



PA Department of Environmental Protection
Bureau of Water Supply and Wastewater Management

Disinfectants and Disinfection Byproducts Rule (DBPR)

Monitoring Plan Template



Instructions

Disinfectants/Disinfection Byproducts Rule Monitoring Plan Instructions

The PA Safe Drinking Water Regulations at section 109.701(e) requires systems monitoring for disinfection byproducts or disinfection byproducts precursors under section 109.301(12) or disinfection residuals under section 109.301(13) to develop and implement a monitoring plan. Such monitoring plan must be maintained and made available for inspection by the Department ~~of~~ and the General Public.

- Systems using surface water or groundwater under the direct influence of surface water (GUDI) sources and serving greater than or equal to 10,000 persons must submit a copy of the monitoring plan to the DEP by January 10, 2002.
- Systems using surface water or GUDI sources and serving fewer than 10,000 persons must submit a copy of the monitoring plan to the DEP by January 10, 2004.
- DEP may also require the plan to be submitted by any other system required to develop a Disinfectants/Disinfection Byproducts Rule monitoring plan. After review, the DEP may require changes in any of the plan components.

At a minimum each monitoring plan must include:

- Specific schedule and locations for collecting disinfection byproducts or disinfectant residual samples.
- Calculations for determining compliance with the MCLs, MRDLs and treatment techniques.
- Distribution sampling locations for both selling water systems and purchasing water systems (i.e. must be reflective of the entire distribution system involved in the sampling).

Water systems must notify DEP of any monitoring plan revisions when they occur and submit a revised monitoring plan within 30 days of notifying DEP of the revision. This includes any reductions in monitoring frequencies. Water systems may add a schematic drawing of sources, treatment facilities and chemicals applied, and sampling points for further clarification of the sampling plan. Please include source IDs, treatment plant IDs and sample point IDs with any such drawings.

Water systems may use the attached monitoring templates, or may develop their own format for developing and submitting a monitoring plan provided the required elements of a monitoring plan as outlined previously are met. If using an electronic format of this template, you can use the tab key to move from field to field in the various tables to enter information. To check off any of the boxes, simply click once on the box; to uncheck, click again.

An example of a completed monitoring plan, for a water system using conventional filtration and chlorine and ozone for disinfection, can be found in Appendix A.

Please submit completed PART 1, PART 2, PART 3 and PART 4 forms to the DEP. Part 4, “Compliance Determinations” have been completed for you. You may wish to delete or cross out those compliance determinations that are not applicable to your water system. Likewise, you may want to make corrections or amendments to those compliance determinations that do not accurately reflect circumstances for your water system.

Instructions For Completion of PART 1 – General System Information

Please complete the general information including your: water system name, seven digit Public Water Supply Identification Number (PWSID), mailing address, contact person, telephone number and email address. In the space provided for system type, check whether your system is a CWS (Community Water System), NTNCWS (Nontransient Noncommunity Water System), or in the case of a Transient Noncommunity Water Systems using chlorine dioxide, TNCWS. Please indicate the number of people served by your system.

Please check **all boxes for the types of sources that are used by your system, not just the primary source.** Please indicate whether your system is selling water to another water system. Also, in the space provided for treatments used, check the treatments that your system uses related to the Disinfectants/Disinfection Byproducts Rule.

Instructions For Completion of PART 2 – Sample Site Inventory

In the table labeled **Parameter Monitored**, please check the appropriate box (Yes or No) for each parameter your system is required to monitor.

TTHM and HAA5 monitoring are required for all Community Water Systems (CWS) and Nontransient Noncommunity Water Systems (NTNCWS) using chemical disinfection.¹

Chlorite monitoring is required for all CWS and NTNCWS using Chlorine Dioxide for disinfection.²

Bromate monitoring is required for all CWS and NTNCWS using ozone for disinfection.³

Bromide monitoring is only required if a system using ozone as a disinfectant desires to take advantage of reduced bromate monitoring.

Chlorine monitoring is required of all CWS, NTNCWS and consecutive water systems using chlorine as a disinfectant. Monitoring typically consists of free or total chlorine measurements.

Chloramine monitoring is required of all public water systems using chloramine as a disinfectant. Monitoring typically consists of total or combined chlorine residuals. Systems using both chlorine and chloramines for disinfection should monitor total chlorine residuals as these are present in the distribution system for either disinfection type.

Chlorine Dioxide (ClO₂) monitoring is required of all public water systems using ClO₂ as a disinfectant.

¹ Includes consecutive water systems.

² Includes consecutive water systems if consecutive system treats with chlorine dioxide.

³ Includes consecutive water systems if consecutive system treats with ozone.

Total Organic Carbon (TOC) is required for all surface water and GUDI source systems that use conventional filtration treatment. All surface water or GUDI source systems serving ≥ 500 customers with a source water TOC annual average level before any treatment of 4.0 mg/L or less may qualify for reduced TTHM and HAA5 monitoring if the annual average for TTHM and HAA5 is 0.040 mg/L or less and 0.030 mg/L or less, respectively.

