APPENDIX A

WFI AND SANITARY SURVEY

WATER FACILITIES INVENTORY (WFI) FORM

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

ONE FORM PER SYSTEM

Quarter: 1
Updated: 09/18/2019
Printed: 12/14/2023
WFI Printed For: On-Demand
Submission Reason: Contact Update

RETURN TO: Central Services - WFI, PO Box 47822, Olympia, WA, 98504-7822 or email wfi@doh.wa.gov

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
81500 Y	SOUTH BEND WATER DEPARTMENT	PACIFIC	A	Comm

6. PRIMARY CONTACT NAME & MAILING ADDRESS

CHRIS M. ORKNEY [OPERATOR]
PO BOX 9
SOUTH BEND, WA 98586

7. OWNER NAME & MAILING ADDRESS

SOUTH BEND, CITY OF — MAYOR
JULIE STRUCK
PO BOX 9
SOUTH BEND, WA 98586

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN SOUTH BEND CITY HALL
ADDRESS 1102 W FIRST ST
CITY SOUTH BEND STATE WA ZIP 98586

STREET ADDRESS IF DIFFERENT FROM ABOVE

ATTN SOUTH BEND CITY HALL
ADDRESS 1102 W FIRST ST
CITY SOUTH BEND STATE WA ZIP 98586

9. 24 HOUR PRIMARY CONTACT INFORMATION

Primary Contact Daytime Phone: (360) 942-0072
Primary Contact Mobile/Cell Phone: (360) 591-1552
Primary Contact Evening Phone: (xxx)-xxx-xxxx
Fax: (000) 000-0000
E-mail: cxxxxxxxxxxxxxxxxxxxxxxxxc@hotmail.com

10. OWNER CONTACT INFORMATION

Owner Daytime Phone: (360) 875-5571
Owner Mobile/Cell Phone: (360) 580-7289
Owner Evening Phone:
Fax: (360) 875-4009
E-mail: jxxxxxxxxxxk@southbend-wa.gov

11. SATELLITE MANAGEMENT AGENCY - SMA (check only one)

- [x] Not applicable (Skip to #12)
- [ ] Owned and Managed
- [ ] Managed Only
- [ ] Owned Only

SMA NAME: _____ SMA Number:

12. WATER SYSTEM CHARACTERISTICS (mark all that apply)

- [ ] Agricultural
- [x] Commercial / Business
- [ ] Day Care
- [x] Food Service/Food Permit
- [ ] 1,000 or more person event for 2 or more days per year
- [ ] Hospital/Clinic
- [x] Industrial
- [x] Licensed Residential Facility
- [x] Lodging
- [x] Recreational / RV Park
- [x] Residential
- [x] School
- [ ] Temporary Farm Worker
- [x] Other (church, fire station, etc.): _____

13. WATER SYSTEM OWNERSHIP (mark only one)

- [ ] Association
- [x] City / Town
- [ ] County
- [ ] Federal
- [ ] Investor
- [ ] Private
- [ ] Special District
- [ ] State

14. STORAGE CAPACITY (gallons)

2,639,000

15	16	17	18									19			20	21						22	23	24			
	SOURCE NAME	INTERTIE	SOURCE CATEGORY									USE				TREATMENT						DEPTH		SOURCE LOCATION			
Source Number	LIST UTILITY'S NAME FOR SOURCE AND WELL TAG ID NUMBER. Example: WELL #1 XYZ456 IF SOURCE IS PURCHASED OR INTERTIED, LIST SELLER'S NAME Example: SEATTLE	INTERTIE SYSTEM ID NUMBER	WELL	WELL FIELD	WELL IN A WELL FIELD	SPRING	SPRING FIELD	SPRING IN SPRINGFIELD	SEA WATER	SURFACE WATER	RANNEY / INF. GALLERY	OTHER	PERMANENT	SEASONAL	EMERGENCY	SOURCE METERED	NONE	CHLORINATION	FILTRATION	FLUORIDATION	IRRADIATION (UV)	OTHER	DEPTH TO FIRST OPEN TERVAL IN FEET	CAPACITY (GALLONS PER MINUTE)	1/4, 1/4 SECTION	SECTION NUMBER	TOWNSHIP	RANGE
S01	MARTIN CREEK									X			X			Y		X	X	X				550	SW SE	15	14N	09W
S02	ELECTRIC CREEK									X			X			Y		X	X	X				550	SW SW	10	14N	09W
S03	InAct 11/08/1996 FLEISS CR									X				X				X	X	X		X		300	NE SW	04	14N	09W
S04	71500/RAYMOND (2-way)	71500 X												X		Y	X							450			00N	00E

WATER FACILITIES INVENTORY (WFI) FORM - Continued

1. SYSTEM ID NO.	2. SYSTEM NAME	3. COUNTY	4. GROUP	5. TYPE
81500 Y	SOUTH BEND WATER DEPARTMENT	PACIFIC	A	Comm

	ACTIVE SERVICE CONNECTIONS	DOH USE ONLY! CALCULATED ACTIVE CONNECTIONS	DOH USE ONLY! APPROVED CONNECTIONS
25. SINGLE FAMILY RESIDENCES (How many of the following do you have?)		908	1273
A. Full Time Single Family Residences (Occupied 180 days or more per year)	825		
B. Part Time Single Family Residences (Occupied less than 180 days per year)	0		
26. MULTI-FAMILY RESIDENTIAL BUILDINGS (How many of the following do you have?)			
A. Apartment Buildings, condos, duplexes, barracks, dorms	10		
B. Full Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied more than 180 days/year	83		
C. Part Time Residential Units in the Apartments, Condos, Duplexes, Dorms that are occupied less than 180 days/year	0		
27. NON-RESIDENTIAL CONNECTIONS (How many of the following do you have?)			
A. Recreational Services and/or Transient Accommodations (Campsites, RV sites, hotel/motel/overnight units)	0	0	0
B. Institutional, Commercial/Business, School, Day Care, Industrial Services, etc.	124	124	0
28. TOTAL SERVICE CONNECTIONS		1032	1273

29. FULL-TIME RESIDENTIAL POPULATION

A. How many residents are served by this system 180 or more days per year? 1630

30. PART-TIME RESIDENTIAL POPULATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A. How many part-time residents are present each month?												
B. How many days per month are they present?												
31. TEMPORARY & TRANSIENT USERS	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
A. How many total visitors, attendees, travelers, campers, patients or customers have access to the water system each month?	11000	11000	11000	11000	15000	22500	22500	22500	22500	11000	11000	11000
B. How many days per month is water accessible to the public?	30	30	30	30	30	30	30	30	30	30	30	30
32. REGULAR NON-RESIDENTIAL USERS	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
A. If you have schools, daycares, or businesses connected to your water system, how many students, daycare children and/or employees are present each month that are NOT already included in the residential population?	550	550	550	550	550	550	150	150	550	550	550	550
B. How many days per month are they present?	30	30	30	30	30	30	30	30	30	30	30	30
33. ROUTINE COLIFORM SCHEDULE	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
	3	3	3	3	3	3	3	3	3	3	3	3

34. NITRATE SCHEDULE	QUARTERLY	ANNUALLY	ONCE EVERY 3 YEARS
(One Sample per source by time period)			

35. Reason for Submitting WFI:

☐ Update - Change ☐ Update - No Change ☐ Inactivate ☐ Re-Activate ☐ Name Change ☐ New System ☐ Other _____

36. I certify that the information stated on this WFI form is correct to the best of my knowledge.

SIGNATURE: _____ **DATE:** _____

PRINT NAME: _____ **TITLE:** _____

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
SOUTHWEST DRINKING WATER OPERATIONS
P.O. Box 47823 Olympia, Washington 98504-7823
PHONE (360) 236-3030 FAX (360) 236-3029

SANITARY SURVEY REPORT

Sanitary surveys are the Office of Drinking Water's (ODW) way to inspect public water systems through a field visit. We are also able to offer technical assistance to help improve system operations and ensure public health is protected.

This report documents the findings for the following water system.

April 5, 2023 Chris Orkney South Bend Water Department Post Office Box 9 South Bend, Washington 98586	South Bend Water Department ID #81500Y	
	County:	Pacific
	System Type:	Community
	Operating Permit Color:	Green
	Surveyor:	Cecilia Welch Connor Lockwood
	Water System Attendees:	Chris Orkney Kelly Spoor
	Inspection Date:	January 12, 2023

Significant Deficiencies and Findings are assigned a due date. If you are not able to complete the work by the assigned date, you MUST submit a Corrective Action Plan describing how and when you will complete the work. Failure to respond by the date below will result in further compliance actions in accordance with WAC 246-290-050.

As you correct the items, send me documentation that demonstrates the items have been completed as directed. Include the system name, ID number, item #, and the date the deficiencies were corrected. You can send them to me by e-mail at cecilia.welch@doh.wa.gov or by mail at PO Box 47823, Olympia, Washington 98504-7823.

SIGNIFICANT DEFICIENCIES* - NONE FOUND

SIGNIFICANT FINDINGS** - BY MAY 20, 2023

1. Provide NSF/ANSI Standard 61 certification for phosphoric acid.

OBSERVATIONS

2. Per WAC 246-290-664(3)(c), please ensure the CFE turbidimeter monitors only filtered water from before the clearwell.
3. Per WAC 246-290-660(4), please ensure the practice of backwash recycling is documented and approved by ODW before conducting it.
4. Per WAC 246-292-020, please ensure the Operator Certification program is notified of any changes to the system's operators, by email at DW OpCert@doh.wa.gov.
5. Per WAC 246-290-678(2)(a), the 20 mA setting must be increased to be greater than 1.0 NTU so 1.0 NTU (max turbidity limit) can be detected. Make sure to adjust SCADA to the revised signal span.

6. Per WAC 246-290-490, a certified backflow assembly tester must test backflow assemblies at least every 12 months. Please provide the backflow assembly test evidence/results from last year.
7. Per WAC 246-290-490, purveyors are to develop and implement an effective cross-connection control program. There is an exception listed in the Cross Connection Control (CCC) report that is expired. Please renew the exception in the CCC report that expired in 2022 if it is still applicable.
8. The photos submitted before the survey show the bladder tank with no pressure relief valve (PRV). WAC 246-290-200 requires the application of good engineering criteria in the construction of public water systems. An adequately sized ASME Section VIII PRV must be installed in the water piping adjacent to each pressure tank. Please install a PRV between the isolation valve and the bladder tank.

RECOMMENDATIONS

9. Ensure the practice of dosing the impoundments with ACH is documented and acceptable to all applicable regulatory agencies.
10. If the algal bloom mitigation are ineffective, please consider sampling for algae speciation.
11. Ensure that management of newly acquired land is consistent with maintaining or improving water quality. Purveyors with significant watershed ownership should have the capacity to implement acceptable forestry practices.
12. Please begin recording the maximum daily resistance for each skid, in the monthly operations report.
13. Include a check of controller and turbidimeter settings in your turbidimeter calibration SOP.
14. Implement an alarm for controller issues. The alarm could check the last digit(s) of the milliamp signal to ensure it changes as expected.
15. Consider installing a back-up generator to mitigate loss of pressure events during power outages.
16. Consider physical security improvements such as cameras.
17. Document pressure transducer calibration verifications during the semi-annual plant maintenance visits.
18. The CFE turbidity regulatory limit is 0.1 NTU in at least 95% of the readings, the high alarm setpoint should be set below 0.1 NTU. The IFE indirect integrity limit is 50 mNTU (0.050 NTU), the IFE high alarm setpoint should be below 0.050 NTU.
19. We recommend continuing to monitor TOC at the source and in distribution to evaluate any contributions to disinfection byproduct (DBP) formation and associated exceedances.
20. We recommend installing a PRV at the bladder tank.
21. We recommend conducting a leak detection study to evaluate the extent (how and where) of water loss in the distribution system.

SYSTEM INFORMATION

This system serves about 1,630 full time residential customers, with 825 residential connections and 124 non-residential connections. The system was approved in 2013 for 3,650 equivalent residential units (ERUs) with a connection limitation of 1,273 due to limiting source capacity. There are 1,032 active connections at this time.

Since the last survey, there have been several upgrades to the treatment plant (See ODW Project 19-1208) including adding a third skid, new chemical feed systems, building improvements, replacing gas chlorination with on-site chlorine generation, and updated membrane cleaning processes. See the Membrane Treatment Plant Report for a full description of treatment upgrades.

They have a hydroelectric turbine at the headwaters of the plant that they use to generate electricity to run parts of the plant. The electricity generated is sufficient to power the plant in the winter but not the summer due to the higher demand for water in the warmer months. Therefore, in the summer months the turbine is off.

SECTION 1: SOURCE

This is a community system served by two surface water sources, Martin and Electric (aka Light) Creeks. Water flows from both intakes into the water treatment plant on Airport Road. From the plant, water is pumped into the distribution system. A 12-inch transmission main follows along Airport Road and a 10-inch ductile iron pipe crosses the Willapa River. There is an intertie listed as a seasonal source with the City of Raymond that is used a few times a year, mostly in the summer months when water demand is higher. There is no auto-start generator at the intertie but there is a transfer switch so there is generator hook-up capability.

The systems limiting factor is source capacity, provided by Martin and Light Creeks. While the TOC levels are higher in Martin Creek than Light Creek, water from both impoundments is blended prior to entering the treatment plant. Construction of a transmission main, pump station, and diversion structure for the inactive source of Fleiss Creek is still in consideration. South Bend is interested in pursuing funding to get this source on-line. The treatment plant is a low-pressure membrane filtration plant constructed in 2002/2003 with the upgrades in 2019 as described above. See the enclosed Sanitary Survey of Membrane Plant Report (MPR) for more information.

Source ID #	Name:	Description:	Ecology Tag #	Listed on WFI Yes No	Approved by ODW Yes No
S01	Martin Creek	SW (550 gpm)	N/A	☒ ☐	☒ ☐
S02	Electric Creek	SW (550 gpm)	N/A	☒ ☐	☒ ☐
S03	Fleiss Creek (inact.)	SW	N/A	☒ ☐	☐ ☐

EMERGENCY SOURCES

ID #	Name:	Description:	Ecology Tag #	Listed on WFI Yes No*	Disconnected Yes No*	Inspected Yes No*	Approved by ODW Yes No
S04	Intertie w/ Raymond	450 gpm	N/A	☒ ☐	☐ ☐	☐ ☒	☒ ☐

SECTION 2: DISINFECTION

As part of the treatment plant upgrade in 2019, they eliminated gas chlorination and are now using an on-site chlorine generation system which produces a 0.8% sodium hypochlorite solution. There is adequate venting outside the building. Disinfection and filtration meet the Surface Water Treatment Rule (SWTR) and are described in the MPR.

The grab sample for chlorine residual conducted during the survey was drawn from the raw and finished taps in the treatment plant office. The difference between total and free was minimal, which means the chlorine demand of the raw water is not high.

- Total = 2.06 mg/L
- Free = 2.03 mg/L

#	Site or Location	Treatment type and Chemical Used	Listed on WFI Yes No	CT Provided Yes No	Approved by ODW Yes No

#	Site or Location	Treatment type and Chemical Used	Listed on WFI Yes No	CT Provided Yes No	Approved by ODW Yes No
1	Treatment plant	OSG – NaCl to NaOCl	☐ ☒	☒ ☐	☒ ☐

CHEMICAL TREATMENT	1 Yes No
*RPBA or air gap between the chemical tank and fill waterline	☒ ☐
**Post treatment sample tap	☒ ☐
Adequate chlorine residual test kit available	☒ ☐
**Approved chemicals used	☒ ☐

ON SITE GENERATION	1 Yes No
Hydrogen alarm	☒ ☐

DISINFECTION COMPLIANCE	1 Yes No
Disinfection required	☒ ☐
CT required	☒ ☐
Minimum CT met at all times	☒ ☐
Daily residuals recorded	☒ ☐

SECTION 3: OTHER TREATMENTS

Other treatment consists of fluoridation. This is described in the MPR. Right now, the only caustic soda that is used in the treatment plant (and the system as a whole) is for the membrane cleaning process. It is not implemented in distribution but the feed tank and pump is in place should they decide to move forward with corrosion control treatment. Prior to putting the corrosion control treatment back online, please first consult with ODW.

SECTION 4: DISTRIBUTION SYSTEM

South Bend's distribution system is 70% AC pipe. The other 30% is a mix of C900, HDPE, and ductile iron. They have a high distribution system leakage (DSL) history, with a three year running average (2019-2021) of 50.2% and a 2021 leakage of 48.7%. According to the lead operator, a majority of the leaks are on service lines but there has not been a leak detection study done in the last couple of years so they don't know for sure. They are interested in pursuing funding for transmission replacement projects to fix their high DSL. **We recommend conducting a leak detection study in 2023.**

Main breaks occur a couple of times a year. In the event of a main break, they determine if adequate pressure is maintained and if too much pressure has been lost, they employ a reverse 911 procedure, they notify the public using door hangers in the event of a boil water advisory (BWA), and they conduct investigative sampling.

There are radio-read meters installed at the service connections and the meters are replaced about every 10 years as necessary. They also have a hydrant meter to monitor water use during flushing and fire flow.

The system uses tracking software to track installation and testing of all installed devices. The City requires the customers to have the devices tested annually and they must submit the reports to the City. The City-owned devices are tested annually by the Cross Connection Specialist (CCS) or Backflow Assembly Tester (BAT) on staff. The annual backflow test results are kept on file in the treatment plant or archived as appropriate. The test results of the previous year were not available during the survey. **They must provide backflow assembly test evidence/results from last year.** They also have an exception listed in their Cross Connection Control (CCC) report that is expired and should be renewed if it is still applicable.

FEATURES	Yes	No
Service area and facility map	☒	☐
Service meters (reading frequency monthly)	☒	☐
Water system leakage (%)	48.7	

CROSS CONNECTION CONTROL (Community Systems)	Yes	No
System has enabling authority	☒	☐
High hazards identified	☐	☒
High hazards protected	☒	☐
Annual testing	☒	☐
CCS on staff or under contract	☒	☐
Cross connections observed have been eliminated	☒	☐

SECTION 5: FINISHED WATER STORAGE

There are four reservoirs located at two different sites. Telemetry is set up between the water treatment plant, Rixon Road, and Main Reservoirs. Rixon Road reservoirs control plant startup and shutdowns. Rixon and Main Reservoirs are connected in parallel. Main reservoir levels are controlled by an altitude valve with a lead/lag set up on the pumps. The reservoirs are cleaned every four years and visited on a weekly basis. There is upcoming rehabilitation work planned at the oldest tank (Rixon 1) that will include repainting the reservoir.

Reservoir	Reservoir Name	Description	Year Built	Total Volume (Gal)
1	Rixon Road 1	Welded steel (green)	1967	210,000
2	Rixon Road 2	Bolted steel, glass lined	2007	326,000
3	Main 1	Bolted steel, glass lined	2008	1.348 million gallons (MG)
4	Main 2	Bolted steel, glass lined	2008	0.654 MG

TOP OF RESERVOIR	Res #1		Res #2		Res #3		Res #4	
	Yes	No	Yes	No	Yes	No	Yes	No
**Hatch: Locked	☒	☐	☒	☐	☒	☐	☒	☐
*Hatch: Watertight seal or gasket	☒	☐	☒	☐	☒	☐	☒	☐
Hatch: Over-lapping cover	☒	☐	☒	☐	☒	☐	☒	☐
*Screened air vent	☒	☐	☒	☐	☒	☐	☒	☐
*Openings sealed/protected	☒	☐	☒	☐	☒	☐	☒	☐

FEATURES	Res #1		Res #2		Res #3		Res #4	
	Yes	No	Yes	No	Yes	No	Yes	No
Protected drain outlet	☒	☐	☒	☐	☒	☐	☒	☐
*Protected overflow outlet	☒	☐	☒	☐	☒	☐	☒	☐
*Overflow line discharges into a sanitary sewer with an air gap	☒	☐	☒	☐	☒	☐	☒	☐
**Protected from unauthorized entry	☒	☐	☒	☐	☒	☐	☒	☐

MAINTENANCE	Res #1		Res #2		Res #3		Res #4	
	Yes	No	Yes	No	Yes	No	Yes	No
Frequency of cleaning	4 years		4 years		4 years		4 years	
Frequency of routine site visit	weekly		weekly		weekly		weekly	
**Structure in good condition	☒	☐	☒	☐	☒	☐	☒	☐

SECTION 6: PRESSURE TANKS

There are two small pressure tanks associated with the booster pumps on this system.

Site	Location	# and size of Bladder Tanks
1	B Street	1

BLADDER	Site: 1	
	Yes	No
Isolation valve	☒	☐
Pressure relief valve	☐	☒
Pressure gauge	☒	☐
In good condition	☒	☐

BUILDINGS/ENCLOSURE	Site: 1	
	Yes	No
**Facility secure	☒	☐
Structure in good condition	☒	☐

The photos submitted before the survey show the bladder tank in functional condition with evidence of rust and no PRV. **Please install a PRV at the bladder tank between the isolation valve and the bladder tank.**

SECTION 7: BOOSTER PUMPS AND FACILITIES

The larger booster pump supports the upper residential area of the water system. The two smaller pumps supply added pressure to individual homes. The Rixon Road booster pump is owned by the homeowner and is on their side of the property line; however, the City helps them maintain it. The main booster pump has a small pressure tank attached to it and is housed in a clean insulated building. The building housing the larger booster station is in a vault with a small pressure tank located in a building just up the hill. There is no back-up power at the B Street pump station. None of the booster pump stations were inspected in person during this survey.

The booster pump stations were not inspected during this year's survey.

Facility	Name	Description	Total Capacity (gpm)
1	B Street Pump Station (PS)	5 horsepower (HP)	50
2	Main	1 HP	30
3	Rixon Road	1 HP	30

BOOSTER PUMPS	Facility 1		Facility 2		Facility 3	
	Yes	No	Yes	No	Yes	No
Number of pumps	1		1		1	
Pressure relief valve	☐	☐	☐	☐	☐	☐
*Functional pump and pump controls	☐	☐	☐	☐	☐	☐
Equipment in good condition	☐	☐	☐	☐	☐	☐
Generator available	☐	☒	☐	☐	☐	☐
Generator has automatic startup	☐	☒	☐	☐	☐	☐

BUILDINGS/ ENCLOSURE	Facility 1		Facility 2		Facility 3	
	Yes	No	Yes	No	Yes	No
**Facility secure	☐	☐	☐	☐	☐	☐
Structure in good condition	☐	☐	☐	☐	☐	☐

SECTION 8: WATER QUALITY MONITORING AND REPORTING

South Bend follows appropriate water quality monitoring guidelines for a surface water system. See the MTP Report for a full description of the monitoring parameters for the membrane plant.

Refer to the Water Quality Monitoring Schedule for your monitoring requirements and status. If you have any questions on source monitoring, please contact Sophia Petro at (360) 236-3046.

CHEMICAL	
Sample Point	**Description**
1	Finished water tap at WTP

CHEMICAL	Sample Point 1	
	Yes	No
Monitoring adequate	☒	☐
ODW WQ data reviewed	☒	☐
Sample collection sites correct	☒	☐
System has prior:		

CHEMICAL	Sample Point 1
	Yes No
☐ Nitrate results above 5 mg/L	
☐ Nitrite results above 0.5 mg/L	
☐ Primary MCL	
☐ Secondary MCL exceedance(s)	
☐ Organic detections	
☐ Other Enter Other	

They are on an annual (June) sampling schedule for nitrates. There have been no issues with elevated nitrate levels.

COLIFORM	Yes No
Monitoring adequate	☒ ☐
Monitoring plan adequate	☒ ☐
Monitoring plan followed	☒ ☐
# of Treatment Technique Violations (TTV)	none
# of *E. coli* MCL Violations	none

They are on a coliform monitoring schedule of three samples per month. The last coliform positive sample was in September 2018 with no other coliform or E. coli detections since then.

LEAD & COPPER	Yes No
Monitoring adequate	☒ ☐
Monitoring plan adequate	☒ ☐
Monitoring plan followed	☒ ☐
Results below action level	☒ ☐

They are on a baseline 3-year sampling schedule for lead and copper. They have completed the last set (2021-2023), but the sample results have yet to be fully processed by the lab and sent to the water system.

DISINFECTION BYPRODUCTS	Yes No
Monitoring adequate	☒ ☐
Monitoring plan adequate	☒ ☐
Monitoring plan followed	☒ ☐
Results satisfactory	☐ ☒

They are currently on a quarterly monitoring schedule for DBPs. Both TTHMs and HAA5s exceeded the action levels in the November samples taken. However, when UVT analysis was conducted at the plant during the survey, the numbers appeared to be low in organics (high UVT).

- Raw = 89.3
- Finished UVT = 95.4

This suggests that there is likely high organic loading in the fall that appears to clear out as winter progresses. **We recommend continuing to monitor TOC at the source and in distribution to evaluate contributions to DBP formation and subsequent exceedances.**

SECTION 9: SYSTEM MANAGEMENT AND OPERATIONS

The current water system plan expired in 2020 but they are working with Grey & Osborne to complete a 2023 plan. They have had some complaints related to low pressure, chlorine, and taste/odor, all of which are comprehensively followed up with.

PROJECT/PLANNING	Yes	No
System approved	☒	☐
Current WSP/SWSMP	☐	☒
Year WSP/SWSMP approved	2014	

REPORTING	Yes	No	N/A
WFI reviewed and updated with purveyor	☒	☐	---
Consumer confidence report (Community only)	☒	☐	☐
Water use efficiency report (Municipal Water Suppliers)	☒	☐	☐
Cross connection control annual report (> 1000 conn)	☐	☒	☐

OPERATOR CERTIFICATION

This system is required to have two certified operators. While Chris is the manager, everyday duties (site visits, sampling protocols, etc.) are divided up between Chris, Kelly, and Justin.

If you have any questions or this information is inaccurate, please contact Operator Certification at (800) 525-2536.

Name of Operator	Certification Number	Certifications	Mandatory Operator
Chris Orkney	013025	WTPO3, WDM3, CCS	☒
Justin Moran	014255	WTPO2, WDM1	☐
Kelly Spoor	015148	WTPO1, WDM1	☒

WDS-Water Distribution Specialist; WDM-Water Distribution Manager; WTPO-Water Treatment Plant Operator, BTO-Basic Treatment Operator; CCS-Cross Connection Specialist; BAT-Backflow Assembly Tester

OPERATIONS	Yes	No
Operational records maintained	☒	☐
Current survey has significant deficiencies identified	☐	☒
Previous survey deficiencies/findings corrected, if no list below	☒	☐

CLOSING

Your system does not qualify for the reduced frequency of sanitary surveys under WAC 246-290-416. Your next survey is due in 3 years.

Regulations establishing a schedule of fees, including fees for sanitary surveys, were adopted March 18, 2012 (WAC 246-290-990). The amount due is $1836.00. An itemized worksheet is enclosed with the invoice.

If you have any questions, please contact me at (564) 669-0829 or by e-mail at cecilia.welch@doh.wa.gov.

Sincerely,

Cecilia Welch, E.I.T.
Office of Drinking Water, Regional Engineering Staff

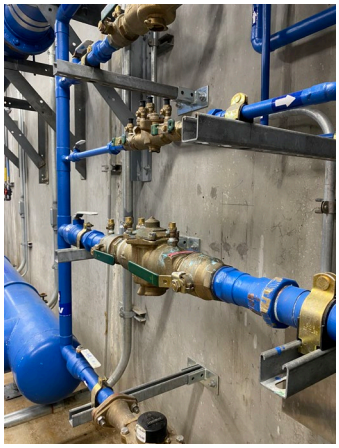
Enclosures

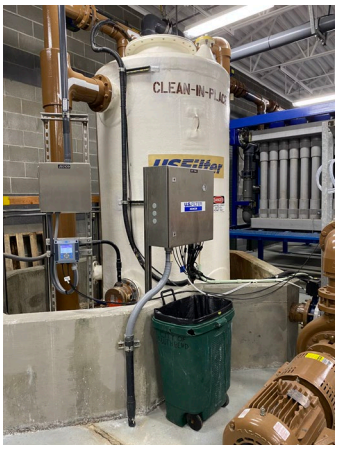
cc: Kelly Spoor, South Bend
Pacific County Public Health & Human Services


Turbidimeter at WTP

New membrane skid (Evoqua)


Residual and temp at WTP


Backflow assemblies at WTP



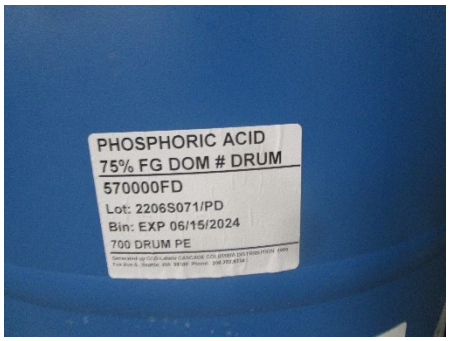
CIP tank at WTP


Cells for OSG at WTP


Light Creek impoundment


Light Creek impoundment


Downstream of impoundment



Phosphoric acid label

Washington State Department of Health
Environmental Health Division
Office of Drinking Water

Sanitary Survey of Membrane Filter Plant

Field Data Sheet

System Name	I.D. Number	Date	Evaluation By
South Bend Water Department	81500	April 3, 2023	Connor Lockwood Cecilia Welch Nancy Feagin

Operator(s) Present	WTPO#	Certification Level	Title	Phone Number
Chris Orkney	013025	WTPO2, WDM2, CCS,	Lead Operator	360-942-0072
Kelly Spoor (not listed)	015148	WTPO1, WDM1	Assistant Operator	

Is lead operator new since the last survey? No
Does this person sign the reports? Yes Present during the survey? Yes

Source Water & Watershed Information

The South Bend Treatment Plant receives water from two surface water sources, Martin Creek (S01) and Electric Creek (S02). These sources are located on the north side of Willapa River, near the treatment plant on Airport Road, and each has an impoundment. The dams were constructed in the 1960s as part of a federal project, and the intake structures are screened. Access to each impoundment is restricted by a locked gate and signs are posted warning trespassers. The operators visit the intake structures once or twice weekly. Sonic transducers have been installed on the dams to monitor the water level. Both sources are typically used year-round.

A narrow dirt road, that occasionally gets washed out, leads to the top of the Martin Creek dam and intake. There are two gates on the access road for Martin Creek, with the first privately owned by a cooperative landowner. Portions of the transmission main have been replaced due to the line's exposure and limited protection in the ravine, which has resulted in a least one tree falling on top of the pipe before. Sediment was removed from this impoundment in 2016/2017, restoring 30% of its storage capacity.

The Martin Creek impoundment has experienced algal blooms in the summertime, which is believed to have resulted from an increase in direct sunlight following several clearcut operations in the early 2000s, and significant storm blowdown in 2007. No testing has occurred to determine whether it is cyanobacteria, however the operators have modified management of the impoundment to prevent blooms. Drains for the structure are kept partially open when the weather warms up and the likelihood of blooms increases, which lets the creek flow. Reportedly the impoundments have also been treated with small amounts of aluminum chlorohydrate (ACH), and the practice was discussed with the engineering consultant and ODW prior to being conducted. ODW does not have documentation of the discussion or mitigation practice. **Ensure the practice of dosing the impoundments with ACH is documented and acceptable to all applicable regulatory agencies.**

If the algal bloom mitigation strategies are ineffective, then please consider conducting sampling for algae speciation.

Electric Creek is interchangeably called Light Creek. The Electric Creek intake is accessed via a narrow dirt road that leads to the bottom of the roughly 20-foot high concrete diversion dam. The road first passes through Department of Natural Resources land, which people are sometimes seen hiking in, likely due to the waterfall downstream of the impoundment. People have rarely, if ever, been seen at the dam. The steep hillside adjacent to the structure must be ascended to access the top of it. A fixed rope is typically used to get to the top of the dam. Sediment was removed from the impoundment in 2016/2017, and again in 2019.

Sediment buildup for both impoundments is now routinely managed by flushing them with the drains. Flushing occurs between two to six times per year, based on watershed activities, weather events, and operator availability. The operators have found late January to be the ideal time for this flushing to occur. Flushing in the fall is also desired to reduce tannins and other organics. The intake screens shrouds are cleaned when the impoundments are drained, and the screens are typically cleaned once per year.

