Environmental Protection Agency

Completing a Stage 2 Disinfection Byproducts Sample Monitoring Plan

All water systems required to monitor for Total Trihalomethanes (TTHM) and Haloacetic Acids, five (HAA5) must develop a sample monitoring plan detailing sample collection locations and dates. Early requirements of the Stage 2 DBP rule required some water systems to conduct an Initial Distribution System Evaluation (IDSE). The IDSE involved conducting a one-year study of the distribution system and the sampling results helped to identify locations with high levels of TTHM and HAA5. The locations with the highest values were chosen as compliance locations for TTHM/HAA5 monitoring.

What if my water system wasn't required to complete an IDSE?

Many systems were able to opt out of completing an IDSE. U.S. EPA issued very small system (VSS) waivers to water systems serving populations less than 500. Other IDSE exemptions, 40/30 certifications, were approved for systems that could show TTHM/HAA5 levels consistently below half of the maximum contaminant levels (MCLs). Systems that did not have to complete an IDSE used their Stage 1 DBP monitoring locations as their Stage 2 DBP monitoring locations.

What if I need to develop a sample monitoring plan or revised my existing plan?

If your water system does not have a DBP sample monitoring plan, a blank template is available on Ohio EPA's website at https://epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/public-water-systems/disinfection_byproducts. If you need to revise your current monitoring plan, please see the information below.

Minimum information required for the sample monitoring plan includes:

- Monitoring Locations (both a location address and a unique monitoring point code)
- Monitoring Date(s):
    - Monitoring every 90 days: systems will be scheduled to sample during the 1st or 2nd week of the month 90 days apart.
    - Monitoring once per year: systems will be scheduled to sample between July and September of every year.

Sample Collection Note: 'Quarterly' monitoring is now required 90 days apart. Regular sample collection provides a more accurate representation of the water quality. Water systems must sample during their required month and week.. If unforeseen circumstances do not allow for sampling during the 7-day window, contact Ohio EPA for assistance.

How many sample locations do I need and how often will I collect samples?

The number of sampling locations depends on the source water type and population of your water system. The sample monitoring plan template will help you determine how many locations you will need. The table on the following page lists sampling location requirements.

What if I need more locations?

If you need more locations than you have used in the past, need to change one or more of your current locations, or if you haven't collected TTHM and HAA5 samples before, you will need to use other knowledge about the water system to select appropriate locations:

- Consider locations already used for compliance with other rules (like the total coliform rule).
- Always consider access to the locations you choose, as access will be necessary several times a year.
- Each chosen location must be unique; a location may only be listed once on the sample monitoring plan.

Completing a Stage 2 Disinfection Byproducts Sample Monitoring Plan

Population	Monitoring Frequency	Number of Locations
	Surface Water	
<500	Once per year	2*
500 to 3,300	Every 90 days	2
3,301 to 9,999	Every 90 days	2
10,000 to 49,999	Every 90 days	4
50,000 to 249,999	Every 90 days	8
250,000 to 999,999	Every 90 days	12
1,000,000 to 4,999,999	Every 90 days	16
	Ground Water	
<500	Once per year	2*
500 to 9,999	Once per year	2
10,000 to 99,999	Every 90 days	4
100,000 to 499,999	Every 90 days	6
>500,000	Every 90 days	8

As shown on the templates, the required locations you choose for TTHM and HAA5 monitoring need designated as high TTHM or high HAA5 locations. This designation represents areas of the distribution system where you would expect to find higher levels of TTHM or HAA5. Although a location may be identified as high TTHM or high HAA5, **both analyte groups are required to be sampled for at all locations**.

Identifying high TTHM locations: These sites are often located near the ends of the distribution system, at or before the last group of customers (but NOT at the last tap on a dead-end line). Downstream of storage facilities and areas where two sources of water mix are also good choices for high TTHM locations. High temperatures and increased residence time (low disinfectant residual usually indicates longer residence time) typically lead to higher TTHM concentrations. Poor choices include locations immediately prior to booster disinfection sites.

Identifying high HAA5 locations: These sites are often located in areas with low but existing disinfectant residual (above 0.2 mg/L chlorine). Other good choices for high HAA5 locations are downstream of storage facilities, near the ends of the distribution system, at or before the last group of customers (but NOT at the last tap on a dead-end line), and areas where two sources of water mix. Poor choices include locations immediately prior to booster disinfection sites, locations with no disinfectant residuals, and areas with biofilm problems.

All water systems shall maintain and make available a copy of the plan for review by Ohio EPA and the public. All systems using surface water are required to submit a copy of their sample monitoring plan to Ohio EPA.

Any distribution system changes to a water system should be reflected in the plan and water systems should update the monitoring plan as soon as possible following the changes. Surface water systems must submit a new copy of the plan to Ohio EPA following any changes affecting their TTHM and HAA5 monitoring.

For More Information

If you have any questions, please call the Ohio EPA Division of Drinking and Ground Waters (614) 644-2752.