

Disinfectants and Disinfection Byproducts Rules Summary

RULE: 15A NCAC 18C Section .2008 – “Disinfectants and Disinfection Byproducts” (Note: Federal Rules 40 CFR 141.53, 141.54, 141.64, 141.65, 141 Subpart L, 141 Subpart U, and 141 Subpart V were incorporated into Section .2008 of North Carolina’s Regulations by reference.)

APPLIES TO: Community water systems and non-transient non-community (NTNC) water systems that deliver water which has been treated with a disinfectant other than UV light [40 CFR 141.130(a)(1) and 141.620(b)]; some provisions of the rule only apply to systems utilizing chlorine dioxide or ozone. Transient systems that use chlorine dioxide are also subject to the monitoring requirements for chlorine dioxide and chlorite in Subpart L [40 CFR 141.130(a)(2)].

Requirements for All Community and NTNC Systems Subject to the Rule

- **Chlorine and Chloramine Monitoring**
 - Residual disinfectant monitoring requirements can be found in 40 CFR 141.132(c)(1).
- **Compliance with the Chlorine and Chloramine Maximum Residual Disinfectant Levels (MRDLs)**
 - Compliance is based on a running annual average as described in 40 CFR 141.133(c)(1).
- **Total Trihalomethanes (TTHM) and Haloacetic Acids (Five) (HAA5) Monitoring**
 - Monitoring schedules are based on population and source type [40 CFR 141.621, 141.623, and 141.625]. Monitoring charts that summarize the required schedules for routine, reduced, and increased monitoring as well as the requirements for going to and from reduced and increased monitoring are located on the Compliance Services webpage (<https://deq.nc.gov/about/divisions/water-resources/drinking-water/compliance-services#dbp>).
 - Samples must be collected from the locations and during the month(s) listed in your Stage 2 DBP Compliance Monitoring Plan (CMP). [40 CFR 141.621(a)(1)]
 - Samples must be collected during normal operating conditions. [40 CFR 141.132(a)(1)]
 - All samples collected from DBP compliance monitoring sites during normal operating conditions and analyzed in accordance with the Rules must be reported as compliance samples. [40 CFR 141.133(a)(2)]
- **Compliance with TTHM and HAA5 Maximum Contaminant Levels (MCLs)**
 - If the locational running annual average (LRAA) for TTHM or HAA5 exceeds the MCL at any sampling site, then the system is in violation of the MCL. [40 CFR 141.620(d)(1)]
 - The LRAA is a location specific RAA. LRAAs must be calculated for both TTHM and HAA5 at each sample point. Results from different locations are not averaged together under the Stage 2 DBP Rule.
 - For systems monitoring annually or triennially, if a sample exceeds the MCL then the system is required to go to increased monitoring and compliance with the MCLs will be evaluated once there are four quarters of results (or earlier if the LRAA would exceed the MCL regardless of future results). [40 CFR 141.620 (c)(7) and (d)(2)]
- **Subpart V Monitoring Plan Requirements**
 - Systems are required to have a DBP monitoring plan which must be completed prior to beginning monitoring for DBPs which must contain the following [40 CFR 141.622]:
 - Monitoring Locations
 - Monitoring Dates
 - Compliance Calculation Procedures
 - Stage 2 DBP Compliance Monitoring Plan (CMP) templates are available on the Compliance Services webpage.
 - CMPs are required to be kept on file for State and public review. [40 CFR 141.622(a)(1)]
 - Changes to the monitoring plan require consultation with the State, and the State can require modifications to your plan. [40 CFR 141.622(c)]
- **Operational Evaluation Levels (OELs)**
 - OELs are calculated by taking the sum of the two previous quarters’ results plus twice the

current quarter's result and dividing by four for each contaminant and sample site. If an OEL exceeds the MCL for TTHM or HAA5, then the system has exceeded the operational evaluation level for that contaminant. [40 CFR 141.626(a)]

- When an OEL is exceeded, you must conduct an operational evaluation and submit a written report to the State no later than 90 days after being notified of the analytical result that causes the OEL exceedance. The report must be made available to the public upon request. [40 CFR 141.626(b)(1)]