Raw water flows by gravity from the intakes to the plant, with significant head. Flow into the plant is regulated by a flow control valve along Airport Road. The headworks building has the source meter, a power turbine, energy dissipation valve, and stainless-steel micro-screens. Pressure entering the building is typically between 160 and 180 psi, which is effectively dissipated before reaching the raw water basin (equalization tank). The power turbine is utilized when there's enough head from the impoundments. The sonic transducers have facilitated use of the turbine. Raw water is stored in a 10,750-gallon equalization tank at the treatment plant, from which it is pumped to the membrane skids. The plant upgrade added a third raw water pump.

Raw water turbidity is continuously monitored at the treatment plant with a Hach TU5400, after the raw water pumps. Raw water turbidity ranges from 1 to 100 NTU and is typically less than 10 NTU. The plant shuts down if raw water turbidity exceeds 90 NTU. Temperature and pH are measured continuously at this point as well.

The watershed risk rating is rated as low for both watersheds. Raw water samples are taken from blended sample tap monthly, prior to entering the treatment plant. Raw water fecal coliform samples collected between January 2018 and January 2023 resulted in an average fecal coliform count of 12.2 CFU / 100 mL. The highest count during this period was 76 CFU/100 mL, in July 2018. The City has a land acquisition strategy of purchasing clearcut land in the watersheds. **Ensure that management of newly acquired land is consistent with maintaining or improving water quality. Purveyors with significant watershed ownership should have the capacity to implement acceptable forestry practices.**

The first round of Long Term 2 Enhanced Surface Water Treatment Rule (LT2) monitoring was conducted between October 2008 and October 2009, with a total of 26 samples. The average result of the samples was 7 CFU / 100 mL, which put the sources in the bin 1 classification, with no additional treatment for *Cryptosporidium* required. The second round of LT2 monitoring was conducted between January 2013 and February 2015 ranged between less than 2/100 mL to 40/100 mL, with an average of 7/100 mL, leaving the bin 1 classification unchanged.

The City plans to develop Fleiss Creek as a new source to supplement the existing sources. The City did not have funding for both the development of the new source and the upgrade of the treatment plant, so the treatment plant upgrade was opted for. Reportedly, the City is maintaining water rights on the source and has had design work done for the Fleiss Creek intake and transmission main. The potential future source site was visited in 2015.

Plant Schematic – *Separate document*

Pre-Filtration Chemical Addition - Coagulant(s), pH Adjustment, Preoxidant:

Coagulant: NONE

The system has been resistant to using aluminum chlorohydrate (ACH) to reduce natural organic matter (NOM) that form disinfection by-products due to waste disposal issues. Reportedly, the groundwater table is shallow, which limits disposal options. The operators wanted to see it included in the plant upgrade project, however there was insufficient funding and will to include it.

ACH has been used to reduce the clogging potential of the membranes when organics are present in the raw water, which helps ensure the membranes last for their design life.

pH Adjustment: NONE

Preoxidant: NONE

Rapid Mix Type: Static Mixer

A static mixer was installed after the raw water pumps, on a vertical-upward section of pipe, with the plant upgrade.

Sedimentation/Clarification: NONE (Direct Filtration)

Pre-Filtration Screening

Type/Screen Size: 0.020 inch, 500 micron *Number of Units:* 2

Frequency of Cleaning: Every 5 hours auto clean for 3 minutes, pull every other month to clean manually

Two Fluid Engineering strainers are used to pre-screen the raw water. An increase in pressure loss across the screen also triggers automatic cleaning. The frequency of manual cleaning has decreased with the recent changes to the management of the impoundments.

Filtration:

Equipment Supplier:

Evoqua MEMCOR CMF-L 48L10N

Number of Membrane Filter Units: 3 Modules/Filter Unit: 48

Plant Flow Rate (typical, design max): 375 gpm, 900 gpm

Flux Rate (min, max, avg, design max): 20 gfd, 50 gfd, 29 gfd, 155 gfd

TMP (min, max, limit, current): 1.01 psi, 19.40 psi, 22 psi, 2.2 psi

Permeability/Specific Flux (min, max, target):* 1.15 gfd/psi, 25.51 gfd/psi, Unknown Target
* - not normalized to 20°C, determined from monthly operational reports. Resistance is measured in SCADA

Permeability was determined using values from the monthly reports, starting with the first report submitted after the installation of the new membranes. The reported flux rates and TMPs are the daily maximums, and thus are likely not representative of the actual permeability. Both the high and low values were outliers as well, and they occurred on June 30th and August 23rd, 2023.

Resistance is calculated in the SCADA system, and provides similar, if not equivalent, insight. **Please begin recording the maximum daily resistance for each skid, in the monthly operations report.**

Operational Mode: Dead end

Recovery (%): 97

The Memcor M10C modules were replaced with Evoqua L10N modules in May 2022, through the Water Treatment Plant Upgrade and Expansion project (#19-1208). Modules on the two existing skids were replaced, and a third skid was installed to increase the capacity of the plant. The project's pilot study protocol specified a 4-day pilot study, however recommended pilot study guidelines were discussed with Chris, and the design engineer, Russ Porter, prior to the commissioning process. As a result of those discussions, it was agreed that a 12-month, full-scale pilot study should be conducted to capture the most difficult to treat water conditions. The pilot study was initiated on May 24, 2022.

The three skids operate concurrently, but discretion can be used when a skid needs to be taken offline for troubleshooting.

The combined filter effluent (CFE) turbidimeter sample line is plumbed from the combined line that discharges into the clearwell, but is also connected to a line that after the clearwell. It's believed that this was done to ensure constant flow through the turbidimeter, which mitigates nuisance alarms. However, the CFE turbidimeter must sample only the filtered water, not the finished (post-clearwell) water, or any combination of the two. Turbidity is monitored on each skid, and while

there is an expected range of filtered turbidities, it is not as directly correlated with filtration effectiveness, as it is with other filtration technologies. **Ensure the CFE turbidimeter monitors only filtered water from before the clearwell.**

Backflush:

Frequency: 30 minutes

Process:

- Filter down time,
- Air scour and air assisted liquid backwash,
- Air scour,
- Draindown
- Shell refill and sweep flow
- Lumen fill

Backflush Disposal:

Backwash is initiated by the central control system, and is typically initiated based on operational time, but can be manually initiated, or initiated based on TMP.

The recycling of backwash water for conservation purposes in the summer was discussed during the survey. Supposedly 20% of the backwash tank volume would be transferred to the raw water tank. **Ensure the practice of backwash recycling is documented and approved by ODW before conducting it.**

Maintenance Clean:

Frequency: 48 hours (typically 3 or 4 calendar days)

Chemical 1: Citric Acid, Phosphoric Acid
Dose: Citric – pH = 2.3, Phosphoric = 2.0 *Soak Time:* 40 minutes

Chemical 2: Chlorine
Dose: 0.01% (100 ppm) [O&M], ORP = 407 mV [reported] *Soak Time:* 40 minutes

Recovery Clean (Clean-in-Place):

Frequency: 30 days runtime (3 months typical)

Chemical 1: Citric Acid, Phosphoric Acid
Dose: Citric – pH = 2.3, Phosphoric = 2.0 *Soak Time:* 3 hours

Chemical 2: Chlorine
Dose: ORP = 407 mV *Soak Time:* 3 hours

Chemical cleaning solutions are no longer mixed in the hot water tank adjacent to the skids, but rather are circulated through piping that encircles the skids, until the applicable setpoint is reached, as monitored by the on-line ORP and pH analyzers. The solution is neutralized in a concrete tank built into the plant, with pumps that provide circulation until the neutralization setpoints are reached. Following circulation and disposal of the cleaning solutions, the membrane skids are subject to several backwashes and 5 minutes of circulation before being returned to service.

Provide NSF/ANSI Standard 61 certification for the phosphoric acid.

Indirect Integrity Monitoring:
Method: Laser Turbidity

Threshold: 50 mNTU

Date of last calibration/verification: 12/20/2022 (at time of survey)

Number of exceedances in the past year: 0

Indirect integrity monitoring is conducted with Hach TU5400 turbidimeters. The controllers' error mode was set on "HOLD" which was changed to "TRANSFER" to 0. **Include a check of controller and turbidimeter settings in your turbidimeter calibration SOP.**

Implement an alarm for controller issues. The alarm could check the last digit(s) of the milliamp signal to ensure it changes as expected.

Direct Integrity Testing:

Frequency: Daily *Initial Test Pressure and Hold Time:* 14.0 psi for 2 minutes

Range: 0.04-0.20 psi/min *Trending:* Yes

Approach: Fixed Upper Control Limit (UCL), LRV UCL = 0.20 psi/min

Pressure decay tests (PDTs) are conducted daily when the plant is in operation. The filtrate side of the membrane modules is pressurized for the PDTs. The manufacturer representative, Chas, verifies the pressure transducers whenever he visits the plant.

The log removal value (LRV) calculation procedure was verified during the site visit for the survey.

Membrane Maintenance:

The Evoqua MEMCOR CMF-L 48L10N membranes were installed in May 2022, replacing the MEMCOR M10C modules.

Pinning was conducted on Skid #2 upon start-up with the new modules. Replacement of the seal and airline for the skid took place at that time. Pinning was conducted on Skid #2 again in December. The operators have more discretion in how to address operational issues, with the third skid installed, and have been able to keep a skid offline until the manufacturer representative's next visit.

Chemical Addition – Disinfection:

Chemical	Location	Dose
NaOCl	Pre-clearwell	1.9 mg/L

Clearwell Dimensions: *Length:* 30.5' *Width:* 17' *Depth:* 10.5'

High/Low Levels: 10.5' / 9.5' *No. Basins:* 1 *Total Volume:* 39,000 Gallons

Parameter Monitored	Location	When/ Frequency
pH	After high service pumps	Continuously
Temperature	After high service pumps	Continuously

Disinfectant Residual	After high service pumps	Continuously
Peak Hourly Flow (PHF)	After high service pumps	Continuously

On-site hypochlorite generation was installed as part of the plant upgrades project. Approximately 400 pounds of sodium chloride salt is kept on-site. The day tank holds approximately 3 days' worth of solution, which has a strength of ~0.8%, and is monitored with a sonic transducer to initiate automatic filling. Hypochlorite usage is measured through the number of pulses by the injection pump, with each pulse equal to a known volume, and is reported in gallons on the monthly operations reports. There is a separate tank for the hypochlorite used in maintenance cleaning and CIPs. Smaller than the day tank, it is filled manually. Gas chlorination was previously used.

The clearwell is cast into the plant's foundation, under the membrane skids, with a footprint of 30.5' by 23'. Subtracting the baffling wall areas from the total area, the clearwell has an effective area of about 605'., which is equivalent to 4,525 gallons per foot. A tracer study was conducted for South Bend, by Gray & Osborne (DOH contracted), in February 2017. The study demonstrated that the clearwell has a baffling efficiency of 0.7.

There are three finished water pumps that operate in a lead-lag configuration, with each pump providing approximately 375 gpm. Flow is measured leaving the plant with a flow meter and this value is used on the monthly reports to calculate CT. The projected maximum flow to distribution is 575 gpm, based on peak hourly demand, and the typical pressure at the entry point is 104 psi.

The CT compliance point is after the clearwell prior to leaving the plant. Free chlorine residual concentration, pH, and temperature are measured continuously at this location with an Endress Hauser amperometric analyzer.

The clearwell was cleaned and inspected in 2016 by Inland Potable Services.

Chemical Addition – Corrosion Control/Stability/Other:

Chemical	**Location**	**Dose**
Caustic Soda	Post-clearwell	N/A

Caustic soda has been used for corrosion control treatment but is not currently.

Target finished optimal water quality parameters:

pH: N/A Alk: N/A

Fluoridation: Sodium Fluoride (Saturator)

Fluoride is fed after the chlorine contact basin and prior to the high service pumps. There is approximately 0.2 mg/L of natural fluoride in the water supply, so only 0.5 to 0.8 mg/L is usually added. During the survey the on-line analyzer had a reading of 0.701 mg/L, while the grab sample had a result of 0.6 mg/L. The saturator is cleaned twice per year.

General Plant Operations/ Cross-Connection Protection (CCP)

No unprotected cross connections were observed.

Is plant staffed during all times of operation? No

Hours of operation: Start: 7:30 Stop: 16:00 Number of Shifts: 1

The plant is rated as WTPO2 and is typically staffed for 8 hours/day for routine operations, maintenance, and recordkeeping. Kelly works in the plant about half the time Chris does, and weekend coverage is rotated. Kelly works with the City's public works staff on distribution system repairs and maintenance, usually in a crew of four, but occasionally six.

Kelly is not currently associated with the South Bend system in our records. **Ensure the Operator Certification program is notified of any changes to the system's operators, by email at DWOpCert@doh.wa.gov.**

Since the installation of the new reservoirs in 2009, plant operation has significantly decreased from 24 hours per day to 12 to 17 hours per day. The plant is only staffed during normal daytime working hours. There are standard operating procedures (SOPs) for the WTP and US Filter has provided an extensive operations and maintenance (O&M) Manual for the membrane skids.

There is no back-up generator to run the WTP in the event of a power failure. **Consider installing a back-up generator to mitigate loss of pressure events during power outages.**

There is little security at the facility beyond locking doors. **Consider physical security improvements such as cameras.**

Critical Water Quality Alarms:

Parameter	Monitoring Point	Alarm Level	Shutdown Level	Response
Turbidity - Raw	Raw water line as it enters the WTP bldg.	5 NTU	90 NTU	Autodialer with unknown delay
Indirect Integrity	After membranes before clearwell	0.20 NTU	0.20 NTU	Once laser turbidimeters are installed, there should be an alarm with a delay.
Direct Integrity	Membrane rack	None	None	Recommend an alarm at 0.20 psi/min or lower
Chlorine Residual	After high service pumps, prior to distrib.	0.40 mg/L Low 2.00 mg/L High	0.40 mg/L Low 2.00 mg/L High	Recommend alarms before shutdown. Autodialer with unknown delay
pH - Finished	After clearwell, prior to reservoirs	None	4.0 Low 9.0 High	Recommend alarms before shutdown. Autodialer with unknown delay
Turbidity - Finished	After clearwell, prior to reservoirs	1.0 NTU	1.0 NTU	Autodialer with unknown delay
Clearwell level	**Inside clearwell**	**10.5 ft (WTP off)** **9.5 ft (WTP on)**		**Normal operating range.**
Reservoir Level (Rixon)	**Inside reservoirs**	**17.9 ft (HS pumps off)** **16.2 ft (HS pumps on)**		**Normal operating range.**

Known alarms are tested monthly. The plant receives excellent support from Evoqua (now DuPont). Chas, the DuPont representative, visits the plant twice each year and is available to remotely monitor the plant if needed. **Document pressure transducer calibration verifications during the semi-annual plant maintenance visits.**

It is believed that there are alarms for the PDT results and the IFE turbidimeter measurements, but they could not be displayed in the SCADA system. **Ensure there are alarms for the PDT results and IFE turbidimeter measurements and ensure that they can be routinely verified and tested.**

The CFE turbidity regulatory limit is 0.1 NTU in at least 95% of the readings, so the high alarm setpoint should be set below 0.1 NTU. The IFE indirect integrity limit is 50 mNTU (0.050 NTU), so the IFE high alarm setpoint should be below 0.050 NTU.

The CFE turbidimeter 4-20 mA signal span is set at 0-0.1 NTU. **The 20mA setting must be increased to greater than 1.0 NTU so a 1.0 NTU (max turbidity limit) can be detected. Make sure to adjust SCADA to the revised signal span.**

STATE OF WASHINGTON
Department of Health
OFFICE OF DRINKING WATER
SANITARY SURVEY INSPECTION

INVOICE

ACCOUNTS PAYABLE
SOUTH BEND WATER DEPARTMENT
PO BOX 9
SOUTH BEND, WA 98586

WS ID: 81500
Invoice No: 52404
Invoice Date: 04/05/2023
Due Date: 05/20/2023

WS NAME: South Bend Water Department SURVEY DATE: 01/12/2023

DESCRIPTION	QTY	COST	AMOUNT
Scheduling, Research, Prep	3.50	x $102.00	$357.00
Survey Documentation	8.00	x $102.00	$816.00
Survey Field Work	6.50	x $102.00	$663.00
		Total Amount Due	**$1836.00**

1. ***Pay online*** with a credit card, debit card, or electronic check (ACH) using the Environmental Health Payment System at https://secureaccess.wa.gov/.
2. For billing questions, please contact Southwest Drinking Water Regional Operations at (360) 236-3030.
3. This invoice is issued in accordance with WAC 246-290-990(3)(c)(iii).
4. For persons with disabilities, this document is available on request in other formats. To submit a request, please call 711 Washington Relay Service.
5. If paying by check:
   Make checks payable to Department of Health, Federal ID #91-1444603.

Please return the bottom portion of this invoice with your check.

Invoice Number: 52404
INVOICE AMOUNT: $1836.00
Owner Number: 005533
WS Name: South Bend Water Department

Invoice Date: 04/05/2023
Invoice Due Date: 05/20/2023
Region: SW
WS ID: 81500

Reference: SANITARY SURVEY INSPECTION PERFORMED ON 01/12/2023

Please remit to:
ACCOUNTS RECEIVABLE
DOH SANITARY SURVEY PROGRAM
PO BOX 1099
OLYMPIA, WA 98507-1099

5DWA10597240700 SS000081500X052023001836OO

SANITARY SURVEY FEE WORKSHEET

Department of Health
Office of Drinking Water
Sanitary Survey Time Tracking

System Name	South Bend Water Department	PWS ID #	81500Y
County	Pacific County		
Surveyor	Cecilia Welch, Connor Lockwood, Nancy Feagin	Date:	01/12/23

System over 10,000 Connections? NO

	Quantity			Cost
Department of Health Paid Costs	**Hours/Miles**			
Survey program RO Coordination	1	$ 102	$	102.00
Survey Program Administrative Support	1	$ 102	$	102.00
Travel expenses (Mileage)	228	(# Miles) x ($.58/Mile)	$	132.24
Technical Assistance	0	$ 102	$	-
Travel Time <10,000	6	102	$	612.00
Total Department of Health Costs to Perform All Surveys			$	948.24
Water System Paid Costs	**Hours**			
Scheduling, research, prep	3.5	$ 102	$	357.00
Survey Field Work	6.5	$ 102	$	663.00
Survey documentation – preparation of survey report to the purveyor	8	$ 102	$	816.00
Additional Water System Paid Costs for systems serving 10,000 or more connections				
	Hours			
	0	$ -	$	-

NOTES:

Total Cost of Survey	$	2,784.24
Costs Covered by DOH	$	948.24
Invoice amount due (Less than 10,000 Connections)	**$**	**1,836.00**

APPENDIX B

WATER RIGHTS DOCUMENTS

CERTIFICATE RECORD No. 17, PAGE No. 8148

STATE OF WASHINGTON, COUNTY OF Pacific

CERTIFICATE OF SURFACE WATER RIGHT

(In accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.)

This is to certify that CITY OF SOUTH BEND *of* South Bend, *State of* Washington, *has made proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the waters of* Electric Creek, *a tributary of* Willapa Harbor, *with point or points of diversion within the* NE¼NW¼NW¼ *Sec.* 15, *Twp.* 14 *N., R.* 9 W., *W. M., under and subject to provisions contained in* Reservoir *Permit No.* R-249 *issued by the State Supervisor of Water Resources, and that said right to the use of said waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume* 17, *at Page* 8148, *on the* 22nd *day of* June, *19* 61 *that the priority date of the right hereby confirmed is* July 18, 1960; *that the amount of water under the right hereby confirmed, for the following purposes is limited to an amount actually beneficially used and shall not exceed* 1.54 acre-feet to be stored annually for municipal supply.

A description of the lands under such right to which the water right is appurtenant, and the place where such water is put to beneficial use, is as follows:

Area served by City of South Bend, Washington

RECEIVED
'61 JUN 23 AM 10:25
VERNA JACOBSON
PACIFIC COUNTY AUDITOR

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this 22nd day of June, 19 61

M G Walker
State Supervisor of Water Resources.

WASHINGTON STATE DIVISION OF WATER RESOURCES DEPT. OF CONSERVATION

ENGINEERING DATA
O.K. sh

19449

Permit No. R-249

Certificate of Surface Water Right

Recorded in the office of State Supervisor of Water Resources, Olympia, Washington, in Book No. 17 *of Water Right Certificates, on Page* 8148, *on the* 22nd *day of* June, 19 61

STATE OF WASHINGTON,
County of Pacific } ss.

I certify that the within was received and duly recorded by me in Volume 184 *of Book of ~~Water Right Certificates~~* Deeds, *Page* 433 *on the* 23rd *day of* June, 19 61

VERNA JACOBSON Auditor

Deputy

STATE PRINTING PLANT, OLYMPIA, WASH.

City of South Bend

RECEIVED

CERTIFICATE RECORD NO. 20, PAGE NO. 9682

STATE OF WASHINGTON, COUNTY OF Pacific

CERTIFICATE OF SURFACE WATER RIGHT

(In accordance with the provisions of Chapter 117, Laws of Washington for 1917, and amendments thereto, and the rules and regulations of the State Supervisor of Water Resources thereunder.)

This is to certify that CITY OF SOUTH BEND

of South Bend, *State of* Washington, *has made proof to the satisfaction of the State Supervisor of Water Resources of Washington, of a right to the use of the waters of* Martin Creek, *a tributary of* Boom Slough, *with point of impoundment and point of diversion within the* NE¼SE¼ *Sec.* 15, *Twp.* 14 *N., R.* 9 W., *W. M., under and subject to provisions contained in* Reservoir Permit No. R-332 and appropriation *Permit No.* 14396 *issued by the State Supervisor of Water Resources, and that said right to the use of said waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Water Resources of Washington and entered of record in Volume* 20, *at Page* 9682; *on the* 7th *day of* September, 1966 *that the priority date of the right hereby confirmed is* Reservoir Permit - February 23, 1966 appropriation - November 26, 1965; *that the amount of water under the right hereby confirmed, for the following purposes is limited to an amount actually beneficially used and shall not exceed* the storage of 2.2 acre-feet and the appropriation of 2.0 cubic feet per second, 1450 acre-feet per year, all for municipal supply.

A description of the lands under such right to which the water right is appurtenant, and the place where such water is put to beneficial use, is as follows:

The area served by the City of South Bend.

RECEIVED
'66 SEP 8 AM 9:44
VERNA JACOBSON
PACIFIC COUNTY AUDITOR

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Sections 6 and 7, Chapter 122, Laws of 1929.

WITNESS the seal and signature of the State Supervisor of Water Resources affixed this 7th *day of* September, 1966.

State Supervisor of Water Resources.

2/00

R-332

Permit No. 14396

45640

Certificate of Surface Water Right

Recorded in the office of State Supervisor of Water Resources, Olympia, Washington, in Book No. 20 *of Water Right Certificates, on Page* 9682, *on the* 7th *day of* September, 19 66

STATE OF WASHINGTON,
County of _____ } ss.

I certify that the within was received and duly recorded by me in Volume _____ of Book of Water Right Certificates, Page _____ on the _____ day of _____, 19___

_____

STATE PRINTING PLANT, OLYMPIA, WASH.

State of Washington

City of South Bend

Filed for record at the request of Dept. of Conservation
Sept. 8 A.D. 19 66 at 44 min. past 9A M. and recorded in vol. 203 of deeds, page 113 records of Pacific County, Wash.
VERNA JACOBSON
County Auditor.
By Violet Robbins Deputy

City of South Bend,
South Bend, Wn.

CERTIFICATE RECORD NO. 5, PAGE NO. 2151

STATE OF WASHINGTON, COUNTY OF Pacific

CERTIFICATE OF WATER RIGHT

(In accordance with the provisions of Chapter 117, Laws of Washington for 1917, and the rules and regulations of the State Supervisor of Hydraulics thereunder.)

This is to certify, that City of South Bend *of* South Bend, *State of* Washington, *has made proof to the satisfaction of the State Supervisor of Hydraulics of Washington, of a right to the use of the waters of* East Branch of Fliess Creek *tributary of* Willapa River, *for the purposes of* Municipal supply and industrial purposes *under* Appropriation *Permit No.* 2892 *issued by the State Supervisor of Hydraulics, and that said right to the use of said waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Hydraulics of Washington and entered of record in Volume* 5, *at Page* 2151, *on the* 2nd *day of* March, 19 45, *that the right hereby confirmed dates from* July 27, 1939; *that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed* 0.84 of a cubic foot per second.

A description of the lands under such right to which the water hereby confirmed is appurtenant, and the place where such water is put to beneficial use, is as follows:

PLACE OF USE			LEGAL SUBDIVISION	FOR IRRIGATION	
Section	Township	Range		No. Acres Described in Permit	No. Acres Actually Irrigated

LOCATION OF POWER PLANT			LEGAL SUBDIVISION	FOR POWER	
Section	Township	Range		H. P. Described in Permit	H. P. Actually Developed

Section	Township	Range	LEGAL SUBDIVISION	FOR OTHER USES
	14 N.	9 W.W.M.	City of South Bend, Pacific County, Wash.	Municipal Water Supply

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Section 39, Chapter 117, Session Laws 1917.

WITNESS the seal and signature of the State Supervisor of Hydraulics affixed this 2nd *day of* March, *19* 45

Chas. L. Carlhaux

State Supervisor of Hydraulics.

38930

Permit No. —2892—

Certificate of Water Right

Recorded in the office of State Supervisor of Hydraulics, Olympia, Washington, in Book No. —5— *of Water Right Certificates, on Page* —2151—, *on the* —2nd— *day of* —March—, *19*—45—

STATE OF WASHINGTON,
County of —Pacific— } *ss.*

I certify that the within was received and duly recorded by me in Volume 131 *of Book of ~~Water Right~~ Deeds Certificates, Page* 485 *on the* 3 *day of* March, *19*45

L. W. HOMAN, County Auditor
By: [signature], Deputy

STATE PRINTING PLANT

FILED ✓ INDEXED DIRECT ✓ REVERSE ✓
COMPARED ✓ PAGED ✓

CERTIFICATE RECORD NO. 5, PAGE NO. 2152

STATE OF WASHINGTON, COUNTY OF Pacific

CERTIFICATE OF WATER RIGHT

(In accordance with the provisions of Chapter 117, Laws of Washington for 1917, and the rules and regulations of the State Supervisor of Hydraulics thereunder.)

This is to certify, that City of South Bend *of* South Bend, *State of* Washington, *has made proof to the satisfaction of the State Supervisor of Hydraulics of Washington, of a right to the use of the waters of* West Branch of Fliess Cr., *a tributary of* Willapa River, *for the purposes of* Municipal supply and industrial purposes *under* Appropriation *Permit No.* 2893 *issued by the State Supervisor of Hydraulics, and that said right to the use of said waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the State Supervisor of Hydraulics of Washington and entered of record in Volume* 5, *at Page* 2152, *on the* 2nd *day of* March, *19* 45, *that the right hereby confirmed dates from* July 27, 1939; *that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed* 0.92 of a cubic foot per second.

A description of the lands under such right to which the water hereby confirmed is appurtenant, and the place where such water is put to beneficial use, is as follows:

PLACE OF USE			LEGAL SUBDIVISION	FOR IRRIGATION	
Section	Township	Range		No. Acres Described in Permit	No. Acres Actually Irrigated

LOCATION OF POWER PLANT			LEGAL SUBDIVISION	FOR POWER	
Section	Township	Range		H. P. Described in Permit	H. P. Actually Developed

Section	Township	Range	LEGAL SUBDIVISION	FOR OTHER USES
	14 N.	9 W.W.M.	City of South Bend, Pacific County, Wash.	Municipal Water Supply

The right to the use of the water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in Section 39, Chapter 117, Session Laws 1917.

WITNESS the seal and signature of the State Supervisor of Hydraulics affixed this 2nd *day of* March, *19* 45.

Thos J Batchelor

State Supervisor of Hydraulics.

32931

Permit No. 2893

Certificate of Water Right

Recorded in the office of State Supervisor of Hydraulics, Olympia, Washington, in Book No. 5 of Water Right Certificates, on Page 2152, on the 2nd day of March, 1945.

STATE OF WASHINGTON,
County of Pacific } ss.

I certify that the within was received and duly recorded by me in Volume 131 of Book of ~~Water Right Certificates~~ Deeds, Page 485 on the 3 day of March, 1945.

L. W. HOMAN, County Auditor
By: [signature] Deputy

STATE PRINTING PLANT

FILED / INDEXED DIRECT / REVERSE /
COMPARED / PAGED /

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
Division of Water Resources

Permit to Construct a Reservoir and Store for Beneficial Use the Unappropriated Waters of the State of Washington

Book No. 1 of Permits, on Page R-249 Under Application No. R-16186

CITY OF SOUTH BEND

of South Bend, Washington

is hereby granted a permit to construct a reservoir and store unappropriated waters of the State of Washington, subject to existing rights and to the following limitations and provisions: Permittee shall construct the impounding dam or dike in accordance with the approved detail plans and specifications and shall maintain or make any repairs to said structure as may be considered necessary by the Supervisor of Water Resources to insure safety to life and property. It is also provided that permittee shall construct and maintain such fish protection devices as may be required by the Departments of Fisheries and Game. Diversion intake shall be tightly screened at all times with wire having a mesh opening not greater than 0.125 (1/8) inch.

Priority date of this permit is July 18, 1960

Source of the proposed appropriation is Electric Creek

tributary of Willapa Harbor

The quantity of water to be stored shall be limited to the amount which can be beneficially applied and not to exceed 1.54 acre-feet, to be used for the following purposes:

Municipal

The impounding structure is located within NE¼NW¼NW¼

Sec. 15, Twp. 14 N., Rge. 9 W. W. M., county of Pacific

It will be 30 feet in height, having a length on top of 90 feet; length on bottom 25 feet; width on top 2 feet; slope of front or water side vertical (Feet horizontal to 1 vertical); slope on back variable (Feet horizontal to 1 vertical); height of dam above water line when full 11 - 6" max

Type of construction of dam and the material of which it is to be built: Arch, Concrete

The location of spillway with dimensions is as follows: Over top of dam two spillway sections
(State whether over or around the dam)
each side of center line, each 6' wide and 1' deep.

The location, size and type of valve and outlet structure 10" steel pipe outlet at bottom of
and approximately on center line with manually operated AWWA Cl. 150 gate valve.

The area submerged by the proposed reservoir, when full, will be 0.8 acres, with a maximum
of water of 30 feet, and approximate mean depth of water 20 feet.

(Please read carefully provisions below)

Construction work shall begin on or before Started

shall thereafter be prosecuted with reasonable diligence and completed on or before
Completed and complete application of water to proposed uses
be made on or before April 1, 1962

Given under my hand and the seal of this office at Olympia, Washington, this 29th
March, 1961.

State Supervisor Division of Water Resources

STATE OF WASHINGTON
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
Division of Water Resources

Permit to Construct a Reservoir and Store for Beneficial Use the Unappropriated Waters of the State of Washington

Book No. 2 of Permits, on Page R-332 Under Application No. R-19471

CITY OF SOUTH BEND

of South Bend, Washington

is hereby granted a permit to construct a reservoir and store unappropriated waters of the State of Washington, subject to existing rights and to the following limitations and provisions: Permittee shall construct the impounding dam or dike in accordance with the approved detail plans and specifications and shall maintain or make any repairs to said structure as may be considered necessary by the Supervisor of Water Resources to insure safety to life and property. It is also provided that permittee shall construct and maintain such fish protection devices as may be required by the Departments of Fisheries and Game.

Priority date of this permit is February 23, 1966

Source of the proposed appropriation is Martin Creek

tributary of Boom Slough

The quantity of water to be stored shall be limited to the amount which can be beneficially applied and not to exceed 2.2 acre-feet, to be used for the following purposes: Municipal supply

The impounding structure is located within NE¼SE¼

Sec. 15, Twp. 14 N., Rge. 9 W. W. M., county of Pacific

It will be 25 feet in height, having a length on top of 80 feet; length on bottom 10 feet; width on top 2 feet; slope of front or water side 0 (Feet horizontal to 1 vertical); slope on back varies (Feet horizontal to 1 vertical); height of dam above water line when full 0 feet.

Type of construction of dam and the material of which it is to be built: concrete arch

The location of spillway with dimensions is as follows: 8' wide overflow spillway near right abutment. (State whether over or around the dam)

The location, size and type of valve and outlet structure 12" blow-off valve near center of arch

The area submerged by the proposed reservoir, when full, will be 0.3 acres, with a maximum depth of water of 25 feet, and approximate mean depth of water 7.5 feet.