Specific Ultraviolet Absorbance (SUVA) is optional for surface water and GUDI source systems, which use conventional filtration treatment. These systems may use SUVA data in place of TOC removal requirements if the source water or finished water annual averages for SUVA are 2.0 L/mg-m or less.

Alkalinity is required for surface water and GUDI source systems that use conventional filtration treatment in order to determine the required TOC removal percentage.

In the table labeled **Sampling Information** please enter the parameter required to monitor (from the parameter monitored table), the name of the associated treatment plants (including the treatment plant ID), the name of the associated entry point (including the entry point ID), the sample type code (from the **Sample Information Key**), the sample site ID, location or address of the sample site, sampled by code (from the **Sample Information Key**) and analyzed by code (from the **Sample Information Key**). Note: the sample site ID can refer to the system-assigned distribution system sample point ID or the DEP-assigned plant or entry point ID, depending upon where the sample must be taken.

Please list the parameter required to monitor only once in the Sampling Information table. Enter all the associated treatment plants, entry points, sample types, site IDs, site locations, and codes indicating who will sample and analyze the sample for each parameter.

TTHM and HAA5 samples are collected in the distribution system. When collecting more than one sample per plant, at least of 25% of the samples must be maximum residence (M sample type) samples and the rest must be distribution (D sample type) samples. When collecting only 1 sample per plant, all samples must be maximum residence (M sample type) samples.

Chlorite samples are collected at each entry point (E sample type) treated with chlorine dioxide and in the distribution system (D sample type). The distribution samples are collected as a 3-sample set. This sample set is comprised of 1 sample near the first customer, one sample at an average disinfectant residence location, and one sample at a maximum residence location. All chlorite distribution-monitoring samples are coded as D samples.

Bromate samples are collected at each entry point (E sample type) treated with ozone. Bromide samples collected to reduce the number of bromate samples are collected at each source (R sample type) treated with ozone.

Chlorine and Chloramine samples are collected in the distribution system (D sample type) and are collected at the same locations and times as total coliform samples.

Chlorine Dioxide samples are collected at each entry point treated with chlorine dioxide. Distribution (D) samples are collected only when a chlorine dioxide entry point sample exceeds the Maximum residence Disinfectant Level (MRDL).

TOC samples are collected from the raw surface water source entering a plant (R sample type) and from each combined filter effluent (P sample type) for systems using conventional filtration. Since both raw water and plant samples must be associated with the treatment plant, the location identifier for both samples must be equal to the treatment plant ID number (3-digit number beginning with 3). If more than one source enters a plant, the raw water sample should be either a sample taken after blending or a composite sample comprised of water in proportion to the percent of the influent each comprises. If a combined filter effluent sampling point is unavailable, samples may be collected from the clearwell, entry point or top of the filters upon DEP approval. For surface water systems other than conventional filtration, which desire to qualify for reduced TTHM and HAA5 monitoring, only the raw surface source water TOC samples need to be collected.

SUVA samples are collected at each source water (R sample type) and each finished water/entry point (E sample type) prior to any oxidant or disinfectant in the water.

Alkalinity samples are collected at each source (R sample type) at the same location and time as TOC samples for systems using conventional filtration.

Instructions for Completion of Part 3 - Proposed Schedule

The initial number of TTHM/HAA5 samples required for each parameter is based on the source of water, population served, and number of treatment plants or the number of entry points. For consecutive water systems the number of treatment plants is based upon the number of purchased water connections with another public water system that uses a disinfectant. More than one connection delivering water from the same seller may be considered a single plant.

Please indicate for Chlorite, Bromate and Chlorine Dioxide whether the treatment is used year round or seasonally by checking the appropriate box. If seasonal, please indicate the months the treatment is normally used in the lines below the seasonal check box.

Please check off the appropriate monitoring period and fill in the number of samples by sample type in accordance with the sampling frequency information described in the DEP job aid, *“Disinfectants/Disinfection Byproducts Rule (DBP Rule) Monitoring & Reporting Requirements.”* You should also fill in the dates for each monitoring period (e.g., 2nd month of qtr for quarterly monitoring or 3rd month of 3rd qtr for annual) that you anticipate conducting sampling. Please include the associated treatment plants and associated surface water sources where appropriate.

You only need to submit those proposed schedules for the parameters you are required to monitor, and those parameters you choose to monitor as an option for reduced monitoring or meeting alternative compliance criteria for TOC removal. For instance, all systems will be required to monitor for TTHM and HAA5 as well as Chlorine or Chloramine residuals. However, only systems using conventional filtration will need to monitor for TOC and Alkalinity.

Instructions For Completion of PART 4 – Compliance Calculation Information

The compliance calculations that are provided in part 4 fulfill the requirements of the D/DBP Rule and can be submitted “as is” for each required parameter.