

***Appendix V***  
***DBP Water Monitoring Plan***

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## **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:** City of Bonney Lake  
**PWSID#:** 07650H  
**Population:** 37,708  
**Type of Source Water:** Groundwater  
**Completed by:** Ursulla Ronscavage  
**Date:** 2/4/2020

### **Routine Monitoring Requirments**

Monitoring Frequency (Routine Monitoring):

Number of TTHM Samples Required:

Number of HAA5 Samples Required:

Quarterly
2
2

See Routine Monitoring Reference tab to determine number of samples required

### **Reduced Monitoring Schedule**

Monitoring Frequency (Reduced Monitoring):

Number of TTHM Samples Required:

Number of HAA5 Samples Required:

Quarterly
2
2

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
21727 34th St. E.	February, 3rd Week	May, 3rd Week	August, 3rd Week	November, 3rd Week
6606 Vandermark Rd. E.	February, 3rd Week	May, 3rd Week	August, 3rd Week	November, 3rd Week

### **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.

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

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). 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 Cl<sub>2</sub>

**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.)*

## Stage 2 DBP Criteria for Reduced Monitoring

(routine monitoring is on the previous tab)

### General Criteria for Qualifying for Reduced Monitoring:

TTHM LRAA is  $\leq 0.040$  mg/L for all samples

HAA5 LRAA is  $\leq 0.030$  mg/L for all samples

For surface water, RAA raw water TOC  $\leq 4.0$  mg/L.  
For purchasing systems, you are required to ensure your supplier is collecting this data

(LRAA = Locational Running Annual Average, which is the average of all samples over a year period at a specific sample location.)

### General Criteria to Remain on Reduced Monitoring

Systems on quarterly maintain a LRAA for all locations below 40/30.

Systems on a monitoring frequency < quarterly have results in the right time frame which are <60/45

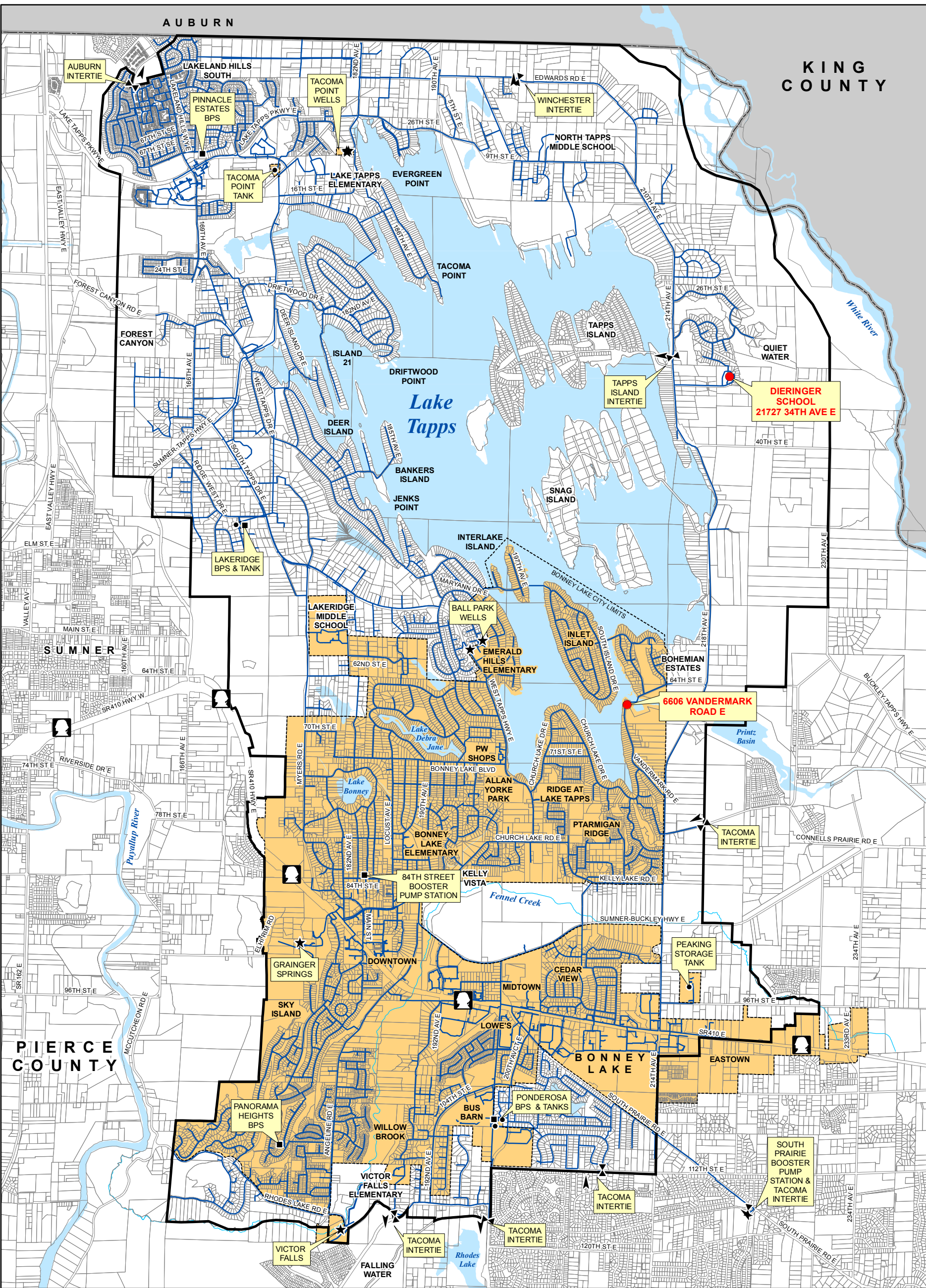
For surface water, RAA raw water TOC  $\leq 4.0$  mg/L. For purchasing systems, you are required to ensure your supplier is collecting this data