(Please read carefully provisions below)

Construction work shall begin on or before Started and shall thereafter be prosecuted with reasonable diligence and completed on or before Completed and complete application of water to proposed uses shall be made on or before July 1, 1967

Given under my hand and the seal of this office at Olympia, Washington, this 27th day of June, 1966.

State Supervisor Division of Water Resources

INTERLOCAL AGREEMENT

RAYMOND/SOUTH BEND WATER DISTRICT

This agreement made and entered into this 1st day of January, 1990 between the City of Raymond and the City of South Bend, and replaces and supersedes that agreement entered into on the 3rd day of June, 1981 by the City of Raymond and the City of South Bend.

Now, therefore, in consideration of a mutual agreement and covenants herein contained, the parties enter into the following agreement:

SECTION 1: Purpose

It is agreed that the purpose of the intertie waterline shall be as follows:

A) To supplement the existing water supplies of either City's water system in the event of need for industrial consumption, fire, major drought, failure of source and/or transmission or treatment facilities and such other emergency needs as may occur.

SECTION 2: Operation & Maintenance

It is agreed that the operation and maintenance responsibilities and procedures for the intertie waterline connecting the water systems of the City of South Bend and the City of Raymond be as follows:

A) Raymond shall operate, maintain, control and own all piping and appurtenant fittings, assemblies and structures easterly of plan station 245+00 as denoted on the standard plans entitled "South Bend/Raymond Intertie and Pump Station", Kramer, Chin and Mayor, Inc.; Seattle, Washington.

B) South Bend shall operate, maintain, control and own all piping and appurtenant fittings, assemblies and structures, including the pump station, westerly from plan station 245+00 as denoted on the standard plans hereinabove described.

C) The intertie waterline will not be utilized by either party without the prior notification and approval of the water supplying entity.

SECTION 3: Rates

It is hereby agreed that the rates for water usage shall be as follows:

A) All water volumes supplied by Raymond to South Bend shall be metered.

B) All water volumes supplied by South Bend to Raymond shall be metered.

C) The user city shall pay the supplying city for the volume of water used. The charge shall be in accordance with the City of Raymond's current industrial water rate per 1,000 gallons for for usage over 1,000,000 gallons.

D) Water volumes supplied by the City of South Bend to Raymond shall be deducted from any outstanding balance accrued by the City of South Bend.

E) Billing shall be made in December for the preceeding year.

SECTION 4: Administration

A) Revision of this Interlocal Agreement may be, periodically, required by reason of, but not limited to, increased operating costs, technical and administrative changes and general economic conditions. Commencing on January 1, 1990 and each year thereafter on this anniversary date, either party may request an Interlocal Agreement review for the purpose of negotiating amendments to said Agreement. Both parties shall honor such requests and enter into bargaining in good faith.

B) This agreement is to be mutually beneficial and perpetual. In the event that this agreement should cease to be of benefit, it may be dissolved by mutual consent under the provision of Section 4-A.

C) The City Superintendents of the City of Raymond and the City of South Bend shall jointly administer this agreement.

CITY OF RAYMOND, WASHINGTON

BY Marshall L Briggs
MAYOR

CITY OF SOUTH BEND, WASHINGTON

Ray D Lamwell
MAYOR

Approved as to form:

BY
ATTORNEY FOR RAYMOND

Approved as to form:

ATTORNEY FOR SOUTH BEND

ATTEST:

ATTEST:

Water Right Self-Assessment Form for Water System Plan

Mouse-over any link for more information. Click on any link for more detailed instructions.

Water Right Permit, Certificate, or Claim # *If water right is interruptible, identify limitation in yellow section below	WFI Source # If a source has multiple water rights, list each water right on separate line	Existing Water Rights Qi= Instantaneous Flow Rate Allowed (GPM or CFS) Qa= Annual Volume Allowed (Acre-Feet/Year) This includes wholesale water sold				Current Source Production – Most Recent Calendar Year Qi = Max Instantaneous Flow Rate Withdrawn (GPM or CFS) Qa = Annual Volume Withdrawn (Acre-Feet/Year) This includes wholesale water sold				10-Year Forecasted Source Production (determined from WSP) This includes wholesale water sold				20-Year Forecasted Source Production (determined from WSP) This includes wholesale water sold			
		Primary Qi Maximum Rate Allowed	Non-Additive Qi Maximum Rate Allowed	Primary Qa Maximum Volume Allowed	Non-Additive Qa Maximum Volume Allowed	Total Qi Maximum Instantaneous Flow Rate Withdrawn	Current Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume Withdrawn	Current Excess or (Deficiency) Qa	Total Qi Maximum Instantaneous Flow Rate in 10 Years	10-Year Forecasted Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume in 10 Years	10-Year Forecasted Excess or (Deficiency) Qa	Total Qi Maximum Instantaneous Flow Rate in 20 Years	20-Year Forecasted Excess or (Deficiency) Qi	Total Qa Maximum Annual Volume in 20 Years	20-Year Forecasted Excess or (Deficiency) Qa
1 9682 B	Martin Creek	2.0 cfs		1450 ac-ft		2.3 cfs*	-0.3 cfs*	572 ac-ft**	878 ac-ft**	2.38 cfs*	-0.38 cfs*	512 ac-ft*	938 ac-ft*	2.43 cfs*	-0.43 cfs*	522 ac-ft	927 ac-ft
2 2151	Fleiss Creek (inactive)	0.84 cfs															
3 2152	Fleiss Creek (inactive)	0.92 cfs															
4																	
5																	
6																	
	TOTALS =	3.76 cfs		1,450 ac-ft		2.3 cfs	-0.3 cfs	572 ac-ft	878 ac-ft	2.38 cfs	-0.38 cfs	512 ac-ft	938 ac-ft	2.43 cfs	-0.43 cfs	522 ac-ft	927 ac-ft
Column Identifiers for Calculations:		A		B		C	=A-C	D	=B-D	E	= A-E	F	=B-F	G	=A-G	H	=B-H

PENDING WATER RIGHT APPLICATIONS: Identify any water right applications that have been submitted to Ecology.

Application Number	New or Change Application?	Date Submitted	Quantities Requested			
			Primary Qi	Non-Additive Qi	Primary Qa	Non-Additive Qa

INTERTIES: Systems receiving wholesale water complete this section. Wholesaling systems must include water sold through intertie in the current and forecasted source production columns above.

Name of Wholesaling System Providing Water	Quantities Allowed In Contract		Expiration Date of Contract	Currently Purchased Current quantity purchased through intertie				10-Year Forecasted Purchase Forecasted quantity purchased through intertie				20-Year Forecasted Purchase Forecasted quantity purchased through intertie			
	Maximum Qi Instantaneous Flow Rate	Maximum Qa Annual Volume		Maximum Qi Instantaneous Flow Rate	Current Excess or (Deficiency) Qi	Maximum Qa Annual Volume	Current Excess or (Deficiency) Qa	Maximum Qi 10-Year Forecast	Future Excess or (Deficiency) Qi	Maximum Qa 10-Year Forecast	Future Excess or (Deficiency) Qa	Maximum Qi 20-Year Forecast	Future Excess or (Deficiency) Qi	Maximum Qa 20-Year Forecast	Future Excess or (Deficiency) Qa
1 City of Raymond	**450 gpm**	**Not specified**	**Not specified**	**6.6 gpm*** **	**-**	**319,592 gal**	**-**	**6.7 gpm**	**-**	**320,000 gal**	**-**	**6.8 gpm**	**-**	**320,000 gal**	**-**
2															
3															
TOTALS =															
Column Identifiers for Calculations:	A	B		C	=A-C	D	=B-D	E	=A-E	F	=B-F	G	=A-G	H	=B-H

INTERRUPTIBLE WATER RIGHTS: Identify limitations on any water rights listed above that are interruptible.

Water Right #	Conditions of Interruption	Time Period of Interruption
1		
2		
3		

ADDITIONAL COMMENTS:

The City also holds two reservoir water rights for Electric and Martin creek under certificates 8148 and 9682 A respectively.
*The value shown here reflects the total recorded or projected production by the City. In reality, the City sources water from Electric Creek too, though it has no modern water right claim. The sources are not metered separately, so it is not known how much water is actually witshdrawn from Martin Creek. The City will plan to submit a water right application for Electric Creek.
**The production in 2023 was unusually large and is expected to be less in the future.

***The Raymond intertie is used as a seasonal/emergency source and is rarely used in large quantities unless the WTP is taken offline. It is assumed projected purchases will be similar to the current quantities.

APPENDIX C

WATER SYSTEM STANDARDS AND POLICIES

Chapter 13.05
WATER

Sections:

Article I. General Provisions

Article II. Water Shortage Response Plan

13.05.170 Appeals.

Article I. General Provisions

13.05.003 Purpose.

The city of South Bend, a water purveyor, establishes the following rules to:

A. Meet regulatory requirements.

B. Establish water utility rates closely based on customer water usage.

C. Establish a water utility rate structure that supports the efficient use of water.

D. Provide support for low income customers. (Ord. 1592 § 2(1), 2023; Ord. 1588 § 2(1), 2023; Ord. 1571 § 2(1), 2022; Order 1469 § 2(1), 2013; Ord. 1462 § 2(1), 2012; Ord. 1393 § 2(1), 2008).

13.05.005 Service connection charge.

New water service connections shall be charged a $1,600 (inside the city limits) or $2,400 (outside the city limits) right-of-entry fee plus direct costs for all labor, materials and equipment rental used in connecting said new service from the city main to the customer's property line and restoring city right-of-way to its original condition. Hookup fees are due in full prior to installation. In the case of existing side services which have not been active for one year preceding a request for reconnection the city supervisor may, at their discretion, require replacement of said service, in which case the actual cost of replacement shall be borne by the customer. (Ord. 1592 § 3, 2023; Ord. 1588 § 3, 2023; Ord. 1571 § 3, 2022; Order 1469 § 3, 2013; Ord. 1462 § 3, 2012; Ord. 1393 § 3, 2008; Ord. 1357 § 3, 2006; Ord. 930 § 1, 1974; Ord. 690 § 7, 1937).

13.05.007 Equivalent residential use (ERU).

The equivalent residential use (ERU) is the amount of water used by the average residential customers in an averaged billing period and is derived from total annual residential use. One ERU is established at 4,500 gallons per monthly billing period. For surcharge purposes, ERUs will be rounded to the nearest one-tenth. Example: if a customer uses 15 ERUs (135,000 gallons per monthly billing period) the cost will be one service charge ($40.00) plus 14 surcharges ($12.00 x 14 = $196.00). The service charges will be reviewed annually. (Ord. 1592 § 2(2), 2023; Ord. 1571 § 2(2), 2022; Order 1469 § 2(2), 2013; Ord. 1462 § 2(2), 2012; Ord. 1393 § 2(2), 2008).

13.05.010 Water billing.

A. The charges for water service in the city of South Bend shall be as follows:

Effective on the January 1, 2024, billing

Service Charge for All Customers:	$40.00 monthly

Surcharge per Excess ERU:	$12.00 per additional ERU
Commodity Charge:	$4.89 per 1,000 gallons of water

B. Eligible low-income customers living in single-family residences shall receive a discount of 16 percent of the monthly service charge for water services. The city shall establish the eligibility requirements that must be met in order to receive any discount.

C. All established properties with water service within the city limits of South Bend will pay a $22.25 monthly service charge if the account is inactive. Water service is considered to be a service lateral with a meter setter. (Ord. 1592 § 2(3) – 2(5), 2023; Ord. 1588 §§ 2(3) – 2(5), 2023; Ord. 1571 §§ 2(3) – 2(5), 2022; Ord. 1516, 2016; Order 1469 §§ 2(3) – 2(5), 2013; Ord. 1462 §§ 2(3) – 2(5), 2012; Ord. 1415, 2010; Ord. 1400, 2009; Ord. 1393 §§ 2(3) – 2(5), 2008; Ord. 1357 § 2(1), 2006; Ord. 1321 § 2(1), 2004; Ord. 1302 § 2(1), 2003; Ord. 1261 §§ 1, 2, 2000; Ord. 1244 § 1(1), 1999).

13.05.020 Rural service charge.

A $5.00 monthly additional rural service charge shall be made to all services outside the corporate limits of South Bend, Washington. (Ord. 1592 § 2(6), 2023; Ord. 1588 § 2(6), 2023; Ord. 1571 § 2(6), 2022; Order 1469 § 2(6), 2013; Ord. 1462 § 2(6), 2012; Ord. 1393 § 2(6), 2008; Ord. 1357 § 2(2), 2006; Ord. 1321 § 2(2), 2004; Ord. 1302 § 2(2), 2003; Ord. 1261 §§ 1, 2, 2000; Ord. 1244 § 1(2), 1999).

13.05.030 Booster pump systems charge.

A $5.00 monthly pumping charge shall be made to rural water accounts served by high elevation booster pump systems. (Ord. 1592 § 2(7), 2023; Ord. 1588 § 2(7), 2023; Ord. 1571 § 2(7), 2022; Order 1469 § 2(7), 2013; Ord. 1462 § 2(7), 2012; Ord. 1393 § 2(7), 2008; Ord. 1357 § 2(3), 2006; Ord. 1321 § 2(3), 2004; Ord. 1302 § 2(3), 2003; Ord. 1261 §§ 1, 2, 2000; Ord. 1244 § 1(3), 1999).

13.05.040 Deposit required.

To establish credit for a new utility account an independent third-party credit collection company will determine the level of deposit required for new service. A “green” return requires no deposit, a “yellow” return requires a $200.00 deposit which can be made in two monthly installments with the first installment of $100.00 minimum to be made prior to establishment of utility service and the balance must be paid within the 30-day period thereafter and a “red” return requires a $400.00 deposit which can be made in two monthly installments with the first installment of $200.00 minimum to be made prior to establishment of utility service and the balance must be paid within the 30-day period thereafter. If the customer fails to make a deposit payment in full within the specified time, service will be disconnected. Deposits shall be returned to the depositor at the end of a two-year period, whenever that account has been paid promptly and without fault during that two-year period or said deposit for service shall be returned minus funds due for any unpaid balance for city utility service whenever service is disconnected in less than a two-year period. A balance of

less than $1.00 shall not be returned. The city reserves their right to make the final determination. (Ord. 1592 § 2(8), 2023; Ord. 1588 § 2(8), 2023; Ord. 1571 § 2(8), 2022; Ord. 1516, 2016; Order 1469 § 2(8), 2013; Ord. 1462 § 2(8), 2012; Ord. 1393 § 2(8), 2008; Ord. 1357 § 2(4), 2006; Ord. 1321 § 2(4), 2004; Ord. 1302 § 2(4), 2003; Ord. 1261 §§ 1, 2, 2000; Ord. 1244 § 1(4), 1999).

13.05.045 Turn-ons and shut-offs.

All requests for water turn-ons and shut-offs shall be billed at $25.00 each and every time the water user requests such service. Waiver of these charges shall be at the discretion of the city supervisor in cases where the water department needs to make such turn-ons or shut-offs. (Ord. 1592 § 2(9), 2023; Ord. 1588 § 2(9), 2023; Ord. 1571 § 2(9), 2022; Order 1469 § 2(9), 2013; Ord. 1462 § 2(9), 2012; Ord. 1393 § 2(9), 2008; Ord. 1357 § 2(5), 2006; Ord. 1321 § 2(5), 2004).

13.05.050 Charges – Due when – Delinquency.

All said charges shall be due and payable on or before the twentieth day of the month in which service is made. Those charges not so paid shall become delinquent and shall bear interest, from and after, the date of delinquency at the rate of $5.00 monthly or eight percent per annum, whichever is the greater. (Note: [Past due amount] times [8% divided by 365] times [days past due] = late charge). (Ord. 1592 § 2(10), 2023; Ord. 1588 § 2(10), 2023; Ord. 1571 § 2(10), 2022; Order 1469 § 2(10), 2013; Ord. 1462 § 2(10), 2012; Ord. 1393 § 2(10), 2008; Ord. 1357 § 2(6), 2006; Ord. 1321 § 2(6), 2004; Ord. 1302 § 2(5), 2003; Ord. 1261 §§ 1, 2, 2000; Ord. 1244 § 1(5), 1999).

13.05.060 Charges lien upon property.

All charges provided for in this chapter, together with penalties and interest thereon, shall be a lien upon the property to which said charge is made pursuant to RCW 35.21.290 through 35.21.300, and such property shall be subject to foreclosure pursuant to the terms of said chapter; no change of ownership or occupation shall affect the application of this section. (Ord. 1592 § 2(11), 2023; Ord. 1588 § 2(11), 2023; Ord. 1571 § 2(11), 2022; Order 1469 § 2(11), 2013; Ord. 1462 § 2(11), 2012; Ord. 1393 § 2(11), 2008; Ord. 1357 § 2(7), 2006; Ord. 1321 § 2(7), 2004; Ord. 1302 § 2(6), 2003; Ord. 1261 §§ 1, 2, 2000; Ord. 1244 § 1(6), 1999).

13.05.070 Disconnection of service.

As an additional concurrent method of requiring that the rates and charges herein stated shall be promptly paid, the city supervisor of the city of South Bend is hereby authorized and directed, upon being notified in writing by the city clerk/treasurer of said city, of any water users delinquent in the foregoing water charges, to disconnect water service to the premises of said water consumer until such time as the delinquent charges are paid. A service charge of $22.25 for said disconnection shall be made. (Ord. 1592 § 2(12), 2023; Ord. 1588 § 2(12), 2023; Ord. 1571 § 2(12), 2022; Order 1469 § 2(12), 2013; Ord. 1462 § 2(12), 2012; Ord. 1393 § 2(12), 2008; Ord. 1357 § 2(8), 2006; Ord. 1321 § 2(8), 2004; Ord. 1302 § 2(7), 2003; Ord. 1261 §§ 1, 2, 2000; Ord. 1244 § 1(7), 1999).

13.05.080 Malfunctioning meter.
In the event of a malfunctioning meter, the charge shall be based on the average consumption calculated from the three immediately past reading periods. (Ord. 1592 § 2(13), 2023; Ord. 1588 § 2(13), 2023; Ord. 1571 § 2(13), 2022; Order 1469 § 2(13), 2013; Ord. 1462 § 2(13), 2012; Ord. 1393 § 2(13), 2008; Ord. 1357 § 2(9), 2006; Ord. 1321 § 2(9), 2004; Ord. 1302 § 2(8), 2003; Ord. 1261 §§ 1, 2, 2000; Ord. 1244 § 1(8), 1999).

13.05.090 Leaks.
In the event of excess water usage due to leaks on any water lines and/or connections that are the responsibility of the water user, the city shall charge the water user for one-half of the excess water. The amount of excess water consumed shall be calculated by subtracting the average consumption of the three immediately past reading periods from the consumption in the water reading (with excess usage).

If excess water usage continues during the next reading period, the water user will be required to pay the full charge for the excess water consumed and may be required to repair the leak or leaks responsible for the excess water consumption in order to continue consuming city of South Bend water. (Ord. 1592 § 2(14), 2023; Ord. 1588 § 2(14), 2023; Ord. 1571 § 2(14), 2022; Order 1469 § 2(14), 2013; Ord. 1462 § 2(14), 2012; Ord. 1393 § 2(14), 2008; Ord. 1357 § 2(10), 2006; Ord. 1321 § 2(10), 2004; Ord. 1302 § 2(9), 2003; Ord. 1261 §§ 1, 2, 2000; Ord. 1244 § 1(9), 1999).

13.05.100 Water system hookups beyond city limits.
A. Any person, firm or corporation desiring to hook up to the water supply system of the city of South Bend beyond its city limits may do so by applying to the city clerk-treasurer, whereupon the city clerk-treasurer will transmit this application to the city council at its next regular meeting for determination of feasibility.

B. Upon approval of the city council and the granting of the permit, the applicant, after notice, will pay therefor the sum established in SBMC 13.05.005 prior to installation of the hookup. (Ord. 1357 § 3, 2006; Ord. 905 §§ 1, 2, 1972).

13.05.110 Charges – Adjustments for inflation.
The water utility fees contained in Ordinance No. 1571 adopted on February 14, 2022, are repealed and an adjustment to the current rate structure will be established. This ordinance will also include an adjustment by an inflation factor equal to 100 percent of the U.S. Consumer Price Index on the January 1st billing for each ensuing year unless the city council deems otherwise. (Ord. 1592 § 1, 2023; Ord. 1588 § 1, 2023; Ord. 1571 § 1, 2022; Order 1469 § 1, 2013; Ord. 1462 § 1, 2012; Ord. 1393 § 1, 2008; Ord. 1357 § 1, 2006; Ord. 1261 §§ 1, 3, 2000; Ord. 1244 § 2, 1999).

Article II. Water Shortage Response Plan

13.05.120 Definitions.
For purposes of this article, the following terms shall have the following definitions:

A. “City” is defined as the city of South Bend.

B. “Conservation” is defined as the voluntary reduction of use of potable water by customers.

C. “Customer” means any individual, firm, organization, partnership, association, trust, company, business, corporation, public entity, political entity, or any agent thereof, that requests or receives water on a retail or wholesale basis within the city of South Bend’s water system service territory.

D. “Dormant” means alive but not actively growing; a state of minimal metabolic activity with cessation of growth.

E. “City supervisor” is the city supervisor of the city of South Bend’s public works department, and/or public works staff designated by the city supervisor to carry out required activities.

F. “Health and sanitation” includes use of water for human consumption; bathing; personal hygiene; cooking; washing dishes and cooking equipment; cleaning equipment or surfaces for purposes of protecting human health; flushing toilets; medical, dental or veterinary procedures; sanitizing medical equipment and facilities, including clinics, hospitals, doctors’ offices, dentists’ offices and veterinary offices; and/or watering pets or livestock.

G “SBMC” is the South Bend Municipal Code.

H. “Potable water” means water that has been disinfected and otherwise treated to meet all federal and state drinking water laws and regulations as set forth by the Safe Drinking Water Act and the U.S. Environmental Protection Agency.

I. “Salvaged potable water” is water that has not been used, but would normally be discharged to the wastewater system. For example, this includes water that is run while waiting for hot water to warm up at a sink, shower, or bathtub.

J. “Waste” means discharge of potable water with no intended use, or loss of water ancillary to an intended use when such loss could be controlled with readily available technology or common practices associated with the use. Waste includes but is not limited to: (1) failure to repair a controllable leak, including a broken sprinkler head, a leaking valve or pipe, a broken pipe, or a leaking faucet; (2) irrigation uses that allow water to run off a vegetated area and form a flow of water on an impervious surface for a distance of 50 feet or greater or to discharge to a storm drain or surface water body; (3) irrigation uses that allow water to accumulate on an impervious surface to a depth of one-quarter inch or greater; (4) running a garden hose longer than five minutes without putting the water to use. However, waste does not include the following:

1. Flow resulting from temporary failures or malfunctions of water, plumbing or irrigation systems, where such failures are controlled or repaired as quickly as possible;

2. Flow resulting from firefighting or routine inspection of fire hydrants or from fire training activities;

3. Water applied as a dust control measure as required by local, state or federal laws or regulations or associated permits;

4. Water applied to abate spills of flammable or otherwise hazardous materials, where water is the appropriate control method;

5. Water applied to prevent or abate health, safety or accident hazards when alternate methods are not readily available;

6. Flow resulting from routine inspection, repair or maintenance of the municipal water supply system;

7. Flow resulting from routine inspection or maintenance of irrigation systems;

8. Water used for construction or maintenance activities where the application of water is the standard methodology and no other practical or economical alternative exists.

K. “Water” means any treated and potable water used in the city of South Bend water system service area.

L. “Water service area” means the geographical area being served water by the city of South Bend, including retail customers; and wholesale customers or owners, where a formal agreement is in place to serve treated water.

M. “Water shortage” is defined as the condition where the demand for potable water from the city of South Bend treatment facilities and distribution systems is exceeded by the ability of the treatment facilities and distribution system to meet that demand, and the storage facilities are unable to refill within 24 hours to meet the demand for water. (Ord. 1501 § 1, 2015).

13.05.130 Declaring an emergency.

Upon a finding by the city supervisor, or their designee, that a potable water shortage exists or is imminent, or that any other situation exists that threatens seriously to disrupt or diminish the municipal water supply, the city supervisor has the authority to declare an emergency condition exists and implement any or all of the actions as outlined in SBMC 13.05.140 and 13.05.150 for the period of the defined emergency within the city of South Bend water system service area. (Ord. 1501 § 1, 2015).

13.05.140 Stages of water shortage emergency.

Upon a declaration by the city supervisor that an emergency condition exists, as provided in SBMC 13.05.130, the city supervisor shall declare the degree of emergency and identify the applicable stage. The city supervisor shall determine appropriate demand reduction target(s), in relation to the supply shortage experienced or expected. Such stages shall be:

A. Stage 1. The following measures shall apply:

1. The city supervisor shall provide a water shortage emergency public notification in the city’s water service area. The notification requires city water system users utilizing

city water for irrigation to conform to the following landscape-watering schedule:

a. Even numbered addresses water on even numbered days.

b. Odd numbered addresses water on odd numbered days.

c. Addresses ending in letters or fractions shall be considered even numbered or odd numbered according to the base address to which the letter or fraction is attached. For example, addresses 310 “B” and 514 1/2 water on even numbered days, and addresses 515 “B” and 517 1/2 water on odd numbered days.

d. Irrigation watering shall be allowed only between the hours of 4:00 a.m. to 7:00 a.m. and 7:00 p.m. to 11:00 p.m.

e. Customers shall be requested to use the minimum quantity of water needed to maintain landscapes in a healthy, nondormant condition.

f. Use of salvaged water shall conform to these restrictions.

2. Restaurants are prohibited from serving water to customers except upon request. The purpose of this provision is to reduce the need for dishwashing.

3. The city supervisor shall determine demand reduction targets and disseminate water conservation guidelines for both indoor and outdoor use, to all customers within the city’s water service area, and request voluntary water use reduction suitable to meet the defined demand reduction target(s).

4. The city supervisor shall activate a communication plan using appropriate resources such as the news media, the city’s website, newsletters, and/or other methods, to provide information to the public informing them of the emergency conditions, the reduction targets, and means of reducing water usage for different customer categories and end uses.

5. The city supervisor shall make emergency water supply interties with adjacent water systems and/or suppliers ready to supplement the available water supply if necessary.

6. No person shall waste water, as defined in SBMC 13.05.120.

7. Notwithstanding the prohibited uses identified above, the following uses of water are permitted under Stage 1:

a. New Plantings. Newly planted flowers, plants, shrubbery, ground cover or trees may be hand watered any day of the week if the watering done is the minimum needed to sustain plant life.

b. Commercial Canneries. Commercial canneries may operate as needed to maintain production, but conserve and reduce in all areas possible during this time.

c. Children. Water may be used on any day of the week, including but not limited to hoses and sprinklers, to cool off children if the temperature is 80 degrees or higher and the children are actively involved in the water; and the water activity is supervised, and water waste by overspray and overflow is kept to a minimum, and the water use occurs no more than one hour per day. This exception is allowed as day care providers may be prohibited by the State Department of Health from using wading pools.

B. Stage 2. All restrictions identified in Stage 1 shall apply during Stage 2, except as further restricted under Stage 2. In addition, the following restrictions and measures shall apply:

1. The city supervisor shall review water use data for the 10 largest water using customers and communicate directly with such customers with a request to achieve voluntary water use reductions to meet the defined demand reduction target(s).

2. Operation and introduction of water into an ornamental fountain is prohibited.

3. Washing of streets, sidewalks, driveways, or decks is prohibited, except as necessary for public health and safety.

4. Washing of buildings, fences and windows is prohibited. However, such washing is permitted if:

a. It was contracted prior to declaration of the Stage 2 emergency; or

b. Is required in order to prevent an imminent damage to property; or

c. To allow for painting or other maintenance that cannot be deferred; or

d. For window washing, if washing is performed using a bucket and hand tools rather than spray equipment.

5. Filling of privately owned swimming pools, spas, ponds, and artificial lakes is prohibited, except as needed to prevent physical damage to these facilities or associated equipment, and fish and wildlife.

6. Washing of any vehicles or boats is prohibited, unless at a vehicle washing facility equipped with water recycling equipment.

7. The city supervisor shall provide information to restaurants, hotels and motels informing them of means of reducing indoor water uses and assisting them to inform customers of the need for demand reductions.

8. Exceptions to prohibited uses identified under Stage 1 are rescinded under Stage 2. However, notwithstanding the prohibited uses identified above, the following uses of water are permitted under Stage 2:

a. Commercial Canneries. Commercial canneries may continue production under

Stage 2 as long as they maintain their efforts to conserve and reduce usage in all areas during this time.

b. Children. Water may be used on any day of the week, including but not limited to hoses and sprinklers, to cool off children if the temperature is 80 degrees or higher and the children are actively involved in the water; and the water activity is supervised, and water waste by overspray and overflow is kept to a minimum, and the water use occurs no more than one hour per day. This exception is allowed as day care providers may be prohibited by the State Department of Health from using wading pools.

c. Fire, Health, and Sanitation. Where there is a demonstrable need in order to meet public health or safety requirements, such as to alleviate immediate fire, health, or sanitation hazards or any other mandates of the Washington State Departments of Health or Ecology.

d. Dust Control. For dust control to meet air quality requirements under local, state or federal law or associated regulations.

e. Window washing with a bucket and sponge.

f. Building Repair/Painting. Power washing of buildings, roofs and homes, prior to painting, repairing, remodeling or reconstruction, and not solely for aesthetic purposes.

g. Washing of Vehicles. Where the health, safety and welfare of the public is contingent upon frequent vehicle cleaning, such as to clean garbage trucks, and vehicles that transport food and other perishables or vehicles transporting sick or injured persons such as ambulances, or otherwise required by law.

C. Stage 3. All restrictions identified in Stages 1 and 2 shall apply during Stage 3, except as further restricted under Stage 3. In addition, the following restrictions and measures shall apply:

1. All persons are prohibited from using water from the city of South Bend water system for irrigation, except for minimum quantities needed to preserve landscape and turf plant life in a dormant condition.

2. The city supervisor shall set a mandatory non-irrigation water use reduction level of up to 20 percent for all customers, as compared to each customer’s average water use during the non-irrigation months of November through March in the most recent previous period without water shortage restrictions. Based on quantity of water use, certain commercial, industrial, and other significant water users may be required to reduce their water use by an amount greater than that required of other customers.

3. All swimming pools, wading pools, splash facilities, and similar recreational facilities

shall be closed and not filled or their water levels maintained.

4. All activities receiving water from a city hydrant are prohibited from using water for any purpose other than those required for firefighting or by regulatory agencies for health and sanitation reasons. The city supervisor shall temporarily suspend all other permits for use of hydrants and shall not issue any new permits.

5. Exceptions to prohibited uses identified under Stage 2 are rescinded under Stage 3. However, notwithstanding the prohibited uses identified above, the following uses of water are permitted under Stage 3. However, the city supervisor may modify the exceptions as needed to achieve the goals of this article.

a. Household Food Production. Domestic or community food gardens may be watered according to the schedule and time restrictions described under Stage 1, at minimum quantities needed to ensure food production for human use.

b. Fire, Health, and Sanitation. Where there is a demonstrable need in order to meet public health or safety requirements, such as to alleviate immediate fire, health, or sanitation hazards.

c. Minimum Residential Use. Single-family and multifamily residential customers using less than 3,000 gallons of water per month per customer or per housing unit shall be exempt from the requirement to reduce non-irrigation use.

D. Stage 4. All restrictions identified in Stages 1 through 3 shall apply during Stage 4, except as further restricted under Stage 4. In addition, the following restrictions and measures shall apply:

1. All irrigation and outdoor use of water from the city water system is prohibited.

2. The city supervisor shall set a mandatory non-irrigation water use reduction level of 20 percent or greater for all customers, as compared to each customer’s average water use during the non-irrigation months of November through March in the most recent previous period without water shortage restrictions. Based on the quantity of water use, certain commercial, industrial, and other significant water users may be required to reduce their indoor water use by an amount greater than required of other customers.

3. All commercial, industrial, and institutional customers shall eliminate water usage, except for health and sanitation, and fire protection. However, the city supervisor may make exceptions, if appropriate, given the severity of the supply shortage experienced or expected. The city supervisor shall communicate directly with the city’s largest water-using customers, review their water use and verify compliance with the mandatory water use reductions.

