Analytical

C. What method(s) was used to analyze your TTHM and HAA5 samples?

TTHM

HAA5

EPA 502.2

EPA 552.1

EPA 524.2

EPA 552.2

EPA 551.1

EPA 552.3

SM 6251 B

Form 7: IDSE Report for Standard Monitoring

III. MONITORING RESULTS (Continued)*

D. IDSE Standard Monitoring Results - TTHM

Site ID ¹	Data Type	TTHM (mg/L)						LRAA
		5/4/09	8/4/09	11/3/09	2/5/10	5/4/09	8/4/09	
Stanwood Elementary School	Sample Date	5/4/09	8/4/09	11/3/09	2/5/10			
	Sample Result	4.5	11.0	7.3	3.8			6.65
263 rd Place and 262 nd Street-Fox Hill sample station	Sample Date	5/4/09	8/4/09	11/3/09	2/5/10			
	Sample Result	8.7	5.8	10.7	18.3			10.88
	Sample Date							
	Sample Result							
	Sample Date							
	Sample Result							
	Sample Date							
	Sample Result							
	Sample Date							
	Sample Result							
	Sample Date							
	Sample Result							

¹ Verify that site IDs for IDSE standard monitoring sites match the site IDs in your Standard Monitoring Plan. Attach additional sheets as needed for IDSE standard monitoring results.

Form 7: IDSE Report for Standard Monitoring

III. MONITORING RESULTS (Continued)*

E. IDSE Standard Monitoring Results - HAA5

Site ID ¹	Data Type	HAA5 (mg/L)				LRAA
		5/4/09	8/4/09	11/3/09	2/5/10	
Stanwood Elementary School	Sample Date	5/4/09	8/4/09	11/3/09	2/5/10	
	Sample Result	ND	1.0	ND	ND	0.25
263 rd Place and 262 nd Street-Fox Hill sample station	Sample Date	5/4/09	8/4/09	11/3/09	2/5/10	
	Sample Result	1.8	1.0	2.5	5.2	2.63
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					

¹ Verify that site IDs for IDSE standard monitoring sites match the site IDs in your Standard Monitoring Plan. Attach additional sheets as needed for IDSE standard monitoring results.

Form 7: IDSE Report for Standard Monitoring

III. MONITORING RESULTS (Continued)*

F. Stage 1 DBPR Compliance Monitoring Results - TTHM

Site ID ¹	Data Type	TTHM (mg/L)	LRAA
30820 Old Pacific Highway-sample station	Sample Date	8/4/09	
	Sample Result	14.9	14.9
Twin City Foods sample station	Sample Date	8/4/09	
	Sample Result	8.7	8.7
Schenk Packing sample station	Sample Date	8/4/09	
	Sample Result	16.5	16.5
	Sample Date		
	Sample Result		
	Sample Date		
	Sample Result		
	Sample Date		
	Sample Result		
	Sample Date		
	Sample Result		
	Sample Date		
	Sample Result		

¹ Verify that site IDs for Stage 1 compliance monitoring sites match the site IDs in your Standard Monitoring Plan. Attach additional sheets as needed for Stage 1 compliance monitoring results.

Form 7: IDSE Report for Standard Monitoring

IV. JUSTIFICATION OF STAGE 2 DBPR COMPLIANCE MONITORING SITES*

Stage 2 Compliance Monitoring Site ID	Site Type	Justification
Schenk Packing sample station	<input checked="" type="checkbox"/> Highest TTHM <input type="checkbox"/> Highest HAA5 <input type="checkbox"/> Stage 1 DBPR	
Fox Hill sample station	<input type="checkbox"/> Highest TTHM <input checked="" type="checkbox"/> Highest HAA5 <input type="checkbox"/> Stage 1 DBPR	
Twin City Foods sample station	<input type="checkbox"/> Highest TTHM <input type="checkbox"/> Highest HAA5 <input checked="" type="checkbox"/> Stage 1 DBPR	
30820 Old Pacific Hwy sample station	<input checked="" type="checkbox"/> Highest TTHM <input type="checkbox"/> Highest HAA5 <input type="checkbox"/> Stage 1 DBPR	
	<input type="checkbox"/> Highest TTHM <input type="checkbox"/> Highest HAA5 <input type="checkbox"/> Stage 1 DBPR	
	<input type="checkbox"/> Highest TTHM <input type="checkbox"/> Highest HAA5 <input type="checkbox"/> Stage 1 DBPR	
	<input type="checkbox"/> Highest TTHM <input type="checkbox"/> Highest HAA5 <input type="checkbox"/> Stage 1 DBPR	
	<input type="checkbox"/> Highest TTHM <input type="checkbox"/> Highest HAA5 <input type="checkbox"/> Stage 1 DBPR	

Attach additional copies of this sheet if you need more room.

Form 7: IDSE Report for Standard Monitoring

V. PEAK HISTORICAL MONTH AND PROPOSED STAGE 2 DBPR COMPLIANCE MONITORING SCHEDULE

A. Peak Historical Month* August

B. Is Your Peak Historical Month the Same as in Your IDSE Standard Monitoring Plan?

Yes No

If no, explain how you selected your new peak historical month (attach additional sheets if needed)

C. Proposed Stage 2 DBPR Compliance Monitoring Schedule*

Stage 2 Compliance Monitoring Site ID	Projected Sampling Date (date or week) ¹			
	period 1	period 2	period 3	period 4
Schenk Packing	11/2/13	2/1/14	5/4/14	8/3/14
Fox Hill	11/2/13	2/1/14	5/4/14	8/3/14
Twin City Foods	11/2/13	2/1/14	5/4/14	8/3/14
Old Pac Hwy	11/2/13	2/1/14	5/4/14	8/3/14

¹ period = monitoring period. Complete for the number of monitoring periods from Section II.C.

Attach additional copies of this sheet if you need more room.

VI. DISTRIBUTION SYSTEM SCHEMATIC*

ATTACH a schematic of your distribution system if it has changed since you submitted your Standard Monitoring Plan (Form 6).

VII. ATTACHMENTS

- Additional sheets for explaining how and why you deviated from your standard monitoring plan (Section III).
- Additional sheets for Standard Monitoring Results (Section III). **REQUIRED** if you are a subpart H system serving **more than 49,999 people** or a ground water system serving **more than 499,999 people**.
- Additional sheets for Stage 2 DBPR Compliance Monitoring Sites (Section IV). **REQUIRED** if you are a subpart H system serving **more than 249,999 people**.
- Additional sheets for explaining how you selected the peak historical month (Section V).
- Additional sheets for proposed Stage 2 DBPR peak historical month and compliance monitoring schedule (Section V). **REQUIRED** if you are a subpart H system serving **more than 249,999 people**.
- Distribution system schematic* (Section VI). **REQUIRED** if it has changed from your approved IDSE standard monitoring plan.
- Compliance calculation procedures (for Stage 2 Compliance Monitoring Plan).

Total Number of Pages in Your Report: 9

Note: Fields with an asterisk (*) are required by the Stage 2 DBPR