## Stage 2 DBP Reduced Monitoring Requirements

Source Water Type	Population Range	Reduced Monitoring Frequency	Number of Samples Required	Details for Samples Required and Monitoring Locations
Surface Water	< 500	No Reduction Allowed		
Surface Water	500 - 3,300	Reduced to Annual	2 Samples Total	<ul style="list-style-type: none"> <li>&gt; One location for TTHM and one location for HAA5</li> <li>&gt; The TTHM sample should be taken at the location and during the quarter with highest TTHM result.</li> <li>&gt; The HAA5 sample should be taken at the location and during the quarter with highest HAA5 result.</li> </ul>
Surface Water	3,301 - 9,999	Reduced to Annual	2 Dual Sample Sets	<ul style="list-style-type: none"> <li>&gt; Two sample sets of TTHM and HAA5 samples (monitor two locations for both TTHM and HAA5)</li> <li>&gt; If the highest TTHM and HAA5 results were during different quarters then collect one dual sample set during highest TTHM quarter and the other during the highest HAA5 quarter.</li> </ul>
Surface Water	10,000 - 49,999	Stays Quarterly - (Number of samples taken each quarter is reduced)	2 Dual Sample Sets	<ul style="list-style-type: none"> <li>&gt; Two sample sets of TTHM and HAA5 samples (monitor two locations for both TTHM and HAA5)</li> <li>&gt; Collect one TTHM/HAA5 sample set at the location with highest Locational Running Annual Average (LAA) for TTHM.</li> <li>&gt; Collect the second TTHM/HAA5 sample set at the location with highest Locational Running Annual Average (LAA) for HAA5.</li> </ul>
Surface Water	50,000 - 249,000	Stays Quarterly - (Number of samples taken each quarter is reduced)	4 Dual Sample Sets	<ul style="list-style-type: none"> <li>&gt; Four sample sets of TTHM and HAA5 samples (monitor four locations for both TTHM and HAA5)</li> <li>&gt; Collect two TTHM/HAA5 sample sets at the locations with highest Locational Running Annual Averages (LAA) for TTHM.</li> <li>&gt; Collect the other two TTHM/HAA5 sample sets at the locations with highest Locational Running Annual Averages (LAA) for HAA5.</li> </ul>
Groundwater	< 500	Reduced to Every 3 Years	2 Samples; One TTHM and one HAA5	<ul style="list-style-type: none"> <li>&gt; One location for TTHM and one location for HAA5</li> <li>&gt; The TTHM sample should be taken at the location and during the quarter with highest TTHM result.</li> <li>&gt; The HAA5 sample should be taken at the location and during the quarter with highest HAA5 result.</li> </ul>
Groundwater	500 - 9,999	Annual	2 Samples; One TTHM and one HAA5	<ul style="list-style-type: none"> <li>&gt; One location for TTHM and one location for HAA5</li> <li>&gt; The TTHM sample should be taken at the location and during the quarter with highest TTHM result.</li> <li>&gt; The HAA5 sample should be taken at the location and during the quarter with highest HAA5 result.</li> </ul>

Source Water Type	Population Range	Reduced Monitoring Frequency	Number of Samples Required	Details for Samples Required and Monitoring Locations
Groundwater	10,000 - 99,999	Reduced to Annual and Fewer Sample Sites	2 Dual Sample Sets	<p>&gt; Two sample sets of TTHM and HAA5 samples (monitor two locations for both TTHM and HAA5)</p> <p>&gt; If the highest TTHM and HAA5 results were during different quarters then collect one dual sample set during the highest TTHM quarter and the other sample set during the highest HAA5 quarter.</p>
Groundwater	100,000 - 499,999	Stays Quarterly - (Number of samples taken each quarter is reduced)	2 Dual Sample Sets	<p>&gt; Two sample sets of TTHM and HAA5 samples (monitor two locations for both TTHM and HAA5)</p> <p>&gt; Collect one TTHM/HAA5 sample set at the location with highest Locational Running Annual Average (LAA) for TTHM.</p> <p>&gt; Collect the second TTHM/HAA5 sample set at the location with highest Locational Running Annual Average (LAA) for HAA5.</p>





Monitoring Sites

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Water Source

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Water Tank

■

Booster Pump Station

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Emergency Intertie and Flow Direction

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Water Main Line

Bonney Lake Water Service Area

Tax Parcel

Bonney Lake City Limits

DBP

Water Monitoring Sites

N

0

0.5

1

1.5

2

Miles

BONNEY Lake

City of Bonney Lake

February 5, 2020