4. Exceptions to prohibited uses identified under Stage 3 are rescinded under Stage 4. However, notwithstanding the prohibited uses identified above, the following uses of

water are permitted under Stage 4. The city supervisor may modify the exceptions as needed to achieve the goals of this article.

a. Fire, Health, and Sanitation. Where there is a demonstrable need in order to meet public health or safety requirements, such as to alleviate immediate fire, health, or sanitation hazards.

b. Minimum Residential Use. Single-family and multifamily residential customers using less than 3,000 gallons of water per month per customer or per housing unit shall be exempt from the requirement to reduce non-irrigation use.

E. Should the above measures fall short of maintaining enough water supply for the basic functions of health, sanitation and fire protection, the city supervisor is authorized to implement further mandatory water use reductions as necessary.

F. Notice shall be given advising water customers that the potable water curtailment and rationing program is to be implemented. For Stage 1 conditions, at a minimum, such notice shall be published at least two days in the official newspaper of the city and shall contain a description of the programs, the effective date and time of implementation, and penalty for violation. For Stage 2 conditions such notice shall be published for at least one day. For Stage 3 and 4 conditions, notification shall be by the most expedient means possible with a follow-up published if the Stage 3 or 4 conditions are expected to last more than three consecutive days. Assistance of other local media will be sought throughout the duration of the water shortage in an attempt to advise water customers further; however, such additional media assistance shall not be deemed a condition precedent to effectuating the program on the date and time specified.

G. Notice of cessation of the water shortage shall be given by publication in the official newspaper of the city; however, notice of cessation need only be published one time. (Ord. 1501 § 1, 2015).

13.05.150 Enforcement.

The city may read any customer’s meter at any time to assist with implementing voluntary and/or mandatory water use reductions and determining compliance by the customer.

The following mechanisms for enforcement shall be implemented in the following order:

A. Notice of Warning. For a first violation of a requirement of SBMC 13.05.140, the city supervisor or their designee shall send a notice of warning to the customer. A notice of warning shall be in writing, shall specify the violation and the relevant SBMC section, and shall outline compliance measures. The notice of warning shall be delivered to the customer either personally, by the leaving of a notice in a conspicuous location at the customer’s address or at the location of the water use if not the customer’s address, by officer or substitute service, by normal mail, by certified mail, or by registered mail, return receipt requested.

B. Notice of Violation – Surcharge on Water Bill. For violation of each restriction or banned water use, a customer will receive one notice of warning prior to receiving a notice of violation. A notice of violation of SBMC 13.05.140 shall be in writing, shall specify the violation, may require compliance measures, shall assess a water use surcharge that is applied to the customer's water bill, and shall be delivered to the customer either personally, by leaving of a notice in a conspicuous location at the customer's address or at the location of the water use if not the customer's address, by officer or substitute service, by normal mail, by certified mail, or by registered mail, return receipt requested. Such surcharge, if not paid, can be applied as a lien for nonpayment of water service, as per SBMC 13.05.060.

Each separate occasion in which a violation occurs shall be considered a separate violation. No more than one violation per restricted or banned use per day shall be issued, except that no more than one violation for failing to achieve the mandatory use reduction level (i.e., failing to achieve the required percent reduction in water use) shall be issued per month.

C. Schedule of Surcharges. The surcharge for each violation may be assessed in the following manner:

1. First violation, following notice of warning: $100.00.

2. Second violation: $200.00.

3. Third violation: $300.00.

4. Fourth and subsequent violations: $500.00.

For violations of the mandatory non-irrigation use reduction levels (i.e., failing to achieve the required reduction in water use), the surcharge shall be double the amounts listed above.

D. Restrict Water Flow. In addition to the enforcement provisions in subsections (A) and (B) of this section, the city supervisor or their designee, at their discretion, may install a flow restrictor on the customer's water meter or service in the following situations:

1. If the customer has not complied with the provisions of this article, after receiving two violations; or

2. If the city supervisor determines that the customer is using water in a manner that is inconsistent with the provisions of this article, and it is necessary to take immediate action to curtail the customer's water use.

Installation of a flow restrictor shall result in charges to the customer, as fixed from time to time by resolution of the city council, for installation and removal of such flow restrictor.

E. Discontinue Water Service. After unsuccessful attempts to enforce subsections (A) through (C) of this section, and if the city supervisor or their designee determines that the customer continues to use water in a manner that is inconsistent with the provisions of this article, and it is necessary to take immediate action to curtail the customer's water use, water

service may be discontinued. Service so disconnected shall be restored only upon payment of the reconnection charge and assessed penalties as set forth in SBMC 13.05.045 or as fixed from time to time by resolution of the city council, or a portion of those assessed penalties, to be determined at the discretion of the city supervisor or their designee. In addition to the foregoing, the city supervisor or their designee may, prior to restoration of service, install a flow-restrictive device on the customer's service.

F. Other Action as Appropriate. Given the specific conditions of an emergency water shortage, and notwithstanding the provisions of this article, the city supervisor may take other enforcement action as the city supervisor deems appropriate, consistent with local, state and federal law. (Ord. 1501 § 1, 2015).

13.05.160 Variances.

A. A person may seek a variance by filing an application with the city supervisor. The city supervisor may require the applicant to provide information that the city supervisor determines is necessary to evaluate the variance request.

B. The city supervisor may grant a variance from a requirement of this article if the city supervisor determines that special circumstances exist and that compliance with this article:

1. Adversely affects the health, sanitation, safety, or fire protection of the public or the applicant; or

2. Substantially threatens the applicant's primary source of income; or

3. Will cause substantial, irreparable damage to the customer's life, property, or income; or

4. The impact of curtailment is substantially disproportionate to the customer's water use.

C. If the city supervisor approves a variance, the applicant shall keep a copy of the approval in a location on the affected property that is accessible and visible to the public.

D. A variance shall expire at the time:

1. The water shortage is upgraded from one stage to the next higher numbered and more restrictive stage; or

2. The applicant is found by the city supervisor to have violated any other provision of this article, and the city supervisor declares the variance to be void.

The customer may file an application for a new variance from the upgraded stage restrictions. (Ord. 1501 § 1, 2015).

13.05.170 Appeals.

Any customer who feels aggrieved by any decision of the city supervisor or their designee under this article may appeal the decision of the city supervisor or their designee to the

mayor. (Ord. 1501 § 1, 2015).

SECTION 7

WATER SYSTEM STANDARDS

SECTION 7

7. WATER SYSTEM STANDARDS

7.01 General

The standards established by this chapter are intended to represent the *minimum* standards for the design and construction of water system facilities. Greater or lesser requirements may be mandated by the City due to localized conditions. The following design and construction considerations shall apply:

7.02 Design Standards

The design of water system improvements shall depend on their type and local site conditions. The design elements of water system improvements shall conform to City Standards as set forth herein and follow current design practice as set forth by the Department of Health and/or current AWWA Standards.

A. Detailed plans shall be submitted for the City's review which provide the locations, size, and type of the proposed water system and points of connection. These Plans shall be separate from Sewer Plans.

B. Project plans shall have a horizontal scale of not more than 50 feet to the inch. Plans shall show:

1. Locations of streets, right-of-ways, existing utilities and water system facilities.

2. Ground surface, pipe type and size, and water valves and hydrants stationing.

3. All known existing structures, both above and below ground, which might interfere with the proposed construction, particularly sewer lines, gas mains, storm drains, overhead and underground power lines, and telephone lines and television cables.

4. All utility easements.

C. Computations and other data used for design of the water system shall be submitted to the City for approval.

D. The water system facilities shall be constructed in conformance with the most current edition of the WSDOT Standard Specification and current amendments thereto, State of Washington, revised as to form to make reference to Local Governments and as modified by the City's requirements and standards.

E. Material and installation specifications shall contain appropriate requirements that have been established by the industry in its technical publications, such as ASTM, AWWA, WPCF, and APWA Standards. Requirements shall be set forth in the specifications for the pipe and methods of bedding and backfilling so as not to damage the pipe or its joints.

F. Except as otherwise noted herein, all work shall be accomplished as recommended in applicable American Water Works Association (AWWA) Standards, and according to the recommendations of the manufacturer of the material or equipment concerned.

G. The location of the water mains, valves, hydrants, and principal fittings including modifications shall be staked by the Developer. No deviation shall be made from the required line or grade. The Contractor shall verify and protect all underground and surface utilities encountered during the progress of this work.

H. Prior to final inspection, all pipelines shall be tested and disinfected.

I. Before acceptance of the water system by the City, all pipes, assemblies, and other appurtenances shall be cleaned of all debris and foreign material. After all other work is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas shall be neatly finished to the lines, grades and cross sections for a new roadway consistent with the original section.

J. The Developer shall be required, upon completion of the work and prior to acceptance by the City, to furnish the City with a written guarantee covering all material and workmanship for a period of two years after the date of final acceptance and he shall make all necessary repairs during that period at his own expense, if such repairs are necessitated as the result of furnishing poor materials and/or workmanship. The Developer shall obtain warranties from the contractors, subcontractors and suppliers of material or equipment where such warranties are required and shall deliver copies to the City upon completion of the work.

7.03 General Notes – on all plans submitted to the City

A. Prior to construction, the Contractor shall notify the City for a preconstruction meeting.

B. Work shall be performed only by contractors experienced in laying public water mains.

C. Prior to any work being performed, the Contractor shall contact the City Supervisor to set forth his proposed work schedule.

D. Contractor shall obtain approval of materials to be used from the City Supervisor prior to ordering of materials.

E. Water mains shall be laid only in dedicated streets or in easements which have been granted to the City. A street is normally not considered dedicated until the plat which created it has been officially filed with the County Auditor.

F. All water main distribution pipeline construction shall have a minimum of a 36″ cover from finished grade. Mains shall generally be located parallel to and ten feet northerly or easterly of street centerline.

G. Average spacing between fire hydrants will generally be determined by the fire-flow requirements of the development being served. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants will generally be provided every 600 feet in residential areas and every 300 feet in commercial areas. Spacing and location of fire hydrants shall be determined by the City Fire Marshal.

H. Fire hydrants on dead end streets and roads shall be located within approximately 300 feet from the frontage center of the farthest lot. Distances required herein shall be measured linearly along street or road.

I. Pipes connecting hydrants to mains shall be at least 6 inches in diameter and not longer than 50 feet.

J. Dead end lines are not permitted except where the Developer can demonstrate to the City's satisfaction that it would be impractical to extend the line at a future date. Water mains on platted cul-de-sacs shall extend to the plat line beyond the cul-de-sac to neighboring property for a convenient future connection, and a 2 inch blow off assembly shall be provided.

K. All materials shall be new and undamaged.

L. Water main shall be ductile iron pipe class as shown below:

Pipe Diameter	Class
6″ through 14″	Class 52
6″ Hydrant Spools	Class 53
16″ and larger	Class 52

M. All fittings shall be cement-lined ductile iron.

N. All water mains and services shall have tracer wire installed on them and the wire shall be brought to the surface through valve and meter boxes.

O. Provide bends in field to suit construction and in accordance with pipe manufacturer's recommendations so as not to exceed allowable deflection at pipe joints.

P. Provide concrete blocking at all fittings and bends in accordance with the City standards and conditions.

Q. Provide anchor blocking at all up-thrust vertical bends in accordance with City Standards.

R. All valve marker posts shall be painted yellow and marked with the distance to valve being referenced.

S. Water services shall be "Poly" pipe (no joints beneath pavement areas), as manufactured by Driscopipe (CL 200), or City approved equal. Service lines shall be restricted to a maximum length of 150′.

T. Minimum size service lines (single service) between the water main and the water meter shall be 3/4 inch diameter. Minimum size service lines (double service) between the water main and double water meters (located at common property corner) shall be one and one-half inch 1 ½″ diameter. All service lines shall be the minimum size specified. Larger diameters may be required by the current Plumbing Code to facilitate a large number of fixture units.

U. Meter services and meter boxes shall be set to final grade and all adjustments shall be made prior to final pressure testing of the system, centerline of service inlets shall be located to match bottom elevation of meter box in such a manner that meter inlet and outlet will be the same elevation as bottom of meter box. Service inlet shall be centered at inlet end of box and faced toward outlet end of box parallel with long sides.

V. All water services shall end within road right-of-way or easements.

W. All fittings shall be brass.

X. All meters shall be installed by the City, unless otherwise approved, and the Developer shall pay the current meter installation charge.

Y. All new buildings and residences shall include in their water service a suitable pressure reducing valve to protect the plumbing from excessive pressures when static pressure exceeds 80 psi at the lot/property line (meter location).

Z. All new construction shall comply with the City's Cross-Connection Control Program, SBMC Chapter 13.35 and current amendments thereto. A copy of such is available for review at the City office.

AA. Cut in connections shall not be made on Fridays, holidays or weekends. All tapping sleeves and tapping valves shall be pressure tested prior to making connection to existing mains.

BB. Contractor shall notify City's Public Works Superintendent and obtain approval from him/her prior to any water shut-off or turn-on, affecting the water system, a minimum of 48 hours in advance.

CC. Road restoration shall be per City, County or State design and construction standards, as may be applicable. Developer and Contractor shall become familiar with all State, County and City conditions of required permits, and shall adhere to all conditions and requirements.

7.04 Materials and Testing

A. Water Mains and Fittings

1. All water mains to be installed, unless otherwise approved (or required) in writing by the City Engineer, shall be PVC C900. The minimum size for all water lines shall be 8 inches.

2. PVC pipe shall conform to AWWA C-900, Class 150, capable of connecting to ductile iron fittings. All fittings shall be ductile iron.

3. Type of joint shall be mechanical joint or push-on type, employing a single gasket, such as "Tyton", except where otherwise calling for flanged ends. Bolts furnished for mechanical joint pipe and fittings shall be high strength ductile iron, with a minimum tensile strength of 50,000 psi.

4. Restrained joint pipe, where shown on the Plans shall be push-on joint pipe with "Field Lok" gaskets as furnished by U.S. Pipe or equal for 12″ diameter and smaller pipe and "TR FLEX" as furnished by U.S. Pipe or equal for 16″ and 24″ diameter pipes. The restrained joint pipe shall meet all other requirements of the non-restrained pipe. Restraint joint pipe shall be installed at "dead end" installations.

5. All pipe shall be jointed by the manufacturer's standard coupling, be all of one manufacturer, and be carefully installed in complete compliance with the manufacturer's recommendations.

6. Joints shall be "made up" in accordance with the manufacturer's recommendations. Standard joint materials, including rubber ring gaskets, shall be furnished with the pipe. Material shall be suitable for the specified pipe size and pressures.

7. All fittings shall be short-bodied, ductile iron complying with applicable ANSI/AWWA C110 or C153 Standards for 350 psi pressure rating for mechanical joint fittings and 250 psi pressure rating for flanged fittings. All fittings shall be cement lined and either mechanical joint or flanged, as indicated on the Plans.

8. Fittings in areas shown on the Plans for restrained joints shall be mechanical joint fittings with a mechanical joint restraint device. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1 and shall be EBAA Iron, Inc., MEGALUG, Romac "Grip Ring" or City approved equal.

9. All couplings shall be ductile iron mechanical joint sleeves, or long pattern solid sleeves.

10. The pipe and fittings shall be inspected for defects before installation. All lumps, blisters, and excess coating shall be removed from the bell and spigot end of each pipe, and the outside of the spigot and the inside of the bell shall be wire-brushed and wiped clean and dry, and free from oil and grease before the pipe is laid.

11. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. After placing a length of pipe in the trench, the spigot end shall be centered in the bell and pipe forced home and brought to correct line and grade. The pipe shall be secured in place with select backfill tamped under it. Precaution shall be taken to prevent dirt from

entering the joint space. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a water-tight plug. If water is in the trench when work resumes, the seal shall remain in place until the trench is pumped completely dry. No pipe shall be laid in water or when trench conditions are unsuitable.

12. The cutting of pipe for inserting fittings or closure pieces shall be done in a neat and workmanlike manner, without damage to the pipe or cement lining, and so as to leave a smooth end at right angles to the axis of the pipe. Pipe shall be laid with bell ends facing in the direction of the laying, unless directed otherwise by the City. Wherever it is necessary to deflect pipe from a straight line, the amount of deflection allowed shall not exceed pipe manufacturer's recommendations.

13. For connection of mechanical joints, the socket, plain end of each pipe and gasket shall be cleaned of dirt before jointing, and shall be jointed according to manufacturer's directions. Bolts shall be tightened alternately at top, bottom and sides, so pressure on gasket is even.

14. For connection of "Tyton" joints, the jointing shall be done according to manufacturer's recommendations, with special care used in cleaning gasket seat to prevent any dirt or sand from getting between the gasket and pipe. Lubricant to be used on the gasket shall be non-toxic and free from contamination. When a pipe length is cut, the outer edge of the cut shall be beveled with a file to prevent injury to the gasket during jointing.

15. Valves, fittings, plugs and caps shall be set and jointed to pipe in the manner as required. All dead ends on new mains shall be closed with dead end M.J. caps.

16. Fittings shall be "blocked" with poured-in-place concrete, with a firm minimum bearing against an undisturbed earth wall. Timber blocking will not be permitted. Thrust blocks shall be poured as soon as possible after setting the fittings in place to allow the concrete to "set" before applying the pressure test. The concrete thrust blocks shall be in place before beginning the pressure test. Anchor blocks shall be allowed to set sufficiently to develop the necessary bond strength between the reinforcing rods and the concrete anchor before beginning the pressure test.

17. All of the new piping, valves and blocking shall have been installed, disinfected and tested up to the point of cutting into existing lines before the crossover is made. The crossover to the existing system shall be in full readiness, including the cut and sized specials. Forty-eight (48) hour notice shall be given the City in advance of the planned "cut-ins". All sleeves shall be ductile iron.

B. Valves

All valves 12″ and smaller shall be resilient seat gate valves. All valves 14″ and larger shall be butterfly valves.

1. Resilient-Seated Gate Valves

All gate valves shall conform to ANSI/AWWA C509-87 Standards for resilient-seated disc gate valves. The valves shall be iron-bodied, iron disk completely encapsulated with polyurethane rubber and bronze, non-rising stem with "O" ring seals. The polyurethane sealing rubber shall be permanently bonded to the disk to meet ASTM tests for rubber to metal bond ASTM D429. The valves shall open counter-clockwise and be furnished with 2-inch square operating nuts except valves in vaults shall be furnished with handwheels. All surfaces, interior and exterior shall be fusion bonded epoxy coated, acceptable for potable water.

For applications with working pressure above 175 psi, a ductile iron valve rated as 250 psi or higher shall be used.

The valves shall be set with stems vertical. The axis of the valve box shall be common with the axis projected off the valve stem. The tops of the adjustable valve boxes shall be set to the existing or established grade, whichever is applicable.

Valves shall be Clow, M&H, or U.S. Pipe.

2. Butterfly Valves

Butterfly valves shall be of the tight closing rubber seat type with rubber seat either bonded to the body or mechanically retained in the body with no fasteners or retaining hardware in the flowstream. The valves may have rubber seats mechanically affixed to the valve vane. Where threaded fasteners are used, the fasteners shall be retained with a locking wire or equivalent provision to prevent loosening. Rubber seats attached to the valve vane shall be equipped with stainless steel seat ring integral with the body, and

the body internal surfaces shall be epoxy coated to prevent tuberculations buildup which might damage the disc-mounted rubber seat.

No metal-to-metal sealing surfaces shall be permitted. The valves shall be bubble-tight at rated pressures with flow in either direction, and shall be satisfactory for applications involving valve operations after long periods of inactivity. Valve discs shall rotate ninety (90) degrees from the full open position to the tight shut position. The valves shall meet the full requirements of AWWA C504, Class 150B. The valve shall be Henry Pratt Company *"Groundhog",* Dresser *"450"* or Mueller *"Lineseal III".*

3. Tapping Sleeves & Tapping Valves

The tapping sleeves shall be rated for a working pressure of 200 psi minimum and furnished complete with joint accessories. Tapping sleeves shall be constructed in two sections for ease of installation and shall be assembled around the main without interrupting service.

Mechanical joint style sleeves shall be ductile iron and is required for size-on-size connection to cast iron pipe. Mechanical joint sleeves shall be cast by Clow, Dresser, Mueller, Tyler, U.S. Pipe, or approved equal.

Fabricated steel style sleeves shall be fusion bonded coated, acceptable for potable water, and is acceptable for A.C. pipe taps only. Fabricated steel sleeves shall be manufactured by JCM, Romac, or approved equal.

Tapping valves shall be provided with a standard mechanical joint outlet for use with ductile iron pipe and shall have oversized seat rings to permit entry of the tapping machine cutters. In all other respects, the tapping valves shall conform to the resilient seat gate valves herein specified with regards to operation and materials.

The installation of the tapping sleeves and valves shall be performed by a contractor with demonstrated qualifications.

4. Pressure Reducing and Relief Valves

There are two uniform plumbing codes: one is prepared by the International Association of Plumbing and Mechanical Officials, another is prepared by the International Conference of Building Officials. Both codes require installation of pressure reducing

valves in the water service pipe when street main pressure exceed 80 psi, as follows:

a. When street main pressure exceeds 80 psi, an approved pressure reducing valve with an approved pressure relief device shall be installed in the water service pipe near its entrance to the building to reduce the pressure to 80 psi or lower, except where the water service pipe supplies water directly to a water-pressure boost system, an elevated water gravity tank, or to pumps provided in connection with a hydropneumatic or elevated gravity water-supply tank system. Pressure at any fixture shall be limited to no more than 80 psi under no-flow conditions.

b. Where local water pressure is in excess of eighty (80) pounds per square inch (551 kPa), an approved type pressure regulator preceded by an adequate strainer shall be installed and the pressure reduced to eighty (80) pounds per square inch (551 kPa) or less. For potable water services up to and including one and one-half (1-1/2) inch (38.1 mm) regulators, provision shall be made to prevent pressure on the building side from exceeding main supply pressure. Approved regulators with integral bypasses are acceptable. Each such regulator and strainer shall be accessibly located and shall have the strainer accessible for cleaning without removing the regulatory or strainer body or disconnecting the supply piping. All pipe size determinations shall be based on eighty (80) percent of the reduced pressure.

Both uniform plumbing codes also require installation of pressure and temperature relief valves for hot water tanks as follows:

a. Pressure-Relief Valves: Pressure-relief valves shall meet the ANSI Standards and the ASME Standards when required by the building office. The valves shall have a pressure relief rating adequate to meet the pressure conditions of the equipment served. They shall be installed either directly in a top tank tapping or in the hot or cold outlet line close to the tank. There shall be no shutoff valves between the pressure relief valve and the tank. The pressure relief valve must be set to open at not less than 25 psi above the street main pressure or not less than 25 psi above the setting of any house water press-regulating valve.

The setting shall not exceed the tank rated working pressure.

b. Temperature-Relief Valves: Temperature-relief valves shall be adequate relief rating, express in Btu/hr, for the equipment served. They shall be installed so that the temperature-sensing element is immersed in the hottest water within the top 6 inches of the tank. The valve shall be set to open when the stored water temperature is 210 degrees Fahrenheit (or less). These valves must conform to an approved standard and shall be sized so that when the valve opens, the water temperature cannot exceed 210 degrees Fahrenheit with the water heating element operating at maximum input.

All storage-type water heaters and hot water boilers deriving heat from fuels or types of energy other than gas, shall be provided with, in addition to the primary temperature controls, an over-temperature safety protection device constructed, list and installed in accordance with nationally recognized applicable standards for such devices.

The City will require that its customers install such pressure-reducing valves in the water service pipe when the street main static pressure exceeds 80 psi. The City will make static pressure information available upon request.

5. All Valves

All valves with operating nuts located more than 42″ below finished grade shall be equipped with extension stems to bring the operating nut to within 18” of the finished grade.

At the top of the extension stem, there shall be a 2-inch standard operating nut, complete with a centering flange that closely fits the 5-inch pipe encasement of the extension stem. The valve box shall be set in a telescoping fashion around the 5-inch pipe cut to the correct length to allow future adjustment up or down.

Each valve shall be provided with an adjustable two-piece cast iron valve box of 5 inches minimum inside diameter. Valve boxes shall have a top section with an 15-inch minimum length. The valve boxes and covers shall be Rich No. 940, or equal.

6. Valve Markers

For each valve outside of asphalt, provide a valve marker post.

The concrete marker posts shall have a 3-inch minimum square section and a minimum length of 36 inches, with beveled edges, and contain at least one (1) 3/8 inch diameter bar of reinforcing steel. Markers shall be placed at the edge of the right-of-way opposite the valve, and set so as to leave 12 inches of the post exposed above grade. The exposed portion of the marker posts shall be painted with two (2) coats of blue enamel paint. Distance to referenced valve shall be to the nearest 0.5 foot, and shall be clearly stenciled in black numerals 2 inches in height.

C. Fire Hydrants

All fire hydrants shall be approved by the National Board of Fire Underwriters and conform to AWWA Specification C502, break-away type, in which the valve will remain closed if the barrel is broken. The hydrant barrel shall have a diameter of not less than seven inches (7"), and the valve diameter shall be not less than five-and-one-quarter inches (5-1/4"). Each hydrant shall be equipped with two (2) two-and-one-half-inch (2-1/2") hose ports (National Standard Thread), and one (1) four-and-one-half-inch (4-1/2") pumper connection (National Standard Thread), with permanent four inch (4") Storz hydrant adaptor and Storz blind cap. Each hydrant shall be equipped with a suitable positive acting drain valve and one-and-one-quarter-inch (1-1/4") pentagonal operating nut (counter-clockwise opening). The fire hydrants shall be "M & H" Style 129S.

The holding spools between the gate valve and fire hydrant shall be made from 6-inch Class 53 ductile iron pipe, 0.34-inch wall thickness. The hydrant and gate valve shall be anchored in place using holding spools and mechanical joint restraint device. Holding spools with length in excess of 17 feet shall be supplied with an M.J. sleeve and mechanical joint restraint device.

The fire hydrants shall be painted with two (2) coats of Rustoleum Safety Yellow Base No. 288-14., Color Code AX-6732, T-4432, or per local Fire Marshall, contractor to verify. Distance to the hydrant valve shall be clearly stenciled in black numerals 2 inches in height on the fire hydrant below the pumper port. Each hydrant shall be installed with blue lane reflectors in line with the hydrant off-set from the center of the roadway towards the hydrant.

Between the time that the fire hydrant is installed and the completed facility is placed in operation, the fire hydrant shall at all times be wrapped in burlap, or covered in some other suitable manner to clearly indicate that the fire hydrant is not in service.

D. Blow-Offs and Air Relief Assemblies

Two (2) inch diameter (minimum size) blowoff assemblies shall be installed at the terminus of all permanent and/or temporary dead end water mains. Blowoffs utilized by the Contractor for flushing the water main shall be sufficient size to obtain 2.5 feet per second velocity in the main. Temporary blow-offs shall be removed and replaced with a suitably sized watertight brass plug.

Two (2) inch diameter (minimum size) air and vacuum release valves shall be installed at principal high points in the system, if specifically required by the City Public Works Supervisor.

The installation of these items shall include connection piping, gate valve, valve box, and all accessories. Valve markers shall be optional with City.

E. Water Sampling Station

Water sampling station(s) shall be provided only if specifically required/requested by the City Public Works Supervisor.

F. Water Pipe Testing and Disinfecting

All pipelines shall be tested and disinfected prior to acceptance of work. A water hydrant meter shall be required and procured from the City for all water utilized for flushing pipelines. All pumps, gauges, plugs, saddles, corporation stops, miscellaneous hose and piping, and measuring equipment necessary for performing the test shall be furnished, installed and operated by the Contractor. Feed for the pump shall be from a barrel or other container within the actual amount of "makeup" water, so that it can be measured periodically during the test period.

The pipeline shall be backfilled sufficiently to prevent movement of the pipe under pressure. All thrust blocks shall be in place and time allowed for the concrete to cure before testing. Where permanent blocking is not required, the Contractor shall furnish and install temporary blocking.

As soon as pipe is secured against movement under pressure, it may be filled with water. Satisfactory performance of air valves shall be checked while the line is filling.

Contractor shall preflush all water mains after water has remained in the main for 24 hours and before pressure testing the main.

After the pipe is filled and all air expelled, it shall be pumped to a test pressure of 250 psi, and this pressure shall be maintained for a period of not less than thirty (30) minutes to insure the integrity of the thrust and anchor blocks. All tests shall be made with the hydrant auxiliary gate valves open and pressure against the hydrant valve. Hydrostatic tests shall be performed on every complete section of water main between two valves, and each valve shall withstand the same test pressure as the pipe with no pressure active in the section of pipe beyond the closed valve.

In addition to the hydrostatic pressure test, a leakage test shall be conducted on the pipeline. The leakage test shall be conducted at 150 psi for a period of not less than one (1) hour. The quantity of water lost from the main shall not exceed the number of gallons per hour determined by the formula:

$$L = \frac{ND(P)^{0.5}}{7{,}400}$$

in which

L = Allowable leakage, gallons/hour
N = Number of joints in the length of pipeline tested
D = Nominal diameter of the pipe in inches
P = Average test pressure during the leakage test, psi

Defective materials or workmanship, discovered as a result of the tests, shall be replaced by the Contractor at the Contractor's expense. Whenever it is necessary to replace defective material or correct the workmanship, the tests shall be re-run at the Contractor's expense until a satisfactory test is obtained.

As sections of pipe are constructed and before pipelines are placed in service, they shall be sterilized in conformance with the requirements of the State of Washington Department of Health Services.

The Contractor shall be responsible for flushing all water mains prior to water samples being acquired. The water mains shall be flushed at a rate to provide a minimum 2.5 feet per second velocity in the main.

In all disinfection processes, the Contractor shall take particular care in flushing and wasting the chlorinated water from the mains to assure that the flushed and chlorinated water does no physical or environmental damage to property, streams, storm sewers or any waterways. The

Contractor shall chemically or otherwise treat the chlorinated water to prevent damage to the affected environment, particularly aquatic and fish life of receiving streams.

Chlorine shall be applied in one of the following manners, listed in order of preference, to secure a concentration in the pipe of at least 50 ppm.

1. Injection of chlorine-water mixture from chlorinating apparatus through corporation cock at beginning of section after pipe has been filled, and with water exhausting at end of section at a rate controlled to produce the desired chlorine concentration;

2. Injection similarly of a hypochlorite solution;

3. Placement of dry chlorinated lime throughout pipeline, as constructed, in proper quantities to produce the desired dosage. Filling of pipeline with this method should be at a very slow rate. Pipeline should be filled within two (2) days of placing sterilizing agent.

After the desired chlorine concentration has been obtained throughout the section of line, the water in the line shall be left standing for a period of twenty-four (24) hours. Following this, the line shall be thoroughly flushed and a water sample collected. The line shall not be placed in service until a satisfactory bacteriological report has been received.

City forces only will be allowed to operate existing and new tie-in valves. The Contractor's forces are expressly forbidden to operate any valve on any section of line which has been accepted by the City.

7.05 Staking

All surveying and staking shall be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing and/or performing such work shall be currently licensed by the State of Washington to perform said tasks.

A preconstruction meeting shall be held with the City prior to commencing staking. All construction staking shall be inspected by the City prior to construction.

The minimum staking of water systems shall be as follows:

A. Provide staking sufficient to satisfy the City's Public Works Supervisor. In new plat development roadway centerline staking must be readily identifiable.

B. Stake locations of all proposed fire hydrant, blow-off, air-vac, valves, meters, etc.

7.06 Trench Excavation

A. Clearing and grubbing where required shall be performed within the easement or public right-of-way as permitted by the City and/or governing agencies. Debris resulting from the clearing and grubbing shall be disposed of by the owner or contractor in accordance with the terms of all applicable permits.

B. Trenches shall be excavated to the line and depth designated by the City to provide a minimum of 36 inches of cover over the pipe. Except for unusual circumstances where approved by the City, the trench sides shall be excavated vertically and the trench width shall be excavated only to such widths as are necessary for adequate working space as allowed by the governing agency and in compliance with all safety requirements of the prevailing agencies. See Detail. The trench shall be kept free from water until joining is complete. Surface water shall be diverted so as not to enter the trench. The owner shall maintain sufficient pumping equipment on the job to insure that these provisions are carried out.

C. The contractor shall perform all excavation of every description and whatever substance encountered and boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth 6 inches below the pipeline grade. Where materials are removed from below the pipeline grade, the trench shall be backfilled to grade with material satisfactory to the City and thoroughly compacted.

