



Disinfection Byproducts (DBPs)

Disinfection Byproducts can form during the drinking water treatment process when disinfectants interact with naturally occurring organics in the water. They have been shown to cause birth defects and can be carcinogenic (cancer causing). The Disinfection Byproduct Rule limits human exposure to potentially harmful chemicals by ensuring water systems comply with maximum contaminant levels (MCLs) and maximum residual disinfection levels (MRDLs).

Applies to:	<ul style="list-style-type: none"> Community Water Systems (CWS) Non transient-Non community (NTNC) 	All sizes that add any disinfectant other than UV
	<ul style="list-style-type: none"> Transient Non community 	All sizes that add chlorine dioxide

Disinfectant	Disinfection By Product	Maximum Contaminant Level (MCL)
Chlorine	Trihalomethanes (TTHMs)	80 ppb (0.080 mg/l)
Chlorine	Haloacetic Acids (HAA5s)	60 ppb (0.060 mg/L)
Ozone	Bromate	10 ppb (0.010 mg/L)
Chlorine Dioxide	Chlorite	1000 ppb (1.000 mg/L)

Sampling Frequency – Disinfection By Products
Sampling schedules are based on population, source water type, and treatment process type. See chart on reverse side
Quarterly Systems: Sample every 90 days. Annual Systems: Sample during July -September
- All systems must monitor during months of highest DBP concentrations. R309-210-10 (2)(a)(ii)(N)

Disinfectant Residual	Maximum Residual Disinfectant Levels (MRDLs)
Chlorine (as Cl ₂)	4.0 mg/L
Chloramines (as Cl ₂)	4.0 mg/L
Chlorine Dioxide (as ClO ₂)	0.8 mg/L

Sampling Frequency -- Chlorine Residuals			
Point of Entry to Distribution System Cl ₂ Residual		Operational Readings	Distribution System Cl ₂ Residual
Surface Water	Daily sampling	3x per week	With every total coliform sample and/or a minimum of 3x per week
Ground Water	3 samples Per week		

Monthly residual average and total # of residuals taken may be submitted online at: <http://MRDL.utah.gov>

Locational Running Annual Average (LRAA):

Compliance with Maximum Contaminant Levels is based on LRAA.
If the LRAA at any location exceeds the MCL, the system will incur a quality violation.

Quarterly Systems: LRAA is the average calculated for each sampling site using the most recent 4 quarters of Disinfection By Product sampling results collected at that location.

Annual Systems: LRAA is based on the single most recent DBP sample result. If any sample exceeds the MCL the monitoring frequency will increase to quarterly for a minimum of 4 consecutive quarters. See FAQ for details.

Failure to monitor will result in a violation of the monitoring requirements for each quarter that a monitoring result would be used to calculate the LRAA.

Stage 2 Monitoring Plan: Required for all systems sampling for DBPs (R309-210-10(3))

Must include
 (A) Monitoring locations;
 (B) Monitoring dates;
 (C) Compliance calculation procedures; and
 (D) Monitoring plans for any other systems in the combined distribution system if the Director has reduced monitoring requirements under the Director authority in R309-105-5(2).

Routine and Reduced Monitoring Schedules

		Population	Location	Frequency	If qualified for Reduced Monitoring
TTHMs & HAA5s	Surface water	< 500	2 Per Year		No Reduced monitoring
		500 - 3,300	2	Per Quarter	1 dual sample set / Yr
		3,301 - 9,999	2		2 dual sample sets / Yr
		10,000 - 49,000	4		2 dual sample sets / Qtr
		50,000 - 249,999	8		4 dual sample sets / Qtr
		250,000 - 999,999	12		6 dual sample sets / Qtr
	Ground water	<500	2 Per Year		1 TTHM & 1 HAA5 / 3Yr
		500 - 9,999	2 Per Year		1 TTHM & 1 HAA5 / Yr
		10,000 - 99,999	4	Per Quarter	2 dual sample sets / Yr
		100,000 - 499,999	6		2 dual sample sets / Qtr
Total Organic Carbon (TOC)	Systems using conventional filtration		1 Per Month - Per water source		1 sample set every 90 days
Bromate	Systems using ozone		1 Per Month @ Entry Point		1 Per Quarter
Chlorite	Systems using chlorine dioxide for disinfection		1 Per Day @ Entry Point 3 Per Month in Distribution System		No Reduced monitoring

-Membrane plants do not need to sample for TOC unless monitoring on a reduced schedule.

-Consecutive systems (system purchasing disinfected water) sample on the same schedule as the parent system

Frequently Asked Questions:

Q: Can I check on my monitoring schedule to see if my system is in compliance?

A: Yes! Go to www.waterlink.utah.gov, enter in your system name or number, and click on "Water Monitoring" in the top right corner. This will show your monitoring schedule, your sampling locations on file, the date of your last sample submittal, and the date your next sample is due.

Q: Why has my monitoring schedule increased?

A: Monitoring schedules can increase for the following reasons:

1. If the Locational Running Annual Average (LRAA) for any system on a reduced quarterly monitoring schedule exceeds either 0.040 mg/L of TTHM or 0.030 mg/L of HAA5; or
2. If any individual sample for a system on a reduced annual or three times per year monitoring schedule exceeds 0.060 mg/L of TTHM or 0.045 mg/L of HAA5; or
3. If a system treating surface water or groundwater under the direct influence of surface water records an annual average TOC level for source water before treatment that is above 4.0 mg/L(R309-210-10(4)(c)); or
4. If DBP results for a system that monitors annually or once every three years exceed the MCL (0.080 mg/L for TTHM or 0.060 mg/L for HAA5) at any location, the system will be put on increased monitoring in which the system is required to collect two dual sample sets every ninety days for 4 consecutive quarters to calculate the LRAA. The water system may return to routine monitoring once the water system has conducted increased monitoring for at least four consecutive quarters and the LRAA for every monitoring location is less than or equal to 0.060 mg/L for TTHM and less than or equal to 0.045 mg/L for HAA5. (R309-210-10(6))

Q: How do I qualify for reduced monitoring?

A: The LRAA for **all** monitoring locations must be **half** of the MCL (≤ 0.040 mg/L for TTHM and ≤ 0.030 mg/L for HAA5).

Additionally, the source water annual average TOC level, before any treatment, must be ≤ 4.0 mg/L at each treatment plant treating surface water or groundwater under the direct influence of surface water

— **If your system qualifies for reduced monitoring please contact the DBP Rule Manager to update your schedule.**

For more information, or to answer questions, please contact the **DBP Rule Manager, Luke Treutel** at (385) 258-6084