Additional Requirements for Surface Water Systems Using Conventional Treatment

- **Disinfection Byproduct Precursor (DBPP) Monitoring**
 - Systems must monitor each treatment plant for raw water total organic carbon (TOC), raw water alkalinity, and treated water TOC. These samples are "paired samples" and must be collected at the same time and at a time representative of normal operation conditions. [40 CFR 141.132(d)(1)]
 - DBPP monitoring must be conducted monthly while on routine monitoring, and quarterly while on reduced monitoring. [40 CFR 141.132(d)]
- **Treatment Technique Requirements**
 - Systems must meet the TOC removal requirements specified in 40 CFR 141.135(b)(2).
 - Alternative compliance requirements may be used if the Step 1 removal requirement is not met as specified in 40 CFR 141.135.
- **Monitoring Plans**
 - DBPP monitoring locations and schedules must be included in the DBP monitoring plan. [40 CFR 141.132(f)(1)]
 - This is included in the standard form for the Stage 2 DBP Compliance Monitoring Plan on the Compliance Services webpage.

Additional Requirements for Systems Using Chlorine Dioxide (Including Transient Systems)

- **Daily Entry Point Monitoring**
 - Systems must collect daily chlorine dioxide and chlorite samples at the entry point. [40 CFR 141.132 (b)(2)(i)(A) and (c)(2)(i)]
- **Chlorite Distribution System Three-Sample Sets**
 - Chlorite three-sample sets must be collected at the following locations: near the first customer, at an average residence time location, and at a maximum residence time location. [40 CFR 141.132(b)(2)]
 - Three-sample sets must be collected monthly if on routine monitoring or quarterly if on reduced monitoring. [40 CFR 141.132(b)(2) (i)(B) and (iii)(B)]
 - An additional three-sample set is required on each day following an entry point chlorite sample exceeding the MCL. [40 CFR 141.132(b)(2)(ii)]
- **Additional Monitoring for Chlorine Dioxide**
 - Additional monitoring for chlorine dioxide is required on each day following an entry point chlorine dioxide sample exceeding the MRDL. [40 CFR 141.132(c)(2)(ii)]
- **Compliance with the Chlorite MCL**
 - If the average of any three-sample set exceeds the MCL, then the system is in violation of the MCL. [40 CFR 141.133(b)(3)]
- **Compliance with the Chlorine Dioxide MRDL**
 - Acute and non-acute violations can occur for chlorine dioxide MRDL exceedances as described in 40 CFR 141.133(c)(2).
- **Monitoring Plans**
 - Chlorine dioxide and chlorite monitoring locations and schedules must be included in the DBP

monitoring plan. [40 CFR 141.132(f)(1)]

- This is included in the standard form for the Stage 2 DBP Compliance Monitoring Plan on the Compliance Services webpage.

Additional Requirements for Systems Using Ozone

- **Bromate Monitoring**
 - Systems must collect bromate samples at the entry point monthly for routine monitoring or quarterly if on reduced monitoring. These samples must be collected while the ozonation system is operating under normal conditions. [40 CFR 141.132 (b)(3)]
- **Compliance with the Bromate MCL**
 - If the running annual average (RAA) for any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL. [40 CFR 141.133(b)(2)]
- **Monitoring Plans**
 - Bromate monitoring locations and schedules must be included in the DBP monitoring plan. [40 CFR 141.132(f)(1)]
 - This is included in the standard form for the Stage 2 DBP Compliance Monitoring Plan on the Compliance Services webpage.

Frequently Asked Questions

- **How do I get on reduced monitoring?**
 - If you believe your system meets the requirements for reduced monitoring, email the DBP rule manager your request for reduced monitoring. Make sure to include your water system ID number and which contaminant(s) you are requesting reduced monitoring for.
- **What is my monitoring schedule?**
 - Monitoring schedules can be checked online through PWS reports. Go to <https://pws.ncwater.org/WSReports/Pages/External.aspx>, click “Water System,” enter your water system ID at the top, and click the “Sampling Status Report” icon.
- **How do I move a sample site?**
 - To move a DBP sample site, you will need to submit an updated CMP to the DBP rule manager for approval.
- **Can I collect additional samples?**
 - Yes, Additional compliance samples will be averaged when determining compliance.
- **Do special/non-compliance samples need to be submitted to the State?**
 - No; however, all samples meeting the rule requirements are considered compliance samples and need to be submitted to the State. Samples collected from site locations other than the compliance monitoring sites or samples that are not collected during normal operating conditions would be non-compliance samples and should not be submitted to the State.

For additional questions regarding the Disinfectants and Disinfection Byproducts Rules, please contact the D/DBP Rule Manager listed on the Compliance Services webpage.