D. Trenching and shoring operations shall not proceed more than 100 feet in advance of pipe laying without approval of the City, and shall be in conformance with Washington Industrial Safety and Health Administration (WISHA) and Office of Safety and Health Administration (OSHA) Safety Standard.

E. The bedding course shall be finished to grade with hand tools in such a manner that the pipe will have bearing along the entire length of the barrel. The bell holes shall be excavated with hand tools to sufficient size to make up the joint.

7.07 Backfilling

Backfilling and surface restoration shall closely follow installation of pipe so that not more than 100 feet is left exposed during construction hours without approval of the City. Selected material shall be placed and compacted around and under the storm drain by hand tools. Special precautions should be provided to protect the pipe to a point 12 inches above the crown of the pipe. The remaining backfill shall be compacted to 95 percent of the maximum density in traveled areas and road prisms, 90 percent outside driveway, roadways, road prism, shoulders, parking or other traveled areas. Where governmental agencies other than the City have jurisdiction over roadways, the backfill and compaction shall be done to the satisfaction of the agency having jurisdiction. If suitable backfill material, as determined by the City, is not available from trenching operations, the City may order the placing of gravel base conforming with Section 9-03.10 of the WSDOT Standard Specifications for backfilling the trench.

7.08 Street Patching and Restoration

See Chapter 4.16 and 4.17 for requirements regarding street patching and trench restoration.

7.09 Erosion Control

The detrimental effects of erosion and sedimentation shall be minimized by conforming with SBMC 15.78.050 and the following general principles:

1. Soil shall be exposed for the shortest possible time.

2. Reducing the velocity and controlling the flow of runoff.

3. Detaining runoff on the site to trap sediment.

4. Releasing runoff safely to downstream areas.

In applying these principles, the Developer and/or Contractor shall provide for erosion control by conducting work in workable units; minimizing the disturbance to cover crop materials; providing mulch and/or temporary cover crops, sedimentation basins, and/or diversions in critical areas during construction; controlling and conveying runoff; and establishing permanent vegetation and installing erosion control structures as soon as possible.

A. Trench Mulching

Where there is danger of backfill material being washed away due to steepness of the slope along the direction of the trench, backfill material shall be compacted and held in place by covering the disturbed area with straw and held with a covering of jute matting or wire mesh anchored in place.

B. Cover-Crop Seeding

A cover crop shall be sown in all areas excavated or disturbed during construction that were not paved, landscaped and/or seeded prior to construction. Areas landscaped and/or seeded prior to construction shall be restored to their original or superior condition.

Cover-crop seeding shall follow backfilling operations.

The Developer and/or Contractor shall be responsible for protecting all areas from erosion until the cover crop affords such protection. The cover crop shall be re-seeded if required and additional measures taken to provide protection from erosion until the cover crop is capable of providing protection.

During winter months, the Contractor may postpone seeding, if conditions are such that the seed will not germinate and grow. The Developer and/or Contractor will not, however, be relieved of the responsibility of protecting all areas until the cover crop has been sown and affords protection from erosion.

The cover crop shall be sown at a rate of 10 to 15 pounds of seed per acre using a hand or power operated mechanical seeder capable of providing a uniform distribution of seed.

7.10 Finishing and Cleanup

After all other work on this project is completed and before final acceptance, the entire roadway, including the roadbed, planting, sidewalk areas, shoulders, driveways, alley and side street approaches, slopes, ditches, utility trenches, and construction areas shall be neatly finished to the lines, grades and cross sections of a new roadway consistent with the original section, and as hereinafter specified.

On water system construction where all or portions of the construction is in undeveloped areas, the entire area which has been disturbed by the construction shall be shaped so that upon completion the area will present a uniform

appearance, blending into the contour of the adjacent properties. All other requirements outlined previously shall be met.

Slopes, sidewalk areas, planting areas and roadway shall be smoothed and finished to the required cross section and grade by means of a grading machine insofar as it is possible to do so without damaging existing improvements, trees and shrubs. Machine dressing shall be supplemented by hand work to meet requirements outlined herein, to the satisfaction of the City Public Works Superintendent and/or the City Supervisor.

Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. All graded areas shall be true to line and grade. Where the existing surface is below sidewalk and curb, the area shall be filled and dressed out to the walk. Wherever fill material is required in the planting area, the finished grade shall be elevated to allow for final settlement, but nevertheless, the raised surface shall present a uniform appearance.

All rocks in excess of 1 inch diameter shall be removed from the entire construction area and shall be disposed of the same as required for other waste material. In no instance shall the rock be thrown onto private property. Overhang on slopes shall be removed and slopes dressed neatly so as to present a uniform, natural, well-sloped surface.

All excavated material at the outer lateral limits of the project shall be removed entirely. Trash of all kinds resulting from clearing and grubbing or grading operations shall be removed and not placed in areas adjacent to the project. Where machine operations have broken down brush and trees beyond the lateral limits of the project, the Developer and/or Contractor shall remove and dispose of same and restore said disturbed areas at his own expense.

Drainage facilities such as inlets, catch basins, culverts, and open ditches shall be cleaned of all debris which is the result of the Developer and/or Contractor's operations.

All pavements and oil mat surfaces, whether new or old, shall be thoroughly cleaned. Existing improvements such as Portland cement concrete curbs, curb and gutters, walls, sidewalks, and other facilities which have been sprayed by the asphalt cement shall be cleaned to the satisfaction of the City Public Works Superintendent and/or City Supervisor.

Castings for monuments, water valves, vaults and other similar installations which have been covered with the asphalt material shall be cleaned to the satisfaction of the City's resident inspector and/or the Public Works Department.

7.11 General Guarantee and Warranty

The Developer shall be required, upon completion of the work and prior to acceptance by the City, to furnish the City a written guarantee covering all material and workmanship for a period of 2 years after the date of final acceptance and he shall make all necessary repairs during that period at his own expense, if such repairs are necessitated as the result of furnishing poor materials and/or workmanship. The Developer shall obtain warranties from the Contractors, subcontractors and suppliers of material or equipment where such warranties are required, and shall deliver copies to the City upon completion of the work.

Easement documents, if applicable, shall be filed and recorded with the Pacific County Auditor's office and the documents reviewed by the City prior to project acceptance. Recorded copies shall be furnished to the City.

APPENDIX D

COLIFORM AND STAGE 2 DBPR MONITORING PLAN

Coliform Monitoring Plan for: South Bend Water Department

A. System Information

Plan Date: 8/16/2024

Water System Name South Bend Water Department	**County** Pacific	**System I.D. Number** 81500 Y
Name of Plan Preparer Eric Noah	**Position** Environmental Planner	**Daytime Phone** - - **Email: enoah@g-o.com**
Sources: DOH Source Number, Source Name, Well Depth, Pumping Capacity	SO1 Martin Creek SO2 Electric Creek SO3 Fliess Creek (inactive) SO4 Raymond / 71500 X	
Storage: List and Describe	Main Reservoir No. 1 (1,653,000 gallons) Main Reservoir No. 2 (803,000 gallons) New Rixon Road Reservoir (354,000 gallons) Old Rixon Road Reservoir (218,000 gallons)	
Treatment: Source Number & Process	SO 1 Filtration, chlorination, fluoridation SO 2 Filtration, chlorination, fluoridation	
Pressure Zones: Number and name	1 Main Zone Booster Station Zones: 2 B Street 3 Wolfe Zone 4 Rixon Road	
Population by Pressure Zone	1: approx. 1,700 2: approx. 40 (14 residences) 3: approx. 6 (2 residences) 4: approx. 6 (2 residences)	
Number of Routine Samples Required Monthly by Regulation:		3
Number of Sample Sites Needed to Represent the Distribution System:		5
***Request DOH Approval of Triggered Source Monitoring Plan?**		**Yes** ☐ **No** ☒

*If approval is requested a fee will be charged for the review.

B. Laboratory Information

Laboratory Name Grays Harbor County Water Lab	**Office Phone 360-249-4222** **After Hours Phone - -**
Address 100 W Broadway, Montesano, WA 98563, 3rd floor	**Cell Phone - -** **Email** EHD@co.grays-harbor.wa.us
Hours of Operation Samples accepted between 8:00 AM-4:00 PM	
Contact Name Eric Khambatta, R.S.	
Emergency Laboratory Name Pacific County Water Lab	**Office Phone 360-942-7247** **After Hours Phone - -**
Address 1216 W Robert Bush Drive, South Bend, WA 98586	**Cell Phone - -** **Email tcoty@co.pacific.wa.us** **amcallister@co.pacific.wa.us**
Hours of Operation Samples accepted Tuesdays between 7:30 AM-11:00 AM	
Contact Name Tyler Coty, Amanda McAllister	

C. Routine, Repeat, and Triggered Source Sample Locations*

Location/Address for **Routine Sample Sites**	Location/Address for **Repeat Sample Sites**
X1. Airport Road	**1-1. 48 Airport Road**
	1-2. (Upstream) 56 Airport Road
	1-3. (Downstream) 36 Airport Road
X2. Wyoming Street	**2-1. 805 Wyoming Street**
	2-2. (Upstream) 933 Summit Ave
	2-3. (Downstream) 802 Wyoming Street

X3. A Street	**3-1. 816 A Street**
	3-2. (Upstream) 810 A Street
	3-3. (Downstream) 1310 A Street
X4. Gorden Road	**4-1. 69 Gorden Road**
	4-2. (Upstream) 82 Gorden Road
	4-3. (Downstream) 33 Gorden Road
X5. East 1st Street	**5-1. 501 East 1st Street**
	5-2. (Upstream) 327 East 1st Street (School Gym)
	5-3. (Downstream) 507 East 1st Street

*NOTE: If you need more than three routine samples to cover the distribution system, attach additional sheets as needed.

**** When you collect the repeats, you must sample every groundwater source that was in use when the original routine sample was collected.**

Important Notes for Sample Collector:

_____

_____

_____

_____
_____
_____
_____

Reduced Triggered Source Monitoring Justification (add sheets as needed):

D. Routine Sample Rotation Schedule

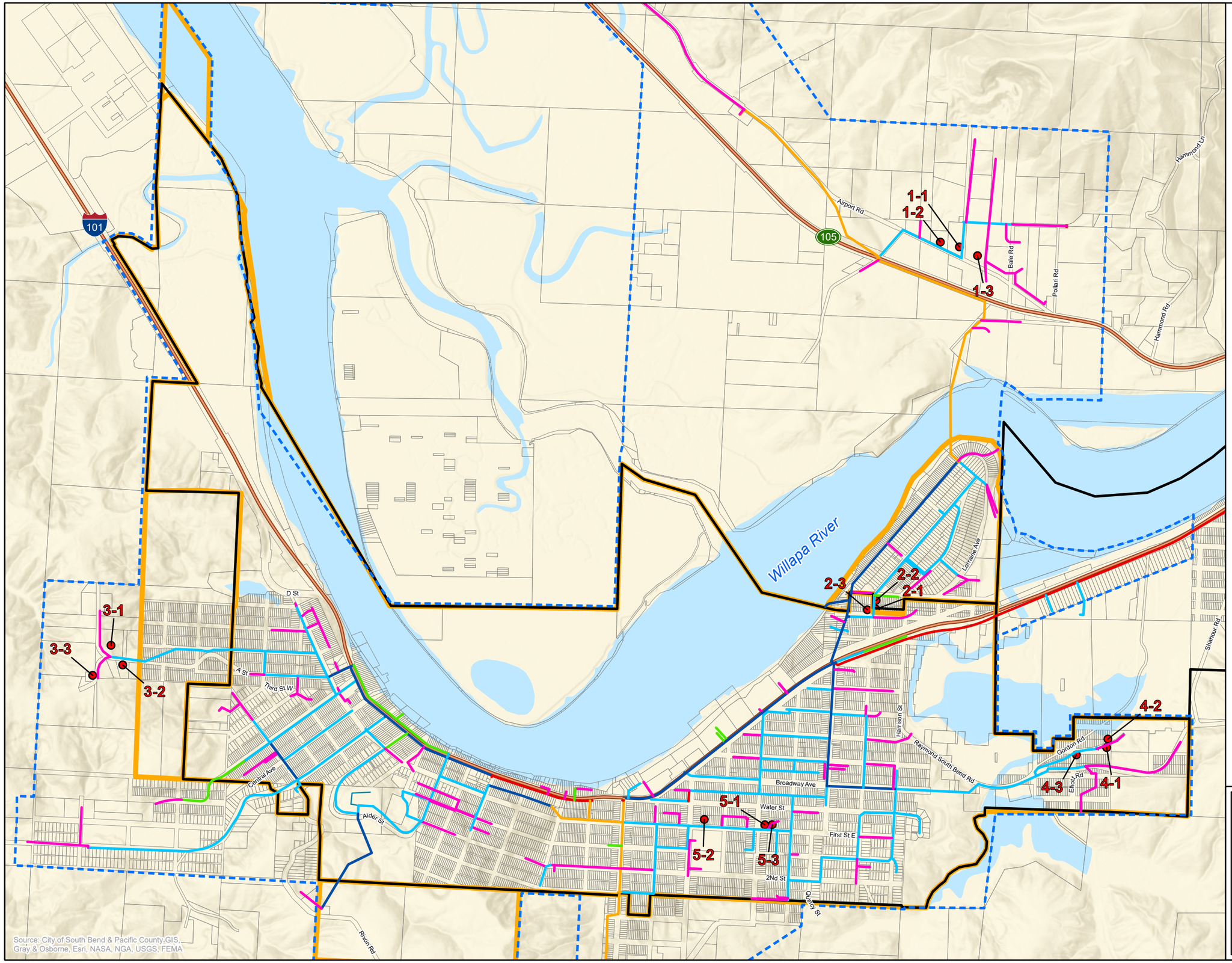
Month	Routine Site(s)	Month	Routine Site(s)
January	S1, S2, S5	July	S1, S2, S5
February	S2, S3, S4	August	S2, S3, S4
March	S1, S4, S5	September	S1, S4, S5
April	S1, S2, S3	October	S1, S2, S3
May	S1, S3, S4	November	S2, S3, S5
June	S3, S4, S5	December	S3, S4, S5

E. Level 1 and Level 2 Assessment Contact Information

Name **Chris Orkney**	**Office Phone 360-942-0072** **After Hours Phone - -**
Address **1102 W First St** **PO Drawer 9, South Bend, WA 98586**	**Email** **Chris.orkney@southbend-wa.gov**

Name	**Office Phone - -** **After Hours Phone - -**
Address	**Email**

F. System Map



Water Main (Diameter)

- ≤ 3"
- 4"
- 6"
- 8"
- 10"
- 12"
- Lateral

Reference

- Coliform Sampling Locations
- Highway
- Retail Service Area
- Urban Growth Area
- City Limits
- Parcel
- Surface Water

N

0 500 1,000 2,000 Feet

CITY OF SOUTH BEND

COLIFORM MONITORING MAP

Gray & Osborne, Inc.
CONSULTING ENGINEERS

Export Date: 6/20/2025

M:\South Bend\23245.00 Water System Plan\GIS\APRX\WSP_Figures\WSP_Figures.aprx

DBP Monitoring Plan
(Quarterly Schedule)

This template should be used by:

* Surface water systems who serve more than 500 population and are not on reduced monitoring
* Surface water systems who serve more than 10,000 population on reduced monitoring
* Groundwater systems who serve more than 10,000 population and are not on reduced monitoring
* Any system that is on increased quarterly monitoring

For more information, refer to the Reference Sheets on the separate tabs

System Name:	South Bend Water Department
PWSID#:	81500 Y
Population:	1,630
Type of Source Water:	Surface Water
Completed by:	Eric Noah, Gray & Osborne, Inc.
Date:	6/20/2025

Routine Monitoring Requirments

Monitoring Frequency (Routine Monitoring):	Quarterly
Number of TTHM Samples Required:	1
Number of HAA5 Samples Required:	1

See Routine Monitoring Reference tab to determine number of samples required

Reduced Monitoring Schedule

Monitoring Frequency (Reduced Monitoring):	Quarterly
Number of TTHM Samples Required:	
Number of HAA5 Samples Required:	

See Reduced Monitoring Reference tab to determine number of samples required

Monitoring Locations and Month Assigned

Monitoring Location (Name of Site)	Assigned Sampling Month			
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
810 A Street - TTHM	February	May	August	November
1207 Morrison - HAA5	February	May	August	November

Determining Compliance for TTHM and HAA5

Our system is required to monitor quarterly. Each quarter we will calculate a locational running annual average (LRAA) for TTHM and HAA5 at each monitoring location. Compliance will be achieved if the TTHM and the HAA5 LRAA at each monitoring location for the four most recent quarters is less than or equal to 0.080 mg/L for TTHM and less than or equal to 0.060 mg/l for HAA5.

Because compliance is based on a locational running annual average, the same location(s) must be used each quarter.

Operational Evaluation Level (OEL)
Calculated each quarter using the most recent 3 quarters of sample results, with Q3 being the most recent (multiplied by 2) and Q1 being the first of the 3 quarters.

$$\mathbf{OEL} = \frac{\mathbf{[Q1 + Q2 + 2\times(Q3)]}}{\mathbf{4}}$$

If the calculated OEL exceeds the MCLs for TTHM (0.080 mg/L) or HAA5 (0.060 mg/L) then the system has an OEL exceedance and is required to conduct an operational evaluation and submit a report within 90 days.

To qualify for reduced monitoring:
The TTHM LRAA must be less than or equal to 0.040 mg/L AND the HAA LRAA must be less than or equal to 0.030 mg/L at each monitoring location.

AND for systems that use surface water the source water annual average TOC level, before any treatment, must be less than or equal to 4.0 mg/L (based on routine monthly samples or reduced quarterly samples, see Reduced Monitoring Sheet). Please note, if you are a wholesale customer, you will need to get this data from your supplying system.

Disinfectant Residual Monitoring
Chlorine residuals must be measured at the same time and place as routine or repeat coliform samples MRDL for chlorine and chloramines = 4.0 mg/l as Cl2

Determining Compliance for disinfectant residuals
Compliance is based on the running annual average (RAA) of 12 consecutive months. Daily residual measurements will / will not be included in the compliance calculations (circle one)

(Attach a distribution map with sample locations. You will need to print a hard copy for your records and make it available upon request. You do not need to submit a copy to DOH. If you need this publication in an alternate format, call (800) 525-0127. For TTY/TDD call (800) 833-6388.)

APPENDIX E

WATER QUALITY MONITORING SCHEDULE AND CCR

Washington State Department of Health
Environmental Public Health
Office of Drinking Water

Water Quality Monitoring Schedule

System: SOUTH BEND WATER DEPARTMENT **PWS ID: 81500 Y** **Region: SOUTHWEST**
Contact: Chris M Orkney **Group: A - Comm** **County: PACIFIC**

NOTE: To receive credit for compliance samples, you must fill out laboratory and sample paperwork completely, send your samples to a laboratory accredited by Washington State to conduct the analyses, AND ensure the results are submitted to DOH Office of Drinking Water. There is often a lag time between when you collect your sample, when we credit your system with meeting the monitoring requirement, and when we generate the new monitoring requirement.

Coliform Monitoring Requirements

	Dec 2023	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024
Coliform Monitoring Population	2547	2547	2547	2547	2547	2680	2930	2530	2530	2930	2547	2547
Number of Routine Samples Required	3	3	3	3	3	3	3	3	3	3	3	3

- Collect samples from representative points throughout the distribution system.
- Collect required repeat samples following an unsatisfactory sample. In addition, collect a sample from each operating groundwater source.
- For systems that chlorinate, record chlorine residual (measured when the coliform sample is collected) on the coliform lab slip.

Chemical Monitoring Requirements

Distribution Monitoring

Water Quality Monitoring Schedule

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due	
Lead and Copper	10	Jan 2021 - Dec 2023	standard - 3 year	09/26/2023	***Jul 2023***	***Due Date***
Asbestos	1	Jan 2020 - Dec 2028	standard - 9 year	11/07/2018	Sep 2027	
Total Trihalomethane (THM)	1	Jan 2023 - Mar 2023	increased - quarterly	08/23/2023		
Total Trihalomethane (THM)	1	Apr 2023 - Jun 2023	increased - quarterly	08/23/2023		
Total Trihalomethane (THM)	1	Jul 2023 - Sep 2023	increased - quarterly	08/23/2023		
Total Trihalomethane (THM)	1	Oct 2023 - Dec 2023	increased - quarterly	08/23/2023	***Nov 2023***	
Halo-Acetic Acids (HAA5)	1	Jan 2023 - Mar 2023	increased - quarterly	08/23/2023		
Halo-Acetic Acids (HAA5)	1	Apr 2023 - Jun 2023	increased - quarterly	08/23/2023		
Halo-Acetic Acids (HAA5)	1	Jul 2023 - Sep 2023	increased - quarterly	08/23/2023		
Halo-Acetic Acids (HAA5)	1	Oct 2023 - Dec 2023	increased - quarterly	08/23/2023	***Nov 2023***	

Notes on Distribution System Chemical Monitoring

For *Lead and Copper*:
- Collect samples from the COLD WATER side of a KITCHEN or BATHROOM faucet that is used daily.
- Before sampling, make sure the water has sat unused in the pipes for at least 6 hours, but no more than 12 hours (e.g. overnight).
- If you are sampling from a faucet that has hot water, make sure cold water is the last water to run through the faucet before it sits overnight.
- If your sampling frequency is annual or every 3 years, collect samples between June 1 and September 30.

For *Asbestos:* Collect the sample from one of your routine coliform sampling sites in an area of your distribution system that has asbestos concrete pipe.

For *Disinfection Byproducts (HAA5 and THM):* Collect the samples at the locations identified in your Disinfection Byproducts (DBP) monitoring plan.

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S01 *MARTIN CREEK* *Surface* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2023 - Dec 2023	standard - 1 year	12/05/2023	

Water Quality Monitoring Schedule

Source Monitoring

- Collect 'source' chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S01 *MARTIN CREEK* *Surface* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	09/14/2020	
Iron	1	Jan 2023 - Dec 2023	standard - 1 year	09/26/2023	
Volatile Organics (VOC)	1	Jan 2020 - Dec 2025	waiver - 6 year	09/26/2023	
Herbicides	1	Jan 2023 - Dec 2031	waiver - 9 year	04/10/2017	Apr 2026
Pesticides	0	Jan 2023 - Dec 2025	waiver - 3 year	04/01/2008	
PFAS	1	Jan 2023 - Dec 2025	standard - 3 year		Aug 2025
Soil Fumigants	0	Jan 2023 - Dec 2025	waiver - 3 year		
Gross Alpha	1	Jan 2020 - Dec 2025	standard - 6 year	11/07/2018	Nov 2024
Radium 228	1	Jan 2020 - Dec 2025	standard - 6 year	11/07/2018	Nov 2024

Source S02 *ELECTRIC CREEK* *Surface* *Use - Permanent* *Susceptility - High*

Test Panel/Analyte	# Samples Required	Compliance Period	Frequency	Last Sample Date	Next Sample Due
Nitrate	1	Jan 2023 - Dec 2023	standard - 1 year	12/05/2023	
Complete Inorganic (IOC)	1	Jan 2020 - Dec 2028	waiver - 9 year	09/14/2020	
Iron	1	Jan 2023 - Dec 2023	standard - 1 year	09/26/2023	
Volatile Organics (VOC)	1	Jan 2020 - Dec 2025	waiver - 6 year	09/26/2023	
Herbicides	1	Jan 2023 - Dec 2031	waiver - 9 year	04/10/2017	Apr 2026
Pesticides	0	Jan 2023 - Dec 2025	waiver - 3 year	04/01/2008	
PFAS	1	Jan 2023 - Dec 2025	standard - 3 year		Aug 2025
Soil Fumigants	0	Jan 2023 - Dec 2025	waiver - 3 year		
Gross Alpha	1	Jan 2020 - Dec 2025	standard - 6 year	11/07/2018	Nov 2024

Water Quality Monitoring Schedule

Source Monitoring

- Collect ‘source’ chemical monitoring samples from a tap after all treatment (if any), but before entering the distribution system.
- Washington State grants monitoring waivers for various test panels /analytes. Please note that we may require some monitoring as a condition of some waivers. We have granted complete waivers for dioxin, endothal, glyphosate, diquat, and insecticides.
- Nitrate, arsenic, iron, and other individual inorganics are included as part of a Complete Inorganic (IOC) analysis when it is collected.

Source S02	*ELECTRIC CREEK*	*Surface*	*Use - Permanent*	*Susceptility - High*		
Test Panel/Analyte	*# Samples Required*	*Compliance Period*	*Frequency*		*Last Sample Date*	*Next Sample Due*
Radium 228	1	Jan 2020 - Dec 2025	standard - 6 year		11/07/2018	Nov 2024

Water Quality Monitoring Schedule

Other Information

Other Reporting Schedules	*Due Date*
Measure chlorine residuals and submit monthly reports if your system uses continuous chlorination:	monthly
Submit Consumer Confidence Report (CCR) to customers and ODW (Community systems only):	07/01/2023
Submit CCR certification form to ODW (Community systems only):	10/01/2023
Submit Water Use Efficiency report online to ODW and to customers (Community and other municipal water systems only):	07/01/2023
Send notices of lead and copper sample results to the customers sampled:	30 days after you receive the laboratory results
Submit Certification of customer notification of lead and copper results to ODW:	90 days after you notify customers

Special Notes

Total Organic Carbon (TOC) doesnâ€™t appear on the table above because it is not required for regulatory compliance. HOWEVER, as a surface water system IF you want to remain on a reduced annual schedule for TTHM/HAA5 sampling you must sample TOCs on a quarterly basis.

Southwest Regional Water Quality Monitoring Contacts

For questions regarding chemical monitoring:	Sophia Petro: (564) 669-0856 or sophia.petro@doh.wa.gov
For questions regarding DBPs:	Regina Grimm, p.e.: (360) 236-3035 or regina.grimm@doh.wa.gov
For questions regarding coliform bacteria and microbial issues:	Southwest Office: (360) 236-3030 or SWRO.Coli@doh.wa.gov

Additional Notes

The information on this monitoring schedule is valid as of the date in the upper left corner on the first page. However, the information may change with subsequent updates in our water quality monitoring database as we receive new data or revise monitoring schedules. There is often a lag time between when you collect your sample and when we credit your system with meeting the monitoring requirement.

We have not designed this monitoring schedule to display all compliance requirements. The purpose of this schedule is to assist water systems with planning for most water quality monitoring, and to allow systems to compare their records with DOH ODW records. Please be aware that this monitoring schedule does not include constituents that require a special monitoring frequency, such as monitoring affiliated with treatment.

Any inaccuracies on this schedule will not relieve the water system owner and operator of the requirement to comply with applicable regulations.

If you have any questions about your monitoring requirements, please contact the regional office staff listed above.

South Bend Water Department CCR 2024
WSID# 81500 Y

Spanish (Espanol)

Este informe contiene informacion muy importante sobre la calidad de su agua beber. Traduscalo o hable con alguien que lo entienda bien.

Is my water safe?

We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with information because informed customers are our best allies. Last year, we conducted tests for over 80 contaminants. We only detected 7 of those contaminants, and found only 1 at a level higher than the EPA allows. As we informed you at the time, our water temporarily exceeded drinking water standards. (For more information see the section labeled Violations at the end of the report.)

Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

Where does my water come from?

Our water comes from Martin and Light Creeks. These sources are located at 412 foot elevation on the north side of the Willapa River.

Source water assessment and its availability.

Source water assessment and its availability is provided by the South Bend Water Department upon written request.

Why are there contaminants in my drinking water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791). The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity:
microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

How can I get involved?

Please feel free to attend regularly scheduled City Council meetings. Times and dates are posted on the City of South Bend website.

Description of Water Treatment Process

Your water is treated by filtration and disinfection. Filtration removes particles suspended in the source water. Particles typically include clays and silts, natural organic matter, iron and

manganese, and microorganisms. Your water is also treated by disinfection. Disinfection involves the addition of chlorine or other disinfectants to kill bacteria and other microorganisms (viruses, cysts, etc.) that may be in the water. Disinfection is considered to be one of the major public health advances of the 20th century.

Water Conservation Tips

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference - try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Visit www.epa.gov/watersense for more information.

Cross Connection Control Survey

The purpose of this survey is to determine whether a cross-connection may exist at your home or business. A cross connection is an unprotected or improper connection to a public water distribution system that may cause contamination or pollution to enter the system. We are responsible for enforcing cross-connection control regulations and insuring that no contaminants can, under any flow conditions, enter the distribution system. If you have any of the devices listed below please contact us so that we can discuss the issue, and if needed, survey your connection and assist you in isolating it if that is necessary.

- Boiler/ Radiant heater (water heaters not included)
- Underground lawn sprinkler system
- Pool or hot tub (whirlpool tubs not included)
- Additional source(s) of water on the property
- Decorative pond
- Watering trough

Source Water Protection Tips

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides - they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets.
- If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use EPA's Adopt Your Watershed to locate groups in your community, or visit the Watershed Information Network's How to Start a Watershed Team.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste - Drains to River" or "Protect Your Water." Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body.

Additional Information for Lead

The system inventory includes lead service lines.
The lead line service inventory information is available on the City of South Bend website.
The following link can be used to access inventory information - https://southbend-wa.gov/.

Lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. South Bend Water Department is responsible for providing high quality drinking water and removing lead pipes, but cannot control the variety of materials used in plumbing components in your home. You share the responsibility for protecting yourself and your family from the lead in your home plumbing. You can take responsibility by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Before drinking tap water, flush your pipes for several minutes by running your tap, taking a shower, doing laundry or a load of dishes. You can also use a filter certified by an American National Standards Institute accredited certifier to reduce lead in drinking water. If you are concerned about lead in your water and wish to have your water tested, contact South Bend Water Department (Public Watersystem Id: WA5381500) by calling (360) 591-1552 or emailing chris.orkney@southbend-wa.gov. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at http://www.epa.gov/safewater/lead.

Water Quality Data Table

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might

not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Disinfectants & Disinfection By-Products								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
TTHMs [Total Trihalomethanes] (ppb)	NA	80	29.8	NA	NA	2024	No	By-product of drinking water disinfection
Inorganic Contaminants								
Fluoride (ppm)	4	4	0.87	NA	NA	2024	No	Water additive which promotes strong teeth.
Volatile Organic Contaminants								
Dichloromethane (ppb)	00	5	2.5	NA	NA	2017	No	Discharge from pharmaceutical and chemical factories

Contaminants	MCLG	AL	Your Water	Range		# Samples Exceeding AL	Sample Date	Exceeds AL	Typical Source
				Low	High				
Inorganic Contaminants									
Copper - action level at consumer taps (ppm)	1.3	1.3	0.327	0.003	0.327	0	2023	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead - action level at consumer taps (ppb)	00	15	34	0.002	0.034	2	2023	Yes	Corrosion of household plumbing systems; Erosion of natural deposits

Violations and Exceedances

Lead - action level at consumer taps

Exposure to lead in drinking water can cause serious health effects in all age groups. Infants and children can have decreases in IQ and attention span. Lead exposure can lead to new learning and behavior problems or exacerbate existing learning and behavior problems. The children of women who are exposed to lead before or during pregnancy can have increased risk of these adverse health effects. Adults can have increased risks of heart disease, high blood pressure, kidney or nervous system problems. The system sampled 10 sites for lead and copper in 2023 and two samples exceeded the

Violations and Exceedances
action level for lead. The system has implemented a corrosion control program to mitigate lead and copper issues in the system.

Undetected Contaminants

The following contaminants were monitored for, but not detected, in your water.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Your Water	Violation	Typical Source
Haloacetic Acids (HAA5) (ppb)	NA	60	ND	No	By-product of drinking water chlorination
Nitrate [measured as Nitrogen] (ppm)	10	10	ND	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Unit Descriptions	
Term	**Definition**
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.

Important Drinking Water Definitions	
Term	**Definition**
MCLG	MCLG: Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
MCL	MCL: Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Important Drinking Water Definitions	
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances and Exemptions	Variances and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	MRDLG: Maximum residual disinfection level goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MRDL	MRDL: Maximum residual disinfectant level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level
90th Percentile	Compliance with the lead and copper action levels is based on the 90th percentile lead and copper levels. This means that the concentration of lead and copper must be less than or equal to the action level in at least 90% of the samples collected.

