

STAGE 1 - DISINFECTANTS AND DISINFECTION BYPRODUCTS

RULE: 15A NCAC 18C Section .2008 – “Disinfectants and Disinfection Byproducts” (Note: Federal Rules 40 CFR 141.53, 141.54, 141.64, 141.65 and 141 Subpart L were incorporated into Section .2008 of NC’s Regulations by reference. NC also, in Section .2008(f), clarified that travel trailer parks, campgrounds and marina slips that do not serve 25 or more of the same persons more than 6 months/year will be regulated as transient non-community water systems for the purposes of this Rule.)

APPLIES TO: Community water systems and non-transient non-community (NTNC) water systems which use chlorine or chloramines; some provisions of the rule only apply to systems utilizing chlorine dioxide or ozone. Transient or other types of water systems that use chlorine dioxide (unlikely) would be subject only to the monitoring requirements for chlorine dioxide and chlorite.

SAMPLING REQUIREMENTS:

- **Required sample types:** [40 CFR 141.132]
 - Trihalomethanes (THM) and Haloacetic Acids (HAA) – all community and NTNC systems subject to the rule
 - Total organic carbon (TOC): surface water systems only
 - Chlorine dioxide and chlorite: all systems using chlorine dioxide
 - Bromate: systems subject to the rule and using ozone
 - Chlorine or chloramines residuals: all community and NTNC systems subject to the rule, monitor chemical used as disinfectant
- **Sampling Location:** [40 CFR 141.132]
 - THM and HAA: distribution samples
 - TOC: paired source water and entry point samples
 - Chlorine dioxide and Chlorite: entry point samples and distribution samples
 - Bromate: entry point samples
 - Chlorine and Chloramines: distribution samples
- **Number of Samples Required:** [40 CFR 141.132] Sampling based on population, water source (i.e. surface water or groundwater) and treatments used.
- **Sampling Frequency:** [40 CFR 141.132]
 - Initial/Routine –
 - THM and HAA: quarterly or annually depending on system population and source water type
 - TOC: monthly for surface systems
 - Chlorine dioxide and Chlorite: daily entry point samples; monthly distribution samples for Chlorite only
 - Bromate: monthly
 - Chlorine and Chloramines: monthly with all samples taken for the total coliform rule (TCR)
 - Reduced Monitoring –
 - THM and HAA: surface water systems may reduce number of samples or to annual sampling based on population. Groundwater systems may reduce number of samples or reduce monitoring frequency to annual or to every 3 years, based on population. In order to reduce, levels must be below 50% of the MCL.
 - TOC: quarterly with low levels
 - Chlorine dioxide and Chlorite: none
 - Bromate: may reduce to quarterly based on bromide levels
 - Chlorine and Chloramines: based on TCR sample schedule
 - Waivers (if applicable) – N/A

- Increased Monitoring –
 - THM and HAA: quarterly with exceedance
 - TOC: none
 - Chlorine dioxide and Chlorite: daily distribution samples triggered with entry point exceedance
 - Bromate: none
 - Chlorine and Chloramines: based on TCR sample schedule
- **Any Additional/Special Sampling Requirements:** in addition to monitoring requirements listed above, systems must calculate the running annual average (RAA) for:
 - THM and HAA
 - Bromate
 - TOC: treatment technique (TT) for TOC removal

COMPLIANCE BASED ON:

- **Maximum Contaminant Level (MCL) based on a Running Annual Average (RAA) of quarterly results or on an average of annual sample results**
 - THM and HAA
 - Bromate
- **MCL for Chlorite only** based on average of monthly distribution samples
- **Maximum Residual Disinfectant Level (MRDL)** based on RAA of average monthly Chlorine or Chloramines residuals
- **MRDL for Chlorine dioxide only** based on individual sample results.
- **Treatment Technique (TT)** based on ratio of actual TOC removal to required TOC removal as an RAA of monthly or quarterly sample results.

INCOMING REPORT/PLAN SUBMITTALS FROM SYSTEMS TO THE STATE:

- **Analytical Results for All Compliance Samples** MUST be submitted to the State by NC certified laboratories in required format. (15 NCAC 18C Section .1525; [40 CFR 141.31])
- **Sample Siting/Location Plans:** [40 CFR 141.132 (f)]
All systems subject to the rule must develop a monitoring plan, including specific sampling locations and sampling schedules. Systems serving > 3,300 people must submit the plan to the State, while smaller systems keep the plan onsite. Although State approval is not required, the State may require that any system submit a plan and may require any changes in plan elements.
- **Waiver Applications:** none
- **Monthly Operating Reports:** [15A NCAC 18C .1302]
 - TOC: submit monthly report to indicate which method the system chooses to comply with TT for TOC removal
 - Chlorine dioxide and Chlorite: daily samples are reported on a monthly summary report
- **Quarterly Status Reports and Corrective Action Plan Following MCL Violations:** When MCL or treatment technique violations are issued, systems are requested to submit quarterly action plans. Action plans are considered before issuing enforcement.
- **Other Misc. Submittals if triggered by conditions of the rule:** None

OUTGOING ENFORCEMENT/REPORTS/APPROVALS FROM STATE TO SYSTEMS:

- **Violation Letters:** Includes monitoring/reporting violations, MCL and MRDL violations, treatment technique violations, failure to perform required follow-up actions, etc.
 - Monitoring and Reporting Violations: Violation issued if a sample required under the rule (any contaminant) is not collected and reported to the state within the specified time frame. Tier 3 violations.

- MCL or MRDL Violations. Unless otherwise specified, Tier 2 violations. Issued when:
 - THM, HAA, or Bromate levels exceed the MCL when calculated as RAA
 - Chlorine or Chloramines if levels exceed the MRDL when calculated as RAA
 - Chlorite average of distribution sample set exceeds the MCL
 - Chlorite average of distribution sample set exceeds the MRDL or three sample set is not conducted following an exceedance: Tier 1 violation. Two successive daily entry point ClO₂ samples exceed the MRDL and all distribution samples the following day are below the MRDL: Tier 2 violation.
- Treatment Technique Violations: Tier 2 violation issued if TOC removal ratio falls below 1.00 as RAA.
- **Administrative Orders**
- **Administrative Penalties**
- **Exceedance Letters:** N/A
- **Approvals:**
 - Monitoring reduction letters are sent to systems when:
 - Review of sampling plans confirms their recommended sampling sites are reasonable.
 - THM and HAA or TOC levels are below the threshold for reduction
 - Approvals/denials of Administrative Order deadline extension requests

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