For more information please contact:

Contact Name: Chris Orkney
Address: PO Box 9
South Bend, WA 98586
Phone: (360) 591-1552

APPENDIX F

HYDRAULIC MODELING RESULTS

2024 MDD + FF								
ID	Total Demand (gpm)	Hydrant Available Flow (gpm)	Critical Node ID for Design Run	Critical Node Pressure at Available Flow (psi)	Critical Node Pressure at Fire Demand (psi)	Critical Pressure for Design Run (psi)	Hydrant Design Flow (gpm)	Hydrant Pressure at Design Flow (psi)
10	504.79	1,321.35	J16	7.80	38.9	20	1,051.71	36.14
103	504.79	1,808.41	144	-4.46	37.32	20	1,177.58	60.94
104	504.79	2,420.55	144	-37.51	37.26	20	1,159.18	79.3
106	504.79	2,413.73	144	-40.08	37.05	20	1,135.42	81.25
108	504.79	2,165.27	144	-21.56	37.32	20	1,177.58	70.81
109	504.79	1,955.16	144	-17.02	36.76	20	1,110.52	72.53
11	504.79	1,793.77	J16	-40.44	36.63	20	892.85	80.44
110	504.79	2,337.62	144	-40.80	36.67	20	1,095.95	81.16
111	504.79	2,242.50	144	-31.92	36.86	20	1,120.22	78.45
112	504.79	1,915.13	144	-16.17	36.62	20	1,096.86	70.31
113	504.79	1,050.08	J38	13.12	69.24	20	996.61	26.88
116	504.79	2,269.92	144	-41.64	36.27	20	1,058.27	82.09
119	504.79	2,000.03	144	-26.62	36.09	20	1,043.52	77.11
120	504.79	2,192.56	144	-41.78	35.88	20	1,022.17	81.82
122	504.79	2,121.14	144	-41.9	35.48	20	985.95	82.02
124	504.79	1,066.10	124	20.00	82.46	20	1,066.10	20
126	504.79	1,215.88	144	18.03	37.19	20	1,157.81	26.96
127	504.79	1,931.93	144	-17.63	36.57	20	1,090.88	72.01
128	504.79	1,344.50	144	10.30	36.57	20	1,090.93	42.33
129	504.79	1,444.88	144	6.06	36.57	20	1,090.93	51.08
13	504.79	1,293.87	J16	-3.28	36.63	20	892.85	59.45
130	504.79	519.78	130	20	23.54	20	519.78	20
132	504.79	1,986.42	144	-40.8	34.78	20	935.04	80.8
134	504.79	1,363.80	144	-0.75	34.78	20	935.04	53.57
138	504.79	958.57	144	19.01	34.78	20	935.04	22.03
14	504.79	1,112.54	J16	15.87	38.52	20	1,019.92	25.15
140	504.79	1,338.28	144	-31.74	29.14	20	678.97	71.76
142	504.79	801.36	144	-1.74	23.08	20	548.32	41.74
144	504.79	513.92	144	20	20.71	20	513.92	20
146	504.79	1,002.48	144	-2.08	29.14	20	679.37	47.39
15	504.79	1,069.13	J16	10.5	36.63	20	892.85	41.93
150	504.79	35.03	150	20	-8,842.61	20	35.03	20
16	504.79	1,379.09	J16	4.12	38.76	20	1,040.01	42.81
17	504.79	1,859.38	J16	-41.19	37.09	20	919.31	81.19
18	504.79	1,301.63	J16	7.91	38.75	20	1,038.32	45.32
2	504.79	1,693.03	J16	-23.14	37.67	20	955.36	63.14
201	504.79	2,273.90	J16	-36.06	40.08	20	1,152.69	77.35
202	504.79	2,693.00	J10	-17.50	31.48	20	1,222.02	84.41
204	504.79	1,440.15	J10	13.15	31.05	20	1,132.42	34.83
205	504.79	3,437.09	J10	-0.27	33.39	20	1,981.52	75.83

206	504.79	2,067.52	144	-11.64	37.98	20	1,241.73	58.61
209	504.79	1,397.04	98	17.41	37.75	20	1,310.22	23.94
210	516.90	1,136.17	144	18.47	36.47	20	1,093.97	25.62
217	504.79	1,505.45	144	17.00	38.63	20	1,399.28	24.19
220	504.79	81.26	J38	13.08	-2,009.21	20	77.02	26.97
227	504.79	3,197.24	J10	-34.42	31.52	20	1,227.66	90.56
26	504.79	3,134.18	J10	-32.67	31.48	20	1,222.02	89.76
27	5,004.79	3,230.79	J10	-37.05	-117.12	20	1,214.26	91.46
28	504.79	3,388.73	J10	-44.31	31.4	20	1,204.09	92.86
3	504.79	1,954.39	J16	-44.89	37.47	20	942.18	84.89
30	504.79	2,986.04	J10	-27.01	31.51	20	1,226.86	89.36
303	504.79	869.99	303	20	62.1	20	869.99	20
31	504.79	3,424.61	J10	-46.85	31.37	20	1,195.98	93.65
32	504.79	2,211.60	J10	-6.70	31.19	20	1,158.00	63.02
33	504.79	3,457.41	J10	-49.75	31.32	20	1,183.52	93.99
34	504.79	3,440.25	J10	-52.46	31.21	20	1,159.74	93.98
35	504.79	3,386.59	J10	-48.18	31.27	20	1,173.71	93.14
36	504.79	1,814.30	J10	-5.38	30.17	20	985.6	45.38
37	504.79	3,435.10	J10	-49.94	31.28	20	1,175.55	93.66
38	504.79	179.79	38	20	-252.01	20	179.79	20
4	504.79	1,312.56	J16	3.81	38.12	20	987.78	38.43
40	504.79	1,331.82	J10	12.53	30.51	20	1,035.42	31.45
42	504.79	976.85	42	20	36.07	20	976.85	20
44	504.79	1,450.22	J10	9.64	30.57	20	1,044.36	42.71
46	504.79	1,139.06	42	16.96	36.95	20	1,059.13	23.34
48	504.79	2,189.23	J10	-3.67	31.33	20	1,194.38	65.38
50	504.79	1,742.35	J10	6.97	31.2	20	1,163.57	47.43
501	504.79	3,199.72	J10	-34.96	31.5	20	1,223.63	91.17
502	504.79	3,045.01	J10	-28.85	31.52	20	1,229.44	89.89
504	3,004.79	1,719.79	144	-13.65	-104.39	20	1,012.13	71.52
505	504.79	1,081.21	J16	18.16	38.75	20	1,038.40	22.65
52	504.79	1,388.88	J10	14.73	31.11	20	1,145.03	31.25
54	504.79	1,265.37	J10	17.91	31.2	20	1,163.59	25.8
56	504.79	3,064.57	J10	-27.05	31.57	20	1,251.04	88.3
58	504.79	3,400.63	J10	-45.16	31.41	20	1,202.35	93.38
6	504.79	2,528.13	J10	-12.28	31.48	20	1,222.02	81.23
60	504.79	3,358.49	J10	-37.00	31.64	20	1,187.95	93.97
61	504.79	3,454.54	J10	-42.29	31.58	20	1,243.07	93.07
62	504.79	3,324.32	J10	-38.51	31.54	20	1,234.06	92.09
63	2,504.79	2,915.12	J10	-13.24	-2.7	20	1,374.20	85.2
65	504.79	4,190.59	J10	-45.54	32.56	20	1,475.23	93.32
66	504.79	3,219.74	J10	-35.64	31.52	20	1,225.51	91.78
67	504.79	3,438.77	J10	-42.14	31.56	20	1,238.98	92.22
68	4,004.79	3,481.13	J10	-38.14	-57.74	20	1,295.05	91.34
69	504.79	3,805.89	J10	-44.94	32.03	20	1,339.98	92.73
70	504.79	4,674.46	J10	-51.36	32.96	20	1,609.24	93.86
72	504.79	3,064.21	J10	-12.48	32.37	20	1,472.69	84.38

75	504.79	4,025.67	J10	-6.70	33.63	20	2,096.26	81.3
76	504.79	6,571.24	J10	-54.53	33.98	20	2,265.42	95.06
77	504.79	1,420.06	J10	-51.04	21.31	20	530.85	91.04
78	504.79	6,987.50	J10	-54.72	34.08	20	2,392.11	95.09
8	504.79	1,961.22	J16	-17.36	39.94	20	1,151.66	67.77
80	504.79	7,577.62	J10	-54.04	34.43	20	2,602.71	94.87
81	504.79	8,103.99	J10	-53.77	34.66	20	2,794.56	93.98
83	504.79	4,259.57	J10	-11.70	33.61	20	2,071.10	84.46
85	504.79	1,507.50	98	17.96	38.39	20	1,432.37	22.1
86	504.79	2,486.47	144	-34.98	37.7	20	1,211.92	78.59
87	504.79	3,734.10	J10	-8.44	33.23	20	1,888.39	82.5
88	504.79	1,355.72	144	16.36	37.99	20	1,242.64	26.72
90	504.79	2,502.93	144	-37.44	37.62	20	1,198.56	79.27
91	504.79	2,078.33	144	-11.62	37.97	20	1,248.38	56.6
92	504.79	1,835.07	144	1.29	38.25	20	1,290.85	45.28
94	504.79	1,678.88	144	8.59	38.44	20	1,322.81	36.8
98	504.79	1,146.30	98	20.00	36.83	20	1,146.30	20
J22	505.93	2,238.27	144	-22.19	37.7	20	1,131.81	78.35

2034 MDD + FF								
ID	Total Demand (gpm)	Hydrant Available Flow (gpm)	Critical Node ID for Design Run	Critical Node Pressure at Available Flow (psi)	Critical Node Pressure at Fire Demand (psi)	Critical Pressure for Design Run (psi)	Hydrant Design Flow (gpm)	Hydrant Pressure at Design Flow (psi)
10	504.88	1,323.58	J16	7.79	39.02	20	1,054.14	36.14
103	504.88	1,804.42	144	-4.59	37.09	20	1,169.55	61.11
104	504.88	2,412.65	144	-37.54	37.03	20	1,151.40	79.32
106	504.88	2,405.44	144	-40.1	36.82	20	1,127.79	81.26
108	504.88	2,160.11	144	-21.63	37.09	20	1,169.57	70.87
109	504.88	1,950.82	144	-17.12	36.52	20	1,102.96	72.63
11	504.88	1,795.14	J16	-40.44	36.74	20	894.79	80.44
110	504.88	2,332.09	144	-40.81	36.43	20	1,088.55	81.17
111	504.88	2,237.25	144	-31.95	36.62	20	1,112.63	78.48
112	504.88	1,910.65	144	-16.26	36.39	20	1,089.37	70.4
113	504.88	1,047.95	J38	12.68	68.56	20	990.98	27.32
116	504.88	2,264.60	144	-41.65	36.03	20	1,048.99	82.17
119	504.88	1,995.53	144	-26.68	35.86	20	1,036.42	77.16
120	504.88	2,187.40	144	-41.79	35.64	20	1,015.30	81.82
122	504.88	2,116.17	144	-41.91	35.24	20	982.26	81.91
124	504.88	1,064.34	124	20	82.22	20	1,064.34	20
126	504.88	1,213.77	144	17.84	36.96	20	1,150.03	27.61
127	504.88	1,927.47	144	-17.72	36.33	20	1,083.48	72.1
128	504.88	1,341.44	144	10.14	36.33	20	1,083.48	42.66
129	504.88	1,441.85	144	5.9	36.33	20	1,083.48	51.39
13	504.88	1,294.65	J16	-3.24	36.75	20	894.79	59.37
130	504.88	518.78	130	20	23.28	20	518.78	20
132	504.88	1,981.78	144	-40.8	34.54	20	928.76	80.8
134	504.88	1,360.51	144	-0.86	34.54	20	918.47	54.41
138	504.88	955.55	144	18.88	34.54	20	928.77	22.3
14	504.88	1,114.75	J16	15.87	38.64	20	1,022.24	25.15
140	504.88	1,335.09	144	-31.74	28.88	20	674.92	71.74
142	504.88	798.63	144	-1.74	22.82	20	544.87	41.74
144	504.88	510.72	144	20	20.45	20	510.72	20
146	504.88	999.52	144	-2.13	28.88	20	674.94	47.45
15	504.88	1,069.80	J16	10.56	36.75	20	894.79	41.79
150	504.88	35.01	150	20	-8,845.81	20	35.01	20
16	504.88	1,380.92	J16	4.13	38.88	20	1,042.46	42.79
17	504.88	1,860.94	J16	-41.19	37.21	20	921.35	81.19
18	504.88	1,302.92	J16	7.94	38.87	20	1,040.71	45.24
2	504.88	1,694.48	J16	-23.14	37.8	20	957.56	63.14
201	504.88	2,276.59	J16	-36.06	40.2	20	1,155.37	77.35
202	504.88	2,696.27	J10	-17.48	31.59	20	1,225.37	84.4
204	504.88	1,441.63	J10	13.18	31.16	20	1,136.25	34.75
205	504.88	3,438.20	J10	-0.18	33.49	20	1,986.10	75.71

206	504.88	2,062.32	144	-11.72	37.76	20	1,233.51	58.68
209	504.88	1,391.60	98	17.32	37.52	20	1,301.48	24.08
210	516.9	1,134.19	144	18.28	36.23	20	1,086.48	26.34
217	504.88	1,498.98	144	16.91	38.39	20	1,389.48	24.31
220	504.88	81.02	J38	12.7	-2,011.20	20	76.53	27.35
227	504.88	3,200.48	J10	-34.39	31.62	20	1,230.98	90.55
26	504.88	3,137.60	J10	-32.65	31.59	20	1,225.34	89.75
27	5,004.88	3,234.15	J10	-37.02	-116.91	20	1,217.64	91.45
28	504.88	3,392.21	J10	-44.28	31.51	20	1,207.50	92.85
3	504.88	1,956.14	J16	-44.89	37.59	20	944.32	84.89
30	504.88	2,988.66	J10	-26.96	31.61	20	1,226.26	89.43
303	504.88	870.64	303	20	62.2	20	870.64	20
31	504.88	3,428.06	J10	-46.83	31.47	20	1,199.34	93.64
32	504.88	2,213.73	J10	-6.65	31.3	20	1,161.55	62.97
33	504.88	3,460.91	J10	-49.73	31.42	20	1,186.91	93.98
34	504.88	3,443.83	J10	-52.44	31.31	20	1,163.17	93.97
35	504.88	3,389.97	J10	-48.16	31.38	20	1,177.14	93.13
36	504.88	1,817.12	J10	-5.38	30.28	20	989.2	45.38
37	504.88	3,438.60	J10	-49.92	31.38	20	1,178.96	93.66
38	504.88	180	38	20	-252	20	180	20
4	504.88	1,314.38	J16	3.8	38.24	20	990.04	38.43
40	504.88	1,335.25	J10	12.51	30.63	20	1,039.03	31.46
42	504.88	979.95	42	20	36.21	20	979.95	20
44	504.88	1,452.38	J10	9.65	30.68	20	1,048.00	42.66
46	504.88	1,141.91	42	16.98	37.09	20	1,061.80	23.35
48	504.88	2,191.09	J10	-3.6	31.44	20	1,198.20	65.31
50	504.88	1,743.65	J10	7.01	31.31	20	1,167.42	47.35
501	504.88	3,202.52	J10	-34.91	31.6	20	1,171.50	92.46
502	504.88	3,047.52	J10	-28.8	31.63	20	1,232.68	89.86
504	3,004.88	1,716.23	144	-13.76	-105.42	20	1,005.26	71.66
505	504.88	1,083.32	J16	18.17	38.87	20	1,040.84	22.64
52	504.88	1,390.36	J10	14.76	31.22	20	1,148.85	31.17
54	504.88	1,266.58	J10	17.96	31.31	20	1,167.43	25.67
56	504.88	3,067.01	J10	-26.98	31.68	20	1,254.57	88.26
58	504.88	3,403.83	J10	-45.13	31.51	20	1,205.66	93.37
6	504.88	2,531.34	J10	-12.25	31.59	20	1,225.37	81.22
60	504.88	3,361.30	J10	-36.94	31.74	20	1,261.26	92.39
61	504.88	3,457.62	J10	-42.25	31.68	20	1,246.29	93.05
62	504.88	3,327.27	J10	-38.47	31.64	20	1,237.27	92.08
63	2,504.88	2,916.79	J10	-13.15	-2.58	20	1,377.73	85.13
65	504.88	4,193.72	J10	-45.49	32.65	20	1,477.10	93.31
66	504.88	3,222.64	J10	-35.6	31.62	20	1,173.06	93.08
67	504.88	3,442.16	J10	-42.11	31.66	20	1,242.29	92.21
68	4,004.88	3,484.20	J10	-38.1	-57.58	20	1,298.17	91.33
69	504.88	3,809.14	J10	-44.9	32.12	20	1,342.79	92.72
70	504.88	4,677.74	J10	-51.33	33.05	20	1,608.95	93.85
72	504.88	3,065.90	J10	-12.4	32.46	20	1,474.91	84.33

75	504.88	4,027.00	J10	-6.62	33.72	20	2,101.23	81.21
76	504.88	6,574.14	J10	-54.52	34.06	20	2,268.94	95.05
77	504.88	1,420.69	J10	-51.04	21.41	20	532.42	91.04
78	504.88	6,990.28	J10	-54.71	34.16	20	2,396.18	95.08
8	504.88	1,964.38	J16	-17.39	40.07	20	1,154.54	67.78
80	504.88	7,580.68	J10	-54.03	34.51	20	2,607.48	94.86
81	504.88	8,107.39	J10	-53.76	34.75	20	2,799.89	93.97
83	504.88	4,261.05	J10	-11.62	33.7	20	2,076.05	84.37
85	504.88	1,498.53	98	17.96	38.16	20	1,422.98	22.1
86	504.88	2,477.26	144	-35.04	37.48	20	1,203.83	78.62
87	504.88	3,735.48	J10	-8.35	33.32	20	1,892.47	82.41
88	504.88	1,351.69	144	16.23	37.76	20	1,234.57	26.95
90	504.88	2,492.08	144	-37.49	37.39	20	1,190.61	79.28
91	504.88	2,072.71	144	-11.68	37.75	20	1,240.11	56.65
92	504.88	1,829.77	144	1.2	38.03	20	1,282.36	45.37
94	504.88	1,673.65	144	8.5	38.22	20	1,314.24	36.92
98	504.88	1,139.16	98	20	36.6	20	1,139.16	20
J22	505.92	2,233.51	144	-22.28	37.48	20	1,204.24	75.2

2044 MDD + FF								
ID	Total Demand (gpm)	Hydrant Available Flow (gpm)	Critical Node ID for Design Run	Critical Node Pressure at Available Flow (psi)	Critical Node Pressure at Fire Demand (psi)	Critical Pressure for Design Run (psi)	Hydrant Design Flow (gpm)	Hydrant Pressure at Design Flow (psi)
10	504.98	1,206.82	J10	13.09	23.32	20	773.2	42.33
103	504.98	1,785.78	144	-5.66	33.74	20	1,074.02	63.46
104	504.98	2,401.76	144	-37.43	33.7	20	1,059.88	79.32
106	504.98	2,396.09	144	-40.05	33.51	20	1,037.86	81.26
108	504.98	2,150.94	144	-22.3	33.74	20	1,073.99	71.9
109	504.98	1,931.92	144	-17.7	33.21	20	1,012.71	73.96
11	504.98	1,706.34	J16	-40.44	28.44	20	728.1	80.44
110	504.98	2,321.62	144	-40.82	33.15	20	1,000.99	81.18
111	504.98	2,225.95	144	-32.25	33.3	20	1,021.66	78.99
112	504.98	1,889.77	144	-16.78	33.09	20	1,000.74	71.59
113	504.98	1,025.29	J38	12.2	64.81	20	962.75	27.8
116	504.98	2,252.07	144	-41.66	32.75	20	965.37	82.11
119	504.98	1,976.44	144	-26.95	32.58	20	951.49	77.82
120	504.98	2,172.48	144	-41.79	32.36	20	931.57	81.83
122	504.98	2,099.26	144	-41.91	31.96	20	900.35	81.91
124	504.98	1,042.55	144	19.22	33.26	20	1,018.03	23.38
126	504.98	1,189.50	144	15.81	33.63	20	1,056.71	35.07
127	504.98	1,907.14	144	-18.2	33.03	20	995.58	73.24
128	504.98	1,314.26	144	8.65	33.03	20	995.58	46.53
129	504.98	1,416.98	144	4.52	33.03	20	995.55	55.03
13	504.98	1,227.99	J16	-6.26	28.44	20	728.1	64.6
130	504.98	505	130	20	20.01	20	504.99	20
132	504.98	1,961.68	144	-40.8	31.25	20	850.35	80.8
134	504.98	1,331.34	144	-1.86	31.25	20	850.35	55.61
138	504.98	919.48	144	17.29	31.25	20	850.26	25.61
14	504.98	977.29	J10	16.98	23.32	20	773.2	29.62
140	504.98	1,307.89	144	-31.74	25.58	20	616	71.74
142	504.98	765.19	144	-1.74	19.52	20	497.92	41.74
144	504.98	467.03	144	20	17.15	20	467.03	20
146	504.98	967.57	144	-2.73	25.58	20	616.07	48.22
15	504.98	1,012.08	J16	6.3	28.44	20	728.1	51.8
150	504.98	33.84	150	20	-8,852.38	20	33.84	20
16	504.98	1,280.11	J10	11.74	23.32	20	773.2	49.73
17	504.98	1,769.71	J16	-41.19	28.91	20	750.01	81.19
18	504.98	1,231.52	J10	12.64	23.32	20	773.2	58.64
2	504.98	1,588.50	J10	5.48	23.32	20	773.2	63.4
201	504.98	2,162.43	J10	-8.56	23.32	20	773.2	82.77
202	504.98	2,570.59	J10	-20.37	23.32	20	773.2	89.23
204	504.98	1,298.61	J10	9.28	22.89	20	716.65	42.97
205	504.98	3,297.90	J10	-4.33	25.2	20	1,252.22	87.01

206	504.98	2,030.47	144	-11.68	34.35	20	1,138.06	59.02
209	504.98	1,348.31	144	17.59	35	20	1,255.06	23.96
210	516.9	1,111.80	144	16.19	32.95	20	998.37	34.33
217	504.98	1,469.55	144	16.04	35.42	20	1,313.49	25.66
220	504.98	79.51	J38	12.26	-2,016.41	20	74.68	27.8
227	504.98	3,058.84	J10	-35.94	23.35	20	777.17	92.49
26	504.98	2,996.99	J10	-34.3	23.32	20	773.2	91.91
27	5,004.98	3,091.83	J10	-38.38	-122.67	20	768.26	93.12
28	504.98	3,244.54	J10	-45.07	23.24	20	761.78	93.72
3	504.98	1,864.48	J16	-44.89	29.29	20	768.99	84.89
30	504.98	2,856.55	J10	-29.19	23.34	20	776.44	92.41
303	504.98	813.15	J16	16.24	28.44	20	728.1	30.6
31	504.98	3,280.09	J10	-47.45	23.21	20	756.29	94.31
32	504.98	2,069.17	J10	-9.41	23.03	20	733.02	67.04
33	504.98	3,311.59	J10	-50.13	23.15	20	748.99	94.36
34	504.98	3,294.23	J10	-52.59	23.04	20	734.71	94.09
35	504.98	3,241.92	J10	-48.63	23.11	20	742.93	93.58
36	504.98	1,612.57	J10	-5.38	22.01	20	626.65	45.38
37	504.98	3,289.30	J10	-50.27	23.11	20	744.21	93.99
38	504.98	160.19	38	20	-260.39	20	160.19	20
4	504.98	1,192.88	J10	13.34	23.32	20	773.2	40.86
40	504.98	1,151.89	J10	9.96	22.35	20	657.41	35.32
42	504.98	775.95	J10	18.12	22.44	20	666.41	23.49
44	504.98	1,333.80	J10	5.7	22.41	20	662.91	51.16
46	504.98	955.43	J10	14.94	22.53	20	675.08	29.15
48	504.98	2,060.71	J10	-7.06	23.17	20	754.18	71.35
50	504.98	1,607.26	J10	3.19	23.03	20	735.51	54.83
501	504.98	3,062.46	J10	-36.48	23.33	20	774.68	93.02
502	504.98	2,913.59	J10	-30.88	23.36	20	778.43	92.62
504	3,004.98	1,692.96	144	-14.43	-105.7	20	922.03	73.2
505	504.98	957.94	J10	17.29	23.32	20	773.2	29.67
52	504.98	1,237.25	J10	10.9	22.95	20	724.4	39.2
54	504.98	1,136.99	J10	13.29	23.03	20	735.51	38.44
56	504.98	2,929.98	J10	-29.13	23.4	20	789.47	91.06
58	504.98	3,257.14	J10	-45.9	23.24	20	761.31	94.15
6	504.98	2,410.55	J10	-15.56	23.32	20	773.2	87.28
60	504.98	3,217.85	J10	-38.41	23.47	20	795.7	94.04
61	504.98	3,309.80	J10	-43.26	23.42	20	786.78	94.11
62	504.98	3,183.29	J10	-39.76	23.37	20	779.83	93.57
63	2,504.98	2,790.19	J10	-16.53	-9.49	20	864.73	91.09
65	504.98	4,025.56	J10	-46.23	24.4	20	945.09	93.9
66	504.98	3,082.79	J10	-37.14	23.35	20	776.42	93.63
67	504.98	3,292.60	J10	-43.06	23.39	20	783.97	93.24
68	4,004.98	3,334.09	J10	-39.35	-63.72	20	820.9	92.76
69	504.98	3,649.41	J10	-45.66	23.86	20	852.04	93.37
70	504.98	4,497.08	J10	-51.6	24.81	20	1,043.50	93.98
72	504.98	2,935.16	J10	-15.79	24.2	20	933.43	90.59

75	504.98	3,870.08	J10	-10.14	25.42	20	1,333.06	89.35
76	504.98	6,352.44	J10	-54.58	25.83	20	1,492.73	95.2
77	504.98	1,352.37	J10	-51.04	13.13	20	339.36	91.04
78	504.98	6,757.12	J10	-54.74	25.94	20	1,577.82	95.18
8	504.98	1,859.80	J10	-0.78	23.32	20	773.06	76.09
80	504.98	7,321.57	J10	-54.07	26.15	20	1,733.17	94.92
81	504.98	7,817.57	J10	-53.77	26.29	20	1,875.33	93.99
83	504.98	4,098.12	J10	-14.76	25.4	20	1,316.64	90.79
85	504.98	1,470.15	98	17.68	35.75	20	1,374.66	22.39
86	504.98	2,464.94	144	-34.81	34.11	20	1,108.98	78.62
87	504.98	3,585.77	J10	-11.85	25.04	20	1,190.05	89.9
88	504.98	1,303.25	144	15.15	34.35	20	1,139.01	29.11
90	504.98	2,481.61	144	-37.31	34.01	20	1,096.12	79.25
91	504.98	2,045.10	144	-11.88	34.33	20	1,141.57	57.11
92	504.98	1,798.76	144	0.39	34.56	20	1,179.11	46.71
94	504.98	1,639.96	144	7.37	34.73	20	1,209.30	38.81
98	504.98	1,082.01	98	20	34.16	20	1,082.01	20
J22	505.92	2,214.11	144	-22.33	34.11	20	1,109.92	75.85

2024 PHD				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
10	6.45	102.25	275.56	75.09
103	6.45	30.67	259.71	99.24
104	6.45	18.39	260.07	104.72
106	6.45	14.27	259.9	106.43
108	6.45	29.05	259.72	99.95
109	6.45	15.38	259.6	105.82
11	6.45	17.03	275.49	111.99
110	6.45	14.84	259.71	106.1
111	6.45	15.45	259.66	105.82
112	6.45	21.44	259.53	103.16
113	6.45	31.02	259.47	98.99
116	6.45	12.61	259.63	107.04
119	6.45	13.94	259.54	106.42
120	6.45	13.42	259.54	106.65
122	6.45	13.23	259.5	106.71
124	6.45	13.58	259.59	106.59
126	6.45	18.41	259.96	104.66
127	6.45	17.96	259.53	104.67
128	6.45	42.26	259.52	94.14
129	6.45	25.98	259.53	101.2
13	6.45	27.25	275.45	107.55
130	6.45	52.16	259.48	89.83
132	6.45	15.77	259.47	105.59
134	6.45	49.19	259.46	91.11
138	6.45	100.13	259.46	69.04
14	6.45	131.34	275.53	62.48
140	6.45	36.59	259.34	96.51
142	6.45	105.83	259.32	66.51
144	6.45	155.99	259.32	44.77
146	6.45	80.88	259.31	77.31
148	6.45	101.87	258.85	68.02
15	6.45	32.85	275.44	105.11
150	6.45	63.91	252.91	81.89
16	6.45	80.66	275.53	84.44
17	6.45	15.3	275.5	112.75
18	6.45	39.43	275.53	102.3
2	6.45	56.98	275.52	94.69
201	6.45	23.48	275.81	109.34
202	6.45	15.12	275.97	113.02
204	6.45	117.16	276.27	68.94
205	6.45	12.77	278.28	115.05
206	6.45	57.81	260.96	88.03
209	6.45	123.88	260.14	59.04
210	32.96	12.84	259.42	106.84
217	6.45	128.34	259.85	56.98

220	6.45	27.89	254.17	98.05
227	6.45	13.52	276.26	113.84
26	6.45	14.28	276.17	113.48
27	6.45	12.54	276.21	114.25
28	6.45	12.71	276.26	114.19
3	6.45	6.76	275.51	116.45
30	6.45	12	276.31	114.52
303	6.45	62	275.44	92.48
31	6.45	11.82	276.28	114.59
32	6.45	68.93	276.26	89.84
33	6.45	12.24	276.3	114.42
34	6.45	13.31	276.3	113.95
35	6.45	14	276.32	113.66
36	6.45	125.85	276.24	65.16
37	6.45	13.18	276.3	114.01
38	6.45	112.55	276.01	70.83
4	6.45	106.6	275.52	73.2
40	6.45	142.22	276.23	58.06
42	6.45	164.75	276.23	48.3
44	6.45	97.63	276.23	77.38
46	6.45	152.65	276.23	53.55
48	6.45	55.8	276.37	95.57
50	6.45	91.21	276.31	80.2
501	6.45	12.85	276.38	114.19
502	6.45	12.27	276.39	114.44
504	6.45	12.24	259.48	107.13
505	6.45	126.35	275.53	64.64
52	6.45	126.21	276.28	65.02
54	6.45	120	276.31	67.73
56	6.45	16.15	276.47	112.8
58	6.45	12.15	276.39	114.49
6	6.45	17.17	275.88	112.1
60	6.45	11.14	276.49	114.98
61	6.45	11.82	276.45	114.66
62	6.45	12.37	276.4	114.4
63	6.45	11.41	276.87	115.02
64	6.45	12.07	277.42	114.98
65	6.45	13.42	277.29	114.34
66	6.45	11.35	276.35	114.83
67	6.45	13.64	276.35	113.83
68	6.45	14.34	276.63	113.65
69	6.45	14.4	276.85	113.72
70	6.45	13.74	277.56	114.31
72	6.45	11.84	277.16	114.96
75	6.45	12.51	278.45	115.23
76	6.45	11.69	278.39	115.56
77	6.45	20.45	276.19	110.81

78	6.45	12.09	278.47	115.42
8	6.45	32.66	275.75	105.33
80	6.45	12.79	279.18	115.43
81	6.45	15.08	279.66	114.64
83	6.45	12.15	278.4	115.37
84	0	233.84	283.06	21.33
85	6.45	151.86	259.91	46.82
86	6.45	18.8	260.53	104.74
87	6.45	12.63	278.18	115.06
88	6.45	100.82	260.96	69.39
9	6.45	55.27	275.48	95.42
90	6.45	18.57	260.33	104.75
91	6.45	65.18	260.35	84.57
92	6.45	82.06	260.27	77.22
93	0	238.18	259.92	9.42
94	6.45	95.61	260.22	71.32
98	6.45	158.03	259.97	44.17
J10	6.45	184.37	276.15	39.76
J12	6.45	6.85	274.99	116.18
J14	6.45	10.04	266.49	111.12
J16	6.45	156.51	275.47	51.55
J20	6.45	9	275.52	115.48
J22	11.55	15.68	260.52	106.09
J26	6.45	12.56	277.06	114.61
J28	6.45	11.45	260.52	107.92
J30	6.45	66.7	276.16	90.76
J34	0	0	275.48	119.36
J36	6.45	90.84	259.3	72.99
J38	6.45	18.49	210.15	83.05
J40	6.45	13.58	259.61	106.61
J42	6.45	15.52	259.53	105.73
J44	6.45	39.35	261.13	96.1
J46	6.45	32.53	268.87	102.41
J48	6.45	13.44	276.66	114.05
J50	6.45	11.75	276.66	114.79
J52	6.45	13.24	279.24	115.26
J54	6.45	24.72	277.57	109.56
J56	6.45	14.14	278.77	114.67
J58	6.45	72.72	276.26	88.2
J60	6.45	79.71	275.68	84.91
J62	6.45	164.77	276.22	48.29

2034 PHD				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
10	6.56	102.25	254.48	65.96
103	6.56	30.67	254.95	97.18
104	6.56	18.39	254.85	102.46
106	6.56	14.27	254.79	104.22
108	6.56	29.05	254.95	97.88
109	6.56	15.38	254.61	103.66
11	6.56	17.03	254.41	102.86
110	6.56	14.84	254.68	103.92
111	6.56	15.45	254.69	103.66
112	6.56	21.44	254.52	100.99
113	6.56	31.02	254.45	96.81
116	6.56	12.61	254.6	104.86
119	6.56	13.94	254.52	104.24
120	6.56	13.42	254.52	104.47
122	6.56	13.23	254.47	104.53
124	6.56	13.58	254.41	104.35
126	6.56	18.41	254.66	102.37
127	6.56	17.96	254.52	102.5
128	6.56	42.26	254.5	91.97
129	6.56	25.98	254.51	99.02
13	6.56	27.25	254.38	98.42
130	6.56	52.16	254.47	87.66
132	6.56	15.77	254.44	103.41
134	6.56	49.19	254.43	88.93
138	6.56	100.13	254.43	66.86
14	6.56	131.34	254.45	53.35
140	6.56	36.59	254.3	94.33
142	6.56	105.83	254.28	64.32
144	6.56	155.99	254.28	42.59
146	6.56	80.88	254.27	75.13
148	6.56	101.87	253.8	65.83
15	6.56	32.85	254.36	95.98
150	6.56	63.91	247.67	79.62
16	6.56	80.66	254.46	75.31
17	6.56	15.3	254.42	103.61
18	6.56	39.43	254.45	93.17
2	6.56	56.98	254.45	85.56
201	6.56	23.48	254.75	100.21
202	6.56	15.12	254.91	103.9
204	6.56	117.16	255.21	59.82
205	6.56	12.77	257.21	105.92
206	6.56	57.81	255.09	85.48
209	6.56	123.88	255.61	57.08
210	32.96	12.84	254.32	104.63
217	6.56	128.34	256.35	55.46

220	6.56	27.89	248.99	95.8
227	6.56	13.52	255.21	104.72
26	6.56	14.28	255.11	104.35
27	6.56	12.54	255.16	105.13
28	6.56	12.71	255.21	105.07
3	6.56	6.76	254.44	107.32
30	6.56	12	255.26	105.4
303	6.56	62	254.36	83.35
31	6.56	11.82	255.23	105.47
32	6.56	68.93	255.21	80.71
33	6.56	12.24	255.25	105.29
34	6.56	13.31	255.25	104.83
35	6.56	14	255.27	104.54
36	6.56	125.85	255.18	56.04
37	6.56	13.18	255.25	104.89
38	6.56	112.55	254.95	61.7
4	6.56	106.6	254.45	64.06
40	6.56	142.22	255.17	48.94
42	6.56	164.75	255.17	39.18
44	6.56	97.63	255.17	68.26
46	6.56	152.65	255.17	44.42
48	6.56	55.8	255.32	86.45
50	6.56	91.21	255.25	71.08
501	6.56	12.85	255.33	105.07
502	6.56	12.27	255.34	105.32
504	6.56	12.24	254.44	104.95
505	6.56	126.35	254.46	55.51
52	6.56	126.21	255.23	55.9
54	6.56	120	255.25	58.6
56	6.56	16.15	255.42	103.67
58	6.56	12.15	255.34	105.37
6	6.56	17.17	254.82	102.97
60	6.56	11.14	255.44	105.86
61	6.56	11.82	255.41	105.54
62	6.56	12.37	255.35	105.28
63	6.56	11.41	255.81	105.9
64	6.56	12.07	256.36	105.85
65	6.56	13.42	256.28	105.23
66	6.56	11.35	255.3	105.71
67	6.56	13.64	255.3	104.71
68	6.56	14.34	255.59	104.54
69	6.56	14.4	255.83	104.61
70	6.56	13.74	256.57	105.22
72	6.56	11.84	256.15	105.86
75	6.56	12.51	257.37	106.1
76	6.56	11.69	257.43	106.48
77	6.56	20.45	255.13	101.69

78	6.56	12.09	257.52	106.34
8	6.56	32.66	254.68	96.2
80	6.56	12.79	257.92	106.21
81	6.56	15.08	258.19	105.34
83	6.56	12.15	257.35	106.25
84	0	233.84	260.19	11.42
85	6.56	151.86	256.85	45.49
86	6.56	18.8	254.97	102.34
87	6.56	12.63	257.11	105.94
88	6.56	100.82	255.09	66.85
9	6.56	55.27	254.4	86.28
90	6.56	18.57	254.95	102.42
91	6.56	65.18	255.09	82.29
92	6.56	82.06	255.23	75.04
93	0	238.18	259.61	9.28
94	6.56	95.61	255.37	69.22
98	6.56	158.03	256.44	42.64
J10	6.56	184.37	255.09	30.64
J12	6.56	6.85	253.89	107.04
J14	6.56	10.04	245.13	101.86
J16	6.56	156.51	254.4	42.42
J20	6.56	9	254.44	106.35
J22	11.55	15.68	254.97	103.68
J26	6.56	12.56	256.05	105.51
J28	6.56	11.45	254.97	105.52
J30	6.56	66.7	255.1	81.63
J34	0	0	254.4	110.23
J36	6.56	90.84	254.27	70.81
J38	6.56	18.49	203.57	80.2
J40	6.56	13.58	254.63	104.45
J42	6.56	15.52	254.52	103.56
J44	6.56	39.35	255.1	93.48
J46	6.56	32.53	256.14	96.89
J48	6.56	13.44	255.6	104.93
J50	6.56	11.75	255.6	105.66
J52	6.56	13.24	257.95	106.03
J54	6.56	24.72	256.23	100.31
J56	6.56	14.14	257.58	105.49
J58	6.56	72.72	255.21	79.07
J60	6.56	79.71	254.61	75.78
J62	6.56	164.77	255.17	39.17

2044 PHD				
ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
10	6.69	102.25	274.95	74.83
103	6.69	30.67	258.95	98.91
104	6.69	18.39	259.3	104.39
106	6.69	14.27	259.13	106.1
108	6.69	29.05	258.95	99.61
109	6.69	15.38	258.82	105.48
11	6.69	17.03	274.87	111.72
110	6.69	14.84	258.93	105.76
111	6.69	15.45	258.88	105.48
112	6.69	21.44	258.75	102.82
113	6.69	31.02	258.67	98.64
116	6.69	12.61	258.84	106.7
119	6.69	13.94	258.75	106.08
120	6.69	13.42	258.75	106.3
122	6.69	13.23	258.71	106.37
124	6.69	13.58	258.8	106.25
126	6.69	18.41	259.18	104.33
127	6.69	17.96	258.74	104.33
128	6.69	42.26	258.73	93.8
129	6.69	25.98	258.74	100.85
13	6.69	27.25	274.84	107.28
130	6.69	52.16	258.69	89.49
132	6.69	15.77	258.68	105.25
134	6.69	49.19	258.67	90.77
138	6.69	100.13	258.66	68.69
14	6.69	131.34	274.92	62.21
140	6.69	36.59	258.53	96.17
142	6.69	105.83	258.52	66.16
144	6.69	155.99	258.51	44.42
146	6.69	80.88	258.5	76.96
148	6.69	101.87	258.02	67.66
15	6.69	32.85	274.83	104.85
150	6.69	63.91	251.65	81.35
16	6.69	80.66	274.93	84.18
17	6.69	15.3	274.89	112.48
18	6.69	39.43	274.92	102.04
2	6.69	56.98	274.91	94.43
201	6.69	23.48	275.22	109.08
202	6.69	15.12	275.39	112.77
204	6.69	117.16	275.71	68.7
205	6.69	12.77	277.86	114.87
206	6.69	57.81	260.21	87.7
209	6.69	123.88	259.4	58.72
210	32.96	12.84	258.63	106.5
217	6.69	128.34	259.12	56.66

220	6.69	27.89	253	97.54
227	6.69	13.52	275.7	113.6
26	6.69	14.28	275.6	113.23
27	6.69	12.54	275.65	114.01
28	6.69	12.71	275.7	113.95
3	6.69	6.76	274.9	116.18
30	6.69	12	275.76	114.28
303	6.69	62	274.82	92.22
31	6.69	11.82	275.73	114.35
32	6.69	68.93	275.7	89.59
33	6.69	12.24	275.74	114.17
34	6.69	13.31	275.74	113.71
35	6.69	14	275.77	113.42
36	6.69	125.85	275.68	64.92
37	6.69	13.18	275.74	113.77
38	6.69	112.55	275.44	70.58
4	6.69	106.6	274.91	72.93
40	6.69	142.22	275.66	57.82
42	6.69	164.75	275.66	48.06
44	6.69	97.63	275.66	77.14
46	6.69	152.65	275.67	53.3
48	6.69	55.8	275.82	95.34
50	6.69	91.21	275.75	79.96
501	6.69	12.85	275.83	113.95
502	6.69	12.27	275.84	114.21
504	6.69	12.24	258.69	106.79
505	6.69	126.35	274.92	64.38
52	6.69	126.21	275.72	64.78
54	6.69	120	275.75	67.48
56	6.69	16.15	275.93	112.56
58	6.69	12.15	275.84	114.26
6	6.69	17.17	275.3	111.85
60	6.69	11.14	275.94	114.74
61	6.69	11.82	275.9	114.43
62	6.69	12.37	275.85	114.16
63	6.69	11.41	276.35	114.8
64	6.69	12.07	276.94	114.77
65	6.69	13.42	276.8	114.12
66	6.69	11.35	275.8	114.59
67	6.69	13.64	275.8	113.59
68	6.69	14.34	276.1	113.42
69	6.69	14.4	276.33	113.5
70	6.69	13.74	277.1	114.11
72	6.69	11.84	276.67	114.75
75	6.69	12.51	278.04	115.05
76	6.69	11.69	277.98	115.38
77	6.69	20.45	275.63	110.57

78	6.69	12.09	278.07	115.25
8	6.69	32.66	275.15	105.07
80	6.69	12.79	278.82	115.27
81	6.69	15.08	279.31	114.49
83	6.69	12.15	277.99	115.19
84	0	233.84	282.89	21.25
85	6.69	151.86	259.19	46.51
86	6.69	18.8	259.77	104.41
87	6.69	12.63	277.75	114.88
88	6.69	100.82	260.21	69.06
9	6.69	55.27	274.86	95.15
90	6.69	18.57	259.57	104.43
91	6.69	65.18	259.6	84.24
92	6.69	82.06	259.52	76.89
93	0	238.18	259.21	9.11
94	6.69	95.61	259.47	71
98	6.69	158.03	259.24	43.85
J10	6.69	184.37	275.58	39.52
J12	6.69	6.85	274.34	115.9
J14	6.69	10.04	265.25	110.58
J16	6.69	156.51	274.86	51.28
J20	6.69	9	274.91	115.22
J22	11.55	15.68	259.76	105.76
J26	6.69	12.56	276.56	114.39
J28	6.69	11.45	259.76	107.6
J30	6.69	66.7	275.59	90.51
J34	0	0	274.86	119.1
J36	6.69	90.84	258.5	72.65
J38	6.69	18.49	205.91	81.21
J40	6.69	13.58	258.83	106.27
J42	6.69	15.52	258.75	105.39
J44	6.69	39.35	260.38	95.77
J46	6.69	32.53	268.27	102.15
J48	6.69	13.44	276.12	113.82
J50	6.69	11.75	276.13	114.56
J52	6.69	13.24	278.87	115.1
J54	6.69	24.72	277.09	109.35
J56	6.69	14.14	278.38	114.5
J58	6.69	72.72	275.7	87.95
J60	6.69	79.71	275.08	84.65
J62	6.69	164.77	275.66	48.05

APPENDIX G

WATER LOSS CONTROL ACTION PLAN

City of South Bend Water System
Water Loss Control Action Plan

(a) The control methods necessary to achieve compliance with the distribution system leakage standard;

The City is required to reduce DSL to below ten percent, which equates to an overall reduction of approximately 44 percent from the last 3-year rolling average of 54 percent. A reduction of 44 percent is equivalent to an annual water savings of approximately 82 million gallons or about 156 gallons per minute. The City's water system maintains a network of over 26 miles of pipeline. The methods that the City will utilize to reduce DSL to achieve compliance include replacing leaking pipe as they are discovered. However, this methodology has not resulted in reducing the DSL percentage.

The City has historically struggled to decrease DSL in the long-term. It is not immediately evident what the driving factors are for the high DSL other than pipe leaks, which are difficult to detect due to the soils and water table in the area. The City is proactive in repairing leaks when they are discovered, but DSL remains high. Multiple pipe replacement projects are currently planned. One that shows the most promise of reducing DSL is project D-1 that will replace an existing 10-inch steel water main in Highway 101 between Kendrick and Weir Streets. The project costs exceeds $1M and the City is hesitant to increase debt, so it has been pursuing grant funding to finance this critical project.

(b) An implementation schedule;

Water mains scheduled for replacement in the next 20 years are listed in the City's Water System Plan 2025 update. The Update has projected the years for water main and other capital improvement construction associated with the water system, which are conservative. However, the City is applying continually to finance their highest priority projects, including D-1 mentioned above and the installation of an Emergency Generator (WT-2) at the Water Treatment Plant. The Community Development Block Grant (CDBG) has always been an excellent funding partner with the City in the past. A CDBG application for the D-1 project will be submitted in the coming year. The City had to take a brief hiatus from accessing CDBG funding due to the City's high success rate in acquiring funding from CDBG and having to completely close-out recent successful water department projects such as the Water Treatment Plant Upgrade.

(c) A budget that demonstrates how the control methods will be funded;

A proposed budget is included in Chapter 9 of the Water System Plan, which shows currently planned water main replacements utilizing the water system's rates, reserves, and market-rate loans to finance construction. However, as stated in the previous

response, the City will continually apply for funding for water projects from sources that the City has historically received grant funding to finance.

(d) Any technical or economic concerns which may affect the system's ability to implement a program or comply with the standard including past efforts and investments to minimize leakage; Include details of the City's Leak Detection Program.

The distribution system leakage rate for a system of this size is very high, averaging about half the water produced. With a system of this age, a DSL of much less than 10 percent is highly unlikely without a complete replacement of the City's water distribution system, which consists of over 26 miles of water main. The City will continue to reassess its program to lower its distribution system leakage until low levels of DSL are attained.

The City has budgeted for annual leak detection; however, the water department personnel believe with the current budgeted amount, that two annual surveys are possible. The City contracted with Hydrevo LLC for the leak detection survey in August 2025. The survey resulted in the discovery of 5 water main leaks, 7 service line leaks, and 1 hydrant leak. This estimated leakage rate was estimated to total over 56 gallons per minute, which equates to over 30 million gallons per year. All leaks that were discovered during the survey were repaired.

(e) If the average distribution system leakage calculated… is greater than ten and less than twenty percent of total water produced and purchased, the water loss control action plan must assess data accuracy and data collection;

During the process of completing the Water System Plan Update, the City reviewed its water consumption and production data for the last 6 years. With the assistance of Gray & Osborne, Inc., inconsistencies and data quality issues were identified, reviewed, and resolved. The City believes that the quality of the water production data is accurate.

Water consumption will require additional observation. It is believed that the significant majority of the system's water meters are functioning properly. The City will begin to test water meters for accuracy and replace or repair those meters that are improperly functioning. Meters that have uncharacteristically high or low readings will be noted for further observation, followed by future testing.

(f) If the average distribution system leakage calculated… is between twenty and twenty-nine percent of total water produced and purchased, the water loss control action plan must include elements listed under (e) of this subsection and implementation of field activities such as actively repairing leaks or maintaining meters within twelve months of determining standard exceedance;

The City actively repairs leaks as soon as they are discovered. They then estimate and record how much was thought to be lost as a result of each leak discovered and repaired.

Over the next twelve months, the City will perform 2 system-wide leak detection surveys and repair any leaks discovered as a result of the survey (one has already been completed in August 2025). In addition, as discussed above, water meters will be checked and if they appear to be malfunctioning, the meters will be replaced. The City has committed to installing two meters per month on these accounts with their limited staff.

(g) If the average distribution system leakage calculated… is at thirty percent or above the total water produced and purchased, the water loss control action plan must include elements listed under (e) and (f) of this subsection and include implementation of additional control methods to reduce leakage within six months of determining standard exceedance.

Due to the water system's high DSL, the City is required to implement additional control methods to reduce leakage within six months. The City regularly performs leak detection of its system, which would not account as additional control methods. The City is actively pursuing any potential leak; however, the cost of finding the multiple sources likely responsible for the DSL may be beyond the personnel and fiscal resources of the utility. The City will continue to endeavor to find the most cost effective means to reduce DSL.

The City is also constructing a database from the leak detection results and mapping the leak type: Water Main, Service Line, Hydrant, Other and the material of the line that is leaking: Asbestos Cement, Steel, PVC, plastic, etc. The City will also note bury depth of the leaking water line, the bedding material, and the activity type on the ground surface: roadway, parking, alley, etc. This information will be plotted on the City basemap. This will be completed in order to look for patterns and prioritize areas of the City to concentrate replacement as funding allows.

APPENDIX H

DOH BACTERIAL DETECTION GUIDANCE

August 2017
DOH 331-179
Revised

Questions & Answers

Public Health Advisory
E. coli

Why must I boil my water?

Recent tests show that your water system is contaminated with organisms that can cause illness.

Who can be affected? Can I become ill?

Anyone who drinks contaminated water may become ill. Infants, young children, the elderly, and people with severely compromised immune systems are more at risk of illness.

Who are people with compromised immune systems?

People who are on chemotherapy, organ or bone marrow recipients, those with HIV or AIDS, malnourished children, infants, and some of the elderly have compromised or weakened immune systems. An infection from a disease-causing organism may lead to very serious health problems for these people.

Can these diseases be spread in ways other than drinking the water?

Yes. Many of these disease-causing organisms are shed in the feces of infected people. In fact, some infected people do not have any symptoms but still shed these organisms. Childcare workers, young children who attend childcare, and caregivers for people who are sick and shedding these organisms are at the greatest risk of becoming ill. Washing hands with soap and water after using the toilet and before preparing food prevents the spread of diseases to others.

What are the symptoms to watch for?
What should I do if I think I have a waterborne illness?

Disease-causing organisms in water can cause diarrhea, stomach cramps, bloating, gas, fatigue, weight loss, nausea, vomiting, and/or fever. Symptoms may appear as early as a few hours to several days after infection and may last more than two weeks. If you are ill with these symptoms, contact your health care provider.

How can I make the water safe?

Boiling is the best way to ensure water is free of illness-causing organisms. Bring the water to a rolling boil for one minute. When it cools, refrigerate the water in clean covered containers.

If you don't want to boil your water, you can disinfect the water using household bleach. Do not use bleach that contains perfume, dyes, or other additives. Use 1/4-teaspoon bleach per gallon of water, mix thoroughly, and then let stand for 60 minutes before using.

Washington State Department of Health
Environmental Public Health
Office of Drinking Water

HELPING TO ENSURE SAFE AND RELIABLE DRINKING WATER

Can I use bottled water?

You can use purchased bottled water. If you choose to use bottled water, Department of Health recommends water that is:

- Reverse-osmosis treated.
- Distilled.
- Filtered through an "absolute" one-micron or smaller filter.

Carbonated water in cans or bottles is usually filtered or heated to remove illness-causing organisms.

During a health advisory, can I use tap water for...?

Drinking	No	Coffee or tea	No
Ice cubes	No	Showers/Baths	Yes
Brushing teeth	No	Washing clothes	Yes
Baby's formula	No	Baby's bath	See below
Washing vegetables/fruits	No	Washing dishes	See below
Preparing food	No	Pet's water bowl	Contact Veterinarian

Can I bathe my baby or child using tap water?

Yes, as long as they do not drink any of the water. Don't let babies suck on a washcloth, as they will be ingesting some of the water.

Can I wash dishes?

You can use your dishwasher if you use the sanitizing/heat cycle and commercial dishwashing detergent. You can hand wash dishes, rinse them in a diluted bleach solution—one teaspoon household bleach to one gallon of water—and then let dishes air dry.

What must be done to fix the problem?

Fixing the problem could be different in each situation depending on whether the problem is at the water source or in the water lines. Usually, in every case the water lines will need to be flushed and the whole system will need to be disinfected using chlorine. The water will then be tested to make sure it is free of coliform bacteria.

How long will this health advisory be in effect?

This health advisory will remain in effect until the water is tested and results show that it meets public health drinking water standards. Your water system will notify you when that occurs.

For more information:

Personal medical questions: Contact your health care provider (physician, nurse consultant, etc.)

Call your local health jurisdiction with general questions about infectious disease, communicable disease transmission, symptoms, causes and prevention of waterborne disease.

PUBLIC HEALTH
ALWAYS WORKING FOR A SAFER AND HEALTHIER WASHINGTON

April 2016
DOH 331-181
Revised

Questions & Answers

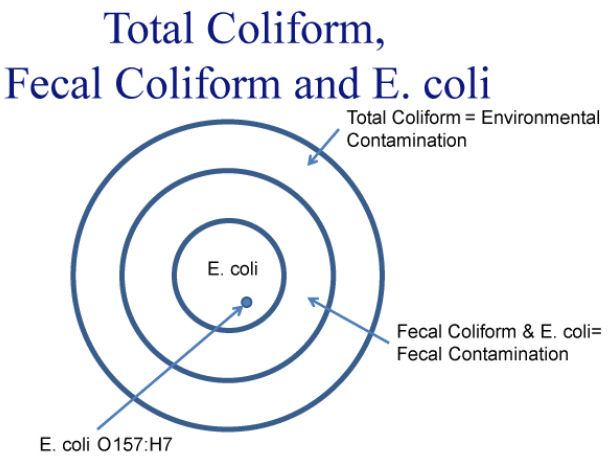
Coliform Bacteria and Drinking Water

Public water systems must deliver safe and reliable drinking water to their customers 24 hours a day, 365 days a year. If the water supply becomes contaminated, consumers can get seriously ill. Fortunately, public water systems take many steps to make sure drinking water is safe. One of the most important steps is regular testing for coliform bacteria.

What are coliform bacteria?

Coliform bacteria are present in the environment and feces of all warm-blooded animals and humans. Coliform bacteria are unlikely to cause illness. However, their presence in drinking water indicates that disease-causing organisms (pathogens) could be in the water system. Most pathogens that can contaminate water supplies come from the feces of humans or animals. Testing drinking water for all possible pathogens is complex, time-consuming, and expensive. It is easy and inexpensive to test for coliform bacteria. If testing detects coliform bacteria in a water sample, water systems search for the source of contamination and restore safe drinking water.

There are three groups of coliform bacteria. Each is an indicator of drinking water quality and each has a different level of risk. Total coliform is a large collection of different kinds of bacteria. Fecal coliform are types of total coliform that exist in feces. *E. coli* is a subgroup of fecal coliform. Labs test drinking water samples for total coliform. If total coliform is present, the lab also tests the sample for *E. coli*.



Total coliform bacteria are common in the environment (soil or vegetation) and are generally harmless. If a lab detects only total coliform bacteria in drinking water, the source is probably environmental and fecal contamination is unlikely. However, if environmental contamination can enter the system, pathogens could get in too. It is important to find and resolve the source of the contamination.

Fecal coliform bacteria are a subgroup of total coliform bacteria. They exist in the intestines and feces of people and animals.

Washington State Department of Health
Division of Environmental Health
Office of Drinking Water

E. coli is a subgroup of the fecal coliform group. Most *E. coli* bacteria are harmless and exist in the intestines of people and warm-blooded animals. However, some strains can cause illness. The presence of *E. coli* in a drinking water sample usually indicates recent fecal contamination. That means there is a greater risk that pathogens are present.

Note: *E. coli* outbreaks receive a lot of media coverage. A specific strain of *E. coli* bacteria known as ***E. coli O157:H7*** causes most of those outbreaks. When a drinking water sample is reported as "*E. coli* present," it does not mean that ***O157:H7*** is present. However, it does indicate recent fecal contamination. Boiling or disinfecting contaminated drinking water destroys all forms of *E. coli*, including *O157:H7*.

What if coliform bacteria are found in my water?

When coliform bacteria are found, water systems investigate to find out how the contamination got into the water. They collect additional water samples and often inspect the entire system. Collecting additional samples helps determine whether an actual problem exists. If the lab detects bacteria in any of the additional samples, the initial findings are "confirmed."

What if total coliform bacteria are confirmed in my water?

If a lab confirms total coliform bacteria in your drinking water, your water system must conduct an assessment to find out how the contamination got into the water. If the assessment identifies the cause of the contamination, the water system can usually correct the problem with repairs, treatment, or improved operation and maintenance practices. We help water systems resolve problems. When a lab confirms total coliform bacteria in drinking water, we recommend that the water system notify its customers as soon as possible. The notice will explain what the system is doing to correct the problem, when the problem will likely be resolved, and what customers may need to do until then.

What if *E. coli* are confirmed in my water?

Confirmation of *E. coli* in a water system indicates recent fecal contamination, which may pose an immediate health risk to anyone who consumes the water. The water system will issue a "health advisory" within 24 hours to alert all water users of a health risk associated with the water supply. The advisory usually recommends using boiled or bottled water for drinking, preparing food, and brushing teeth. It also outlines the steps underway to correct the problem and explains when the system expects to resolve the problem.

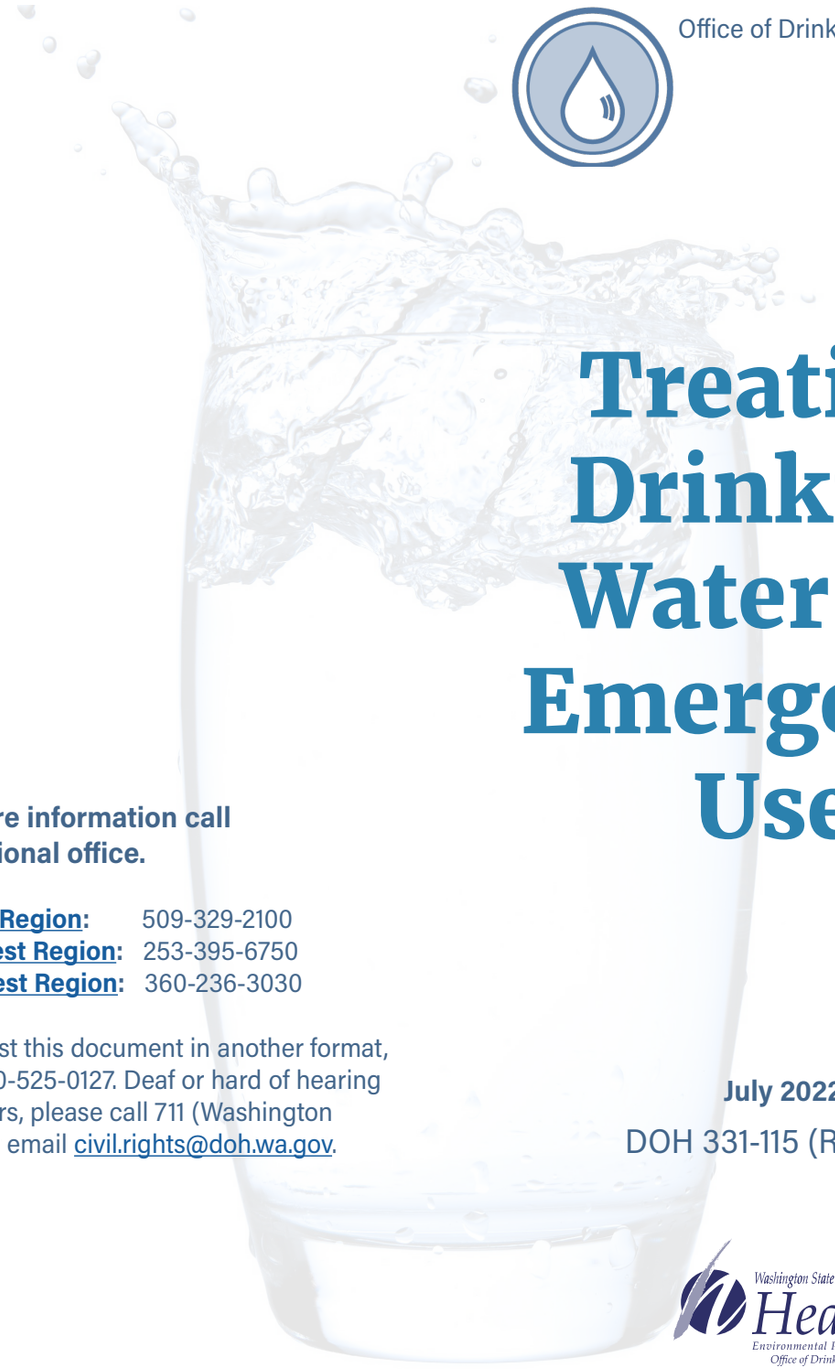
Responding to health emergencies is our highest priority. We will inspect the system as soon as possible to help the water system resolve the problem. More water samples will be collected to find and eliminate potential contamination sources, and a system not normally disinfected will most likely be chlorinated and flushed. The health advisory will remain in effect until the situation is resolved and the water is safe to drink.

For more information

Our publications are online at https://fortress.wa.gov/doh/odwpubs/

Call our nearest regional office

Northwest Region: Kent	Southwest Region: Tumwater	Eastern Region: Spokane Valley
253-395-6750	360-236-3030	509-329-2100



Office of Drinking Water

Treating Drinking Water for Emergency Use

For more information call our regional office.

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

To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email civil.rights@doh.wa.gov.

July 2022

DOH 331-115 (Revised)

Washington State Department of Health
Environmental Public Health
Office of Drinking Water

When do You Need to Treat Drinking Water?

Normally, your water is safe to drink, but you may need to treat it if your usual water supply is interrupted or becomes unsafe for drinking. Conditions that may require treatment of drinking water include:

- Disasters that interrupt your water supply, such as floods, earthquakes, and power outages.
- Water supply system disruption or loss of pressure due to line breaks or repairs.
- Special conditions when your water system, local health department, or the state Department of Health advise you to boil or treat the water before drinking.

Preparing for Emergencies

The best way to ensure a safe supply of drinking water is to store enough water to last through an emergency. Although most emergencies are unexpected, you may be able to anticipate situations by watching or listening to weather reports. You should also pay attention to notices from your water system about planned water disruptions or other conditions that could signal a problem with your water supply.

Even if you don't store a supply of water, keep the following items on hand to treat water during an emergency:

- Fresh supply of liquid bleach and kitchen measuring spoons or a medicine dropper. You can get a dropper with teaspoon and milliliter markings at a drug store.
- Equipment to boil water, such as propane or gas stoves or an outside barbecue grill. Remember, your usual source of energy may not be available during an emergency.

Storing Drinking Water for Emergencies

To prepare for a drinking water emergency, the American Red Cross recommends storing **one gallon of water per person per day—enough for at least two weeks** (two quarts for drinking and two quarts for food preparation and sanitation).

Very warm temperatures and intense physical activity can double that amount; children, nursing mothers, and ill people will need more.

One gallon per person per day.

- **Collect water from a safe supply.** If your water comes from a private well or a water system serving fewer than 15 homes or businesses, ask your local health department how to have it tested.
- **Use proper storage containers.** Store the water in containers made for water storage, or glass and plastic jugs previously used for soft drinks or bottled water. Clean the containers thoroughly before using and make sure the caps fit tightly. Never reuse a container that held toxic substances such as pesticides, chemicals, or oil.
- **Add one or two drops of liquid bleach per gallon** to maintain water quality while in storage. Seal the container tightly and label with the date.
- **Store in a cool place**, safe from flooding, freezing, and earthquake damage. We recommend that every six months you use or discard stored water and replace it with a fresh supply.

Treating Water During an Emergency

If you are informed, or have reason to believe your tap water is unsafe, you should treat the water before using it for drinking, preparing food, or brushing teeth.

There are two ways to treat water: boil it or add bleach. If the supply is unsafe because of untreated surface water (from floods, streams, or lakes), boiling is the better treatment.

If the water is cloudy, you should filter it before boiling or adding bleach. Filter cloudy water with filters designed for use when camping, coffee filters, paper towels, cheesecloth, or a cotton plug in a funnel.

Boiling

Boiling is the best way to purify water that is unsafe because of viruses, parasites, or bacterial contamination.

Don't boil the water if the contaminants are toxic metals, nitrates, pesticides, solvents, or other chemicals. Boiling won't remove chemicals or toxins.

- Bring the water to a roiling boil for one full minute. Boiling is the best way to treat water from—or affected by—surface water.
- Keep boiled water covered while it cools and then store as described in *Storing Drinking Water for Emergencies* (see prior page).

Purify by Adding Liquid Chlorine Bleach

If boiling is not possible, add household liquid bleach to water contaminated with viruses, parasites, or bacterial contamination. Bleach won't remove chemicals or toxins.

Household bleach, like Clorox or Purex, is usually 5.25 to 8.25 percent chlorine. **Don't use bleaches that contain perfumes, dyes, or other additives.** Be sure to read the label.

- Filter cloudy water before adding bleach.
- Place the water in a clean container. Use the table below to add the right amount of bleach. Mix thoroughly and let stand for 60 minutes before drinking.
- Purifying tablets or chemicals designed for camping or backpacking can also treat water effectively. Always follow the directions on the package.

Treating Water with Household Bleach

5.25 to 8.25 percent chlorine	
Water to be treated	**Bleach to add**
1 quart, 1 liter	5 drops
½ gallon, 2 quarts, 2 liters	10 drops
1 gallon	1/4 teaspoons
5 fallons	1 teaspoon
10 gallons	2 teaspoons

A Few Words of Caution

Bleach will not remove chemical pollutants or kill some disease-causing organisms commonly found in surface water supplies, such as Cryptosporidium. This protozoan parasite can cause gastrointestinal illness. For a person with a weakened or compromised immune system, it can cause prolonged illness, even death.

AVOID WATER that contains solid materials, has an odor, or a dark color.

When Water is Hard to Find

When tap water and bottled water are unavailable, you can find water in some unexpected places.

Hidden Water Sources in Your Home

Safe water sources in your home include:

- Water from the drain spout of a water heater. Be sure the electricity and gas are off before opening the spout. Drain the water into a clean storage container.
- Water drained from the pipes inside your home. Open a faucet on the top floor of your home. Next, go to the faucet at the lowest point in your home. Open the faucet and drain the water you need into a clean storage container.
- Water placed in ice cube trays in the freezer.

DO NOT USE water from toilet flush tanks or bowls, radiators, waterbeds, swimming pools, or spas.

Sources of Water Outside Your Home

Before you drink water from these surface water sources, boil it for one full minute and allow to cool before using.

- Rainwater.
- Lakes.
- Rivers and streams.
- Natural springs.
- Ponds.

The treatments described here only kill bacteria or viruses.
If you suspect the water is unsafe because of chemicals, oils, poisonous substances, sewage, or other contaminants,
DO NOT
drink the water.

DRINKING WATER WARNING
E. coli MCL Violation

The _____Water System, ID _____, located in _____ County is contaminated with *E. coli* bacteria.

E. coli bacteria were detected in the water supply on _____. These bacteria can make you sick and are a particular concern for people with compromised immune systems. Boiled or purchased bottled water should be used for drinking, making ice, brushing teeth, washing dishes, and food preparation until further notice. Boiling kills bacteria and other organisms in the water.

What should you do? **DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST**. Bring all water to a rolling boil, for 1 minute, and let it cool before using. Boiling kills bacteria and other organisms in the water.

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.

The symptoms above are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice. People at increased risk should seek advice about drinking water from their health care provider.

What happened? What is the suspected or known source of contamination?

The following is being done to correct the problem:

We will consult with the State Department of Health about this incident. We will provide you notification when you no longer need to boil the water. We anticipate resolving the problem by _____.

For more information please contact:_____
(owner/operator) (phone #) (address) (email)

Please share this notice with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is sent to you by _____Water System on ____/____/_____

Public Notification Form

Public Notice Certification *E. coli*-MCL Violation

331-264-F • Updated 3/25/2022

Within ten days after notifying your customers about an *E. coli*-MCL violation, you must complete this form and send it to our regional office. You must also send a copy of each type of notice you distributed to your customers (hand-delivered notices, news releases, newspaper articles, and so on).

By completing this form, you certify that:

- You met all of the public notification requirements.
- You will meet future requirements for notifying new billing units of the violation or situation.

If the boil water advisory remains in effect more than three months, you must re-notify your water users and send another completed copy of this *Public Notice Certification* to us.

Complete the following items, sign the form and email it to the nearest regional office, addresses next page.

Water System:_____ ID #_____ County:_____

Violation Date:____ / _____ / _____ Violation Type_____

This public water system certifies that it gave this public notice to water users, following state and federal requirements for delivery, content, and deadlines.

☐ **Yes**
☐ **No**

Distribution was completed Yes ☐ **No** ☐ **on** _____ **/** ____ **/**_____**.**

Check all that apply:

☐ Hand delivery,
☐ News release (TV, radio, newspaper)
☐ Posting at_____ (by DOH approval only),
☐ Other _____ (by DOH approval only).

Were the water users notified within 24 hours? Yes ☐ **No** ☐

_____ _____ _____

Signature of owner or operator | Position | Date

Northwest Regional Office
Main Office: 253-395-6750
Fax: 253-395-6760
NWRO.ADMIN@doh.wa.gov

Area of Coverage: Island, King, Pierce, San Juan, Skagit, Snohomish, and Whatcom Counties

Southwest Regional Office
Main Office: 360-236-3030
Fax: 360-664-8058
swro.admin@doh.wa.gov

Area of Coverage: Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Kitsap, Lewis, Mason, Pacific, Skamania, Thurston, and Wahkiakum Counties.

Eastern Regional Office
Main Office: 509-329-2100
Fax: 509-329-2104
eroadmin@doh.wa.gov

Area of Coverage: Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, and Yakima Counties.

Washington State Department of HEALTH

To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email doh.information@doh.wa.gov. If in need of translation services, call 1-800-525-0127.

APPENDIX I

CROSS-CONNECTION CONTROL POLICY

Chapter 13.35
CROSS-CONNECTIONS

Sections:

13.35.010 Definitions.

This section will interpret and define certain words and terms set forth in this chapter.

“Backflow” means the flow other than the intended direction of flow of any foreign liquids, gases or substances into the distribution system of the public drinking water system of South Bend.

“Backflow prevention device” means a device manufactured and intended to counteract backpressure or prevent backsiphonage into the public drinking water supply system as approved by the Washington State Department of Health for that purpose.

“Contamination” means the entry into, or the presence in, the public drinking water system of any substance or matter when present in drinking water above an acceptable level which may adversely affect the health of the consumer and/or the aesthetic qualities of the water consumed.

“Cross-connection” means any physical arrangement whereby public drinking water supply is connected, directly or indirectly, with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device or vessel which contains or may contain contaminated water, sewage or other waste or liquids of unknown or unsafe quality which may be capable of imparting contamination to the public water supply system of South Bend as a result of backflow.

“DCDA” means double check detector backflow prevention assembly.

“DCVA” means double check valve backflow prevention assembly.

“Director” means the city of South Bend director of public works or his designated agent.

“PVBA” means pressure vacuum breaker assembly.

“RPBA” means reduced pressure principle backflow prevention assembly.

“RPDA” means reduced pressure principle detector backflow prevention assembly.

All definitions contained in Chapter 246-290 WAC, as amended as of or after the effective date of the ordinance codified in this chapter, shall by this reference be considered definitions within this section. (Ord. 1312 § 1, 2004).

13.35.020 Purpose.

The purpose of this chapter is to protect the health of the water consumer and the potability of the water in the distribution system. Inspection and regulation of all actual or potential cross-connections between potable and nonpotable systems is required in order to minimize the danger of contamination or pollution of the public potable water supply. No water service connection to any premises shall be installed or continued in use and no water service shall be provided by South Bend unless South Bend’s water supply is protected by backflow prevention devices as may be required by this chapter or Chapter 246-290 WAC or any superseding code section. The installation or maintenance of a cross-connection which will endanger the water quality of the potable water supply of the city shall be unlawful and is prohibited. Any such cross-connection now existing or hereafter installed is declared to be a public nuisance and the same shall be abated. Controlling and preventing cross-connections is accomplished by either removing the cross-connection or installing an approved backflow prevention assembly to protect the public potable water supply.

The city is required to eliminate or control all cross-connections throughout its service area. Therefore, anyone wanting or using water from the city is required to comply with these regulations. The owner of the property in which a cross-connection occurs is fully responsible for all damages incurred. (Ord. 1312 § 2, 2004).

13.35.030 Enforcement.

The director of public works will enforce the provisions of this chapter. The public works director may delegate responsibilities to a certified cross-connection control specialist/inspector. The provisions of this chapter may supersede state regulations but in no case shall they be less stringent. All approved standards, policies and methods of operation shall be approved by the director of public works, and may be revised or modified as the need arises. All backflow prevention assemblies required by this chapter shall be a model approved by the state of Washington.

Approved backflow prevention assemblies required by this chapter shall be installed under the direction of the director of public works and/or under the supervision of the cross-connection specialist/inspector per the city standards. The device shall be located so as to be readily accessible for maintenance and testing. (Ord. 1312 § 3, 2004).

13.35.040 Testing.

All RPBAs, RPDAs, DCVAs, DCDAs and PVBAs are required to be tested at least annually

and all air gaps installed in lieu of an approved backflow prevention assembly shall be inspected at least annually. Completed test reports shall be returned to the city within 30 days after receipt of the yearly test notification. Tests and inspections may be required on a more frequent basis at the discretion of the director of public works. All costs for testing and inspection of backflow prevention devices shall be borne by the customer. (Ord. 1312 § 4, 2004).

13.35.050 Inspection/right of entry.

Authorized employees of the city with proper identification shall have free access at reasonable hours of the day to all parts of the premises or within buildings to which water is supplied. Water service shall be refused or terminated to any premises for failure to allow necessary inspections. (Ord. 1312 § 5, 2004).

13.35.060 Compliance.

Failure of the customer to cooperate in the installation, maintenance, repair, inspection or testing of backflow prevention assemblies required by this chapter shall be grounds for termination of water service to the premises or the requirement for an air gap separation. (Ord. 1312 § 6, 2004).

13.35.070 No duty of care.

The provisions of this chapter are adopted in the furtherance of the general health, safety and welfare of the city and are not meant to create a duty of care with respect to any individual, utility service user or customer. (Ord. 1312 § 7, 2004).

APPENDIX J

SEPA CHECKLIST

SEPA[1] Environmental Checklist

[1] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/Checklist-guidance

Purpose of checklist

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization, or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. **You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown.** You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to **all parts of your proposal**, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for lead agencies

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B, plus the Supplemental Sheet for Nonproject Actions (Part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in "Part B: Environmental Elements" that do not contribute meaningfully to the analysis of the proposal.

A.Background

Find help answering background questions[2]

1. **Name of proposed project, if applicable:**

   City of South Bend Water System Plan

2. **Name of applicant:**

   City of South Bend

3. **Address and phone number of applicant and contact person:**

   Dennis Houk, City Supervisor

   1102 West First St

   PO Drawer 9

   South Bend, WA 98586

   Phone: (360) 875-5571 (Town Hall number)

4. **Date checklist prepared:**

   May 2025

5. **Agency requesting checklist:**

   City of South Bend

6. **Proposed timing of schedule (including phasing, if applicable):**

   The Water System Plan will be sent to DOH for approval in 2025.

7. **Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.**

   No, other than the capital improvement projects identified in Chapter 8 of this plan, which are aimed to improve the efficiency of the water system. These projects will undergo their own SEPA checklists on a project-specific basis.

8. **List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

   No known environmental information has been prepared or will be prepared directly related to this proposal.

9. **Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

   No applications are pending government approvals directly affecting the water system as a whole.

10. **List any government approvals or permits that will be needed for your proposal, if known.**

[2] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-A-Background

The Water System Plan will need to be approved by the Washington State Department of Health.

11. **Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)**

    The proposal includes all water system capital improvement projects listed in Chapter 8. These projects mostly consist of water main improvements and replacements as well as booster station additions. Water source alternative assessments are also planned.

12. **Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.**

    The proposal location is the City of South Bend water system in Pacific County, WA. See figures 1-1 and 1-2 from the Water System Plan, which provide a vicinity map and a map of the water system service area, respectively.

B.Environmental Elements

1. Earth

Find help answering earth questions[3]

a. **General description of the site:**

   The water service area is generally flat, with approximately 20 feet elevation difference from the north end of Town to the south. There is a general slope downwards from the east end of the water system (the water treatment plant) to the west end.

Circle or highlight one: Flat, rolling, hilly, steep slopes, mountainous, other:

b. **What is the steepest slope on the site (approximate percent slope)?**

   Elevations range from a low of approximately 10 feet in the flats adjacent to the Willapa River, to a high of approximately 250 feet in the Willapa Hills south of the City. The steepest slope within the water system boundaries can be estimated at about 45 percent, but all slopes are localized.

[3] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-earth

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them, and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The predominant soil type is Ocosta silty clay loam, which is deep poorly drained soil on floodplains and deltas protected from tidal overflow.

The secondary soil type is Udorthents, which is very deep, moderately well drained to excessively drained soils on diked tidelands.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Some steeper slopes in the water service area are susceptible to sliding when saturated. The slopes within the watershed but outside of the service area are highly susceptible to landslides.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

This is a non-project proposal and does not propose any filling, excavation, or grading. Impacts of grading and/or filling associated with individual recommended capital improvement projects will be evaluated on a project specific basis.

f. Could erosion occur because of clearing, construction, or use? If so, generally describe.

This is a non-project proposal and does not include clearing or construction. Impacts of proposed projects will be evaluated on a project specific basis.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

This is a non-project proposal and no additional impervious surfaces will be constructed. This will be determined on a project-specific basis.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any.

This is a non-project proposal so measures are not proposed to mitigate erosion or other impacts to the earth.

2. Air

Find help answering air questions[4]

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

[4] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-Air

This is a non-project action and does not include construction. Impacts of proposed construction will be evaluated on a project-specific basis.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

None.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

This is a non-project action and there are no proposed measures to reduce or control emissions or impacts to air.

3. Water

Find help answering water questions[5]

a. Surface:

Find help answering surface water questions[6]

1. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Yes, surface water resources within the City of South Bend service area include the Willapa River and numerous sloughs. The Willapa River flows into Willapa Bay and from there, the Pacific Ocean. Martin and Electric Light Creek provide raw water to the Water Treatment Plant.

2. Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

The proximity of recommended projects to surface water will be evaluated on a project specific basis.

3. Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

This is a non-project action and no fill or dredge will be placed or removed. Actual impacts from proposed projects will be evaluated on a project specific basis.

[5] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water
[6] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Surface-water

4. **Will the proposal require surface water withdrawals or diversions? Give a general description, purpose, and approximate quantities if known.**

   Only typical withdrawals for drinking water treatment, as regulated by the City's water rights. Projected maximum demands are laid out in Chapter 2 of the Water System Plan.

5. **Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

   This will be evaluated on a project specific basis. Much of the City of South Bend service area is located within the 100-year floodplain due to the proximity to the Willapa River.

6. **Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

   No.

b. Ground:

Find help answering ground water questions[7]

1. **Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give a general description, purpose, and approximate quantities if known.**

   No.

2. **Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (domestic sewage; industrial, containing the following chemicals…; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

   None anticipated.

c. Water Runoff (including stormwater):

1. **Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

   This is a non-project proposal and will not create any new runoff.

2. **Could waste materials enter ground or surface waters? If so, generally describe.**

   No, this is a non-project action.

[7] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-3-Water/Environmental-elements-Groundwater

3. **Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.**

   No, this is a non-project action.

d. **Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:**

   None.

4. Plants

Find help answering plants questions

a. **Check the types of vegetation found on the site:**

   ☒ **deciduous tree: alder, maple, aspen, other**

   ☒ **evergreen tree: fir, cedar, pine, other**

   ☒ **shrubs**

   ☒ **grass**

   ☐ **pasture**

   ☐ **crop or grain**

   ☐ **orchards, vineyards, or other permanent crops.**

   ☒ **wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other**

   ☒ **water plants: water lily, eelgrass, milfoil, other**

   ☐ **other types of vegetation**

b. **What kind and amount of vegetation will be removed or altered?**

   None, this is a non-project action. Impacts to vegetation will be evaluated on a project specific basis.

c. **List threatened and endangered species known to be on or near the site.**

   The species listed as threatened or endangered in Pacific County include the Brown pelican, bull trout, marbeled murrelets, northern spotted owl, Oregon silverspot butterfly, short-tailed albatross and western snowy-plover. Of these species, only marbeled murrelets and northern spotted owls are known to be near the City of South Bend. No proposed projects are expected to effect these species.

d. **Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any.**

   To be will be determined on a project specific basis.

e. **List all noxious weeds and invasive species known to be on or near the site.**

   The Pacific County Department of Vegetation Management keeps a comprehensive list of Class A, B and C noxious weeds. The Pacific County “Select” weeds list includes gorse,

purple loosestrife, parrotfeather, tansy ragwort, and others. The presence of these or other noxious weeds will be evaluated on a project-specific basis.

5. Animals

Find help answering animal questions[8]

a. List any birds and other animals that have been observed on or near the site or are known to be on or near the site.

Examples include:

- **Birds: hawk, heron, eagle, songbirds, other:**
- **Mammals: deer, bear, elk, beaver, other:**
- **Fish: bass, salmon, trout, herring, shellfish, other:**

b. List any threatened and endangered species known to be on or near the site.

To be determined on a project specific basis. No endangered species have been identified as having home territory within the City of South Bend service area.

c. Is the site part of a migration route? If so, explain.

Western Washington is part of the Pacific flyway. Potential impacts will be evaluated on a project specific basis.

d. Proposed measures to preserve or enhance wildlife, if any.

No impacts on wildlife are anticipated as part of this non-project proposal, so no measures are proposed. Impacts by proposed projects will be determined on a project specific basis.

e. List any invasive animal species known to be on or near the site.

Trapping efforts for the European green crab were previously made in the Willapa Bay by the Shoalwater Bay Tribe and the Vegetation Control Department. The presence of other species will have to be determined on a project-specific basis.

6. Energy and natural resources

Find help answering energy and natural resource questions[9]

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

[8] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-5-Animals
[9] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-6-Energy-natural-resou

No significant energy consumption will be required for the Plan, which is a non-project action. Electricity will be used for typical operations of any pumps, telemetry equipment, and lighting, heating, and cooling at Town facilities affected by capital improvement projects identified as part of this Plan. Gasoline and diesel fuel will be used by vehicles and equipment in the construction of facilities affected by capital improvement projects identified as part of this Plan.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

None anticipated.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any.

None planned.

7. Environmental health

Health Find help with answering environmental health questions[10]

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur because of this proposal? If so, describe.

None known.

1. **Describe any known or possible contamination at the site from present or past uses.**

   None known.

2. **Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.**

   Not applicable to non-project evaluation.

3. **Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.**

   Not applicable to non-project evaluation.

4. **Describe special emergency services that might be required.**

   None required.

5. **Proposed measures to reduce or control environmental health hazards, if any.**

   None planned.

b. Noise

[10] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-7-Environmental-health

1. **What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?**

   None.

2. **What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site)?**

   None expected. To be determined on a project specific basis.

3. **Proposed measures to reduce or control noise impacts, if any:**

   None planned.

8. Land and shoreline use

Find help answering land and shoreline use questions[11]

a. **What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.**

   Land use within the City of South Bend service area is detailed in figure 1-8 of the Water System Plan.

b. **Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses because of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?**

   The City of South Bend service area has not been used for agriculture for many decades. Some outlying areas may have limited agriculture, mostly smaller hobby farms and limited hay fields.

   1. **Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how?**

      No.

c. **Describe any structures on the site.**

   To be determined on a project specific basis.

d. **Will any structures be demolished? If so, what?**

   To be determined on a project specific basis.

e. **What is the current zoning classification of the site?**

[11] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-8-Land-shoreline-use

To be determined on a project specific basis. All proposed projects will be constructed in accordance with City of South Bend and/or Pacific County land use and zoning standards and ordinances.

f. What is the current comprehensive plan designation of the site?

To be determined on a project specific basis. All proposed projects will be constructed in accordance with City of South Bend and/or Pacific County land use and zoning standards and ordinances.

g. If applicable, what is the current shoreline master program designation of the site?

To be determined on a project specific basis.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

None known.

i. Approximately how many people would reside or work in the completed project?

This will be evaluated on a project specific basis.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any.

Not applicable.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any.

Proposed water system improvements will receive City of South Bend and/or Pacific County permits prior to the commencement of construction to ensure consistency with County ordinances covering land use, planning, and zoning, if required.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

None planned.

9. Housing

Find help answering housing questions[12]

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

[12] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-9-Housing

None.

c. Proposed measures to reduce or control housing impacts, if any:

None.

10. Aesthetics

Find help answering aesthetics questions[13]

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

To be determined on a project specific basis.

b. What views in the immediate vicinity would be altered or obstructed?

To be determined on a project specific basis.

Proposed measures to reduce or control aesthetic impacts, if any:

To be determined on a project specific basis.

11. Light and glare

Find help answering light and glare questions[14]

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

None.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

Not applicable.

d. Proposed measures to reduce or control light and glare impacts, if any:

Not applicable.

12. Recreation

Find help answering recreation questions

a. What designated and informal recreational opportunities are in the immediate vicinity?

Neighborhood parks with walking trails and other recreational activities are available within the City of South Bend service area. In addition, boating and fishing are popular recreational opportunities on the Willapa River.

[13] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-10-Aesthetics
[14] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-11-Light-glare

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Not applicable.

13. Historic and cultural preservation

Find help answering historic and cultural preservation questions[15]

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

To be determined on a project specific basis.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

To be determined on a project specific basis.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

Tribal consultation, DAHP consultation, and archaeological monitoring will be used when appropriate before and during construction on specific projects.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

None planned.

14. Transportation

Find help with answering transportation questions[16]

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

To be determined on a project specific basis.

[15] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-13-Historic-cultural-p
[16] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-B-Environmental-elements/Environmental-elements-14-Transportation

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The Pacific County Bus route 32 runs in the South Bend/Raymond area.

c. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle, or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

Water main replacements frequently require sawcutting within existing roads or streets. Once the water main is replaced, the impacted area is patched.

d. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

This non-project proposal will not require any transportation.

e. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

To be determined on a project specific basis.

f. Will the proposal interfere with, affect, or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

To be determined on a project specific basis.

g. Proposed measures to reduce or control transportation impacts, if any:

To be determined on a project specific basis.

15. Public services

Find help answering public service questions[17]

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

To be determined on a project specific basis.

b. Proposed measures to reduce or control direct impacts on public services, if any.

To be determined on a project specific basis.

16. Utilities

Find help answering utilities questions[18]

[17] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-15-public-services
[18] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-b-environmental-elements/environmental-elements-16-utilities

a. **Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other: cable**

b. **Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

To be determined on a project specific basis. The recommended capital improvement projects involve enhancements to the City of South Bend's existing water supply system.

C.Signature

Find help about who should sign[19]

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Type name of signee: Dennis Houk

Position and agency/organization: **City Supervisor/City of South Bend**

Date submitted: 12/22/2025

D.Supplemental sheet for nonproject actions

Find help for the nonproject actions worksheet[20]

Do not use this section for project actions.

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

- **How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?**

It is not expected that there would be any increased discharges as a result of this project.

[19] https://ecology.wa.gov/Regulations-Permits/SEPA/Environmental-review/SEPA-guidance/SEPA-checklist-guidance/SEPA-Checklist-Section-C-Signature

[20] https://ecology.wa.gov/regulations-permits/sepa/environmental-review/sepa-guidance/sepa-checklist-guidance/sepa-checklist-section-d-non-project-actions

- **Proposed measures to avoid or reduce such increases are:**

  To be determined on a project specific basis.

- **How would the proposal be likely to affect plants, animals, fish, or marine life?**

Not likely.

- **Proposed measures to protect or conserve plants, animals, fish, or marine life are:**

  To be determined on a project specific basis.

- **How would the proposal be likely to deplete energy or natural resources?**

Not likely.

- **Proposed measures to protect or conserve energy and natural resources are:**

  To be determined on a project specific basis.

- **How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection, such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?**

The proposal is not likely to affect environmentally sensitive areas or areas designated for governmental protection.

- **Proposed measures to protect such resources or to avoid or reduce impacts are:**

  To be determined on a project specific basis.

- **How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?**

Not likely.

- **Proposed measures to avoid or reduce shoreline and land use impacts are:**

  To be determined on a project specific basis.

- **How would the proposal be likely to increase demands on transportation or public services and utilities?**

Not likely.

- **Proposed measures to reduce or respond to such demand(s) are:**

  To be determined on a project specific basis.

- **Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.**

The proposal is not likely to conflict with local, state, or federal laws or requirements for the protection of the environment.

City Supervisor/Building Official
P.O. Drawer 9
South Bend, WA 98586
Phone: 360-875-5571
FAX: 360-875-4009
TDD: 1-800-833-6388
E-mail: dennis.houk@southbend-wa.gov
Website: www.southbend-wa.gov

State Environmental Policy Act

Determination of NonSignificance

Date of Issuance: 12/22/2025

Lead Agency: City of South Bend

Agency Contact: Dennis Houk, City Supervisor, dennis.houk@southbend-wa.gov, (360) 875-5571

Description of Proposal: This is a non-project SEPA for a Water System Plan. The 2025 City of South Bend Water System Plan provides a long-term planning strategy for the City over 10-year and 20-year planning periods. The objectives of the Plan ae to evaluate the performance and adequacy of the existing water system to determine what will be necessary to meet the infrastructure demands for the next 20 years and to identify compliance issues that may affect operation of the water system. The Plan was prepared in accordance with the Washington State Department of Health (DOH) requirements as specified in Washington Administrative Code (WAC) 246-290.

Applicant: City of South Bend

Location of Proposal: City of South Bend Water Service Area

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency.

This information is available at: [Enter webpage or document links]

☒ There is no comment period for this DNS.

☐ This DNS is issued after using the optional process in WAC **197-11-355**. There is no further comment period on the DNS.

☐ This DNS is issued under WAC **197-11-340**(2); the lead agency will not act on this proposal for 14 days from the date of issuance. **Comments must be submitted by:** [Enter **date** and **time** comments due].

Responsible Official: Dennis Houk
Position/Title: City Supervisor
Address: 1102 West First Street, South Bend, Washington 98586
Phone: (360) 875-5571
Email: dennis.houk@southbend-wa.gov

Responsible Official

Signature Date: 12/22/2025

APPENDIX K

LOCAL GOVERNMENT CONSISTENCY STATEMENTS

Local Government Consistency Determination Form

331-568 • 8/10/2023

Water System Name: South Bend Water Department PWS ID: 81500 Y

Planning/Engineering Document Title: Water System Plan Plan Date: June 2025

Local Government with Jurisdiction Conducting Review: Pacific County

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, the reviewer should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on page 2.

Local Government Consistency Statement	For Use by Water System Identify page(s) in submittal	For Use by Local Government Yes or Not Applicable
a) The water system service area is consistent with the adopted land use and zoning within the service area.	1-14, Figures 1-3 – 1-8	Yes
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	2-1 through 2-3	Yes
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.	1-19 and Appendix C	Yes
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	1-16 and Appendix C	Yes
e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	N/A	Yes

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Signature

7/15/2025
Date

Shawn Humphreys, Director-Pacific County Dept. of Community Development
Printed Name, Title, & Jurisdiction

Local Government Consistency Determination Form

331-568 • 8/10/2023

Water System Name: City of South Bend PWS ID: 81500Y

Planning/Engineering Document Title: South Bend Water System Plan Plan Date: June 2025

Local Government with Jurisdiction Conducting Review: Pacific County

Before the Department of Health (DOH) approves a planning or engineering submittal under Section 100 or Section 110, the local government must review the documentation the municipal water supplier provides to prove the submittal is consistent with **local comprehensive plans, land use plans and development regulations** (WAC 246-290-108). Submittals under Section 105 require a local consistency determination if the municipal water supplier requests a water right place-of-use expansion. The review must address the elements identified below as they relate to water service.

By signing this form, the local government reviewer confirms the document under review is consistent with applicable local plans and regulations. If the local government reviewer identifies an inconsistency, the reviewer should include the citation from the applicable comprehensive plan or development regulation and explain how to resolve the inconsistency, or confirm that the inconsistency is not applicable by marking N/A. See more instructions on page 2.

Local Government Consistency Statement	For Use by Water System Identify page(s) in submittal	For Use by Local Government Yes or Not Applicable
a) The water system service area is consistent with the adopted land use and zoning within the service area.	Figure 1-14, Figs 1-3 -1-8	Yes
b) The growth projection used to forecast water demand is consistent with the adopted city or county's population growth projections. If a different growth projection is used, provide an explanation of the alternative growth projection and methodology.	2-1 through 2-3	Yes
c) For cities and towns that provide water service: All water service area policies of the city or town described in the plan conform to all relevant utility service extension ordinances.	1-19 and Appendix C	Yes
d) Service area policies for new service connections conform to the adopted local plans and adopted development regulations of all cities and counties with jurisdiction over the service area.	1-16 and Appendix C	Yes
e) Other relevant elements related to water supply are addressed in the water system plan, if applicable. This may include Coordinated Water System Plans, Regional Wastewater Plans, Reclaimed Water Plans, Groundwater Management Area Plans, and the Capital Facilities Element of local comprehensive plans.	N/A	Yes

I certify that the above statements are true to the best of my knowledge and that these specific elements are consistent with adopted local plans and development regulations.

Mayor Julie K. Struck
Signature

12/29/2025
Date

Julie K. Struck, Mayor, City of South Bend
Printed Name, Title, & Jurisdiction

Consistency Review Guidance
For Use by Local Governments and Municipal Water Suppliers

This checklist may be used to meet the requirements of WAC 246-290-108. When using an alternative format, it must describe all the elements; 1a), b), c), d), and e), when they apply.

For **water system plans (WSP)**, a consistency review is required for the municipal water supplier's service area. Municipal water suppliers may exclude wholesale areas from the consistency review provided the water system receiving the wholesale water complies with the requirements for a consistency review when developing a water system plan for any new connection within their service area.

For **small water system management programs**, a consistency review is only required for areas where a municipal water supplier wants to expand its water right's place-of-use. If no water right place-of-use expansion is requested, a consistency review is not required.

For **engineering documents,** a consistency review is required for areas where a municipal water supplier wants to expand its water right's place-of-use (water system plan amendment is required). For noncommunity water systems, a consistency review is required when requesting a place-of-use expansion. All engineering documents must be submitted with a service area map (WAC 246-290-110(4)(b)(ii)).

A) Documenting Consistency: The planning or engineering document must include the following when applicable.

a) A copy of the adopted land use/zoning map corresponding to the service area. The uses provided in the WSP should be consistent with the adopted land use/zoning map. Include any other portions of comprehensive plans or development regulations that relate to water supply planning.

b) A copy of the growth projections that correspond to the service area. If the local population growth projections are not used, explain in detail why the chosen projections more accurately describe the expected growth rate. Explain how it is consistent with the adopted land use.

c) Include water service area policies and show that they are consistent with the utility service extension ordinances within the city or town boundaries. (This applies to cities and towns only.)

d) All **service area policies** for how you will provide new water service to new customers.

e) **Other relevant elements** the Department of Health determines are related to water supply planning. See Local Government Consistency—Other Relevant Elements, Policy B.07

B) Documenting an Inconsistency: Please document the inconsistency, include the citation from the comprehensive plan or development regulation, and explain how to resolve the inconsistency.

C) Documenting a Lack of Local Review for Consistency: Where the local government with jurisdiction did ***not*** provide a consistency review, document efforts made, and the amount of time provided to the local government for review. Please include name of contact, date, and efforts made (letters, phone calls, and emails). To self-certify, please contact the DOH Planner.