Compliance Monitoring Plan - Long Form for the Stage 2 Disinfectants and Disinfection Byproducts Rule

 **Date Submitted:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PART 1 - General System Information**

|  |  |  |  |
| --- | --- | --- | --- |
| **Water System Name:** |       | **PWSID#:** |       |
| **Mailing Address:** |       |
|       |
| **Contact Person:** |       | **Phone:** |       | **Email:** |       |
| **System Type:** | [ ]  Community (CWS) [ ]  Non-transient non-community (NTNC)  | **Population Served:** |       |
| **Source Water Type:****[ ]** Purchase Only | **Source(s):** [ ]  **Surface Water** [ ]  **Ground Water (wells)** [ ]  **GWUDI\*****Number of Each Type:**                   **Number of Treatment Plants:**                    **Number of Entry Points:**                   **Name of Surface Water Plant(s),** if applicable:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\*GWUDI – Ground water sources that have been determined to be under the direct influence of surface water. |
| **Treatment provided by YOUR public water system:** (Check treatments used and indicate how many of each type of plant uses the treatment) |  Chlorine (gas, liquid or powder) **[ ]**  Surface Water Plant(s)      Ground Water Plant(s)      GWUDI Plant(s)      Chloramines **[ ]**  Surface Water Plant(s)      Ground Water Plant(s)      GWUDI Plant(s)      Ozone **[ ]**  Surface Water Plant(s)      Ground Water Plant(s)      GWUDI Plant(s)     Chlorine Dioxide **[ ]**  Surface Water Plant(s)      Ground Water Plant(s)      GWUDI Plant(s)       Conventional Filtration **[ ]**  Surface Water Plant(s)      Ground Water Plant(s)      GWUDI Plant(s)     Membrane Filtration **[ ]**  Surface Water Plant(s)      Ground Water Plant(s)      GWUDI Plant(s)      |
| **System** **Interconnection(s):****(If applicable – for****systems purchasing****or selling water)** | Seller’s Name:       PWSID#:       Source Type: **[ ]** Surface Water/GWUDI **[ ]** Ground Water (wells) # of interconnections:       Frequency Used: **[ ]** Regular basis **[ ]**  Emergency **[ ]**  Seasonal |
| Seller’s Name:       PWSID#:       Source Type: **[ ]** Surface Water/GWUDI **[ ]** Ground Water (wells) # of interconnections:       Frequency Used: **[ ]** Regular basis **[ ]**  Emergency **[ ]**  Seasonal |
| Seller’s Name:       PWSID#:       Source Type: **[ ]** Surface Water/GWUDI **[ ]** Ground Water (wells) # of interconnections:       Frequency Used: **[ ]** Regular basis **[ ]**  Emergency **[ ]**  Seasonal |
| Seller’s Name:       PWSID#:       Source Type: **[ ]** Surface Water/GWUDI **[ ]** Ground Water (wells) # of interconnections:       Frequency Used: **[ ]** Regular basis **[ ]**  Emergency **[ ]**  Seasonal |
| Seller’s Name:       PWSID#:       Source Type: **[ ]** Surface Water/GWUDI **[ ]** Ground Water (wells) # of interconnections:       Frequency Used: **[ ]** Regular basis **[ ]**  Emergency **[ ]**  Seasonal |
| Buyer’s Name:       PWSID#:       Source Type: **[ ]** Surface Water/GWUDI **[ ]** Ground Water (wells) # of interconnections:       Frequency Used: **[ ]** Regular basis **[ ]**  Emergency **[ ]**  Seasonal |
| Buyer’s Name:       PWSID#:       Source Type: **[ ]** Surface Water/GWUDI **[ ]** Ground Water (wells) # of interconnections:       Frequency Used: **[ ]** Regular basis **[ ]**  Emergency **[ ]**  Seasonal |
| Buyer’s Name:       PWSID#:       Source Type: **[ ]** Surface Water/GWUDI **[ ]** Ground Water (wells) # of interconnections:       Frequency Used: **[ ]** Regular basis **[ ]**  Emergency **[ ]**  Seasonal |
| Buyer’s Name:       PWSID#:       Source Type: **[ ]** Surface Water/GWUDI **[ ]** Ground Water (wells) # of interconnections:       Frequency Used: **[ ]** Regular basis **[ ]**  Emergency **[ ]**  Seasonal |
| Buyer’s Name:       PWSID#:       Source Type: **[ ]** Surface Water/GWUDI **[ ]** Ground Water (wells) # of interconnections:       Frequency Used: **[ ]** Regular basis **[ ]**  Emergency **[ ]**  Seasonal |
| **If applicable, clarify/explain your interconnection arrangement if your system has multiple interconnections with the same source that are used at different frequencies.**  |

**PART 2 - Sample Site Information**

**[ ]** N/A – System does not monitor for any of the parameters in the Parameter Code Key Table

|  |
| --- |
| **Sample Type Key** |
| RW = Raw Source WaterPS = Plant (post sedimentation)EP = Entry PointDS = Distribution System |

|  |
| --- |
| **Parameter Code Key** |
| ClO2 = Chlorine DioxideCLT = ChloriteTOC = Total Organic CarbonALK = AlkalinitySUVA = Specific Ultraviolet Absorption (UV254 and DOC)BRO3 = Bromate |

**Sample Site Information - Chlorine Dioxide, Chlorite, Total Organic Carbon, Alkalinity, Specific Ultraviolet Absorption, Bromate**

| **Parameter Code** | **Sample Type** | **Facility ID** | **Sample Pt ID** | **Site Location or Address** |
| --- | --- | --- | --- | --- |
|       |       |       |       |       |
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**Sample Site Information - TTHM/HAA5**

| **Sample Pt ID** | **Site Location or Address** | Sample Type | Justification[[1]](#footnote-1) | Reduced Monitoring Location? 2 |
| --- | --- | --- | --- | --- |
| B01 |       | High TTHM [ ] High HAA5 [ ]  |       |  [ ]  Yes[ ]  No |
| B02 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B03 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B04 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B05 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B06 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B07 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B08 |       | High TTHM [ ] High HAA5 [ ]  |        |   [ ]  Yes[ ]  No |
| B09 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B10 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B11 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B12 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B13 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B14 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B15 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |
| B16 |       | High TTHM [ ] High HAA5 [ ]  |       |   [ ]  Yes[ ]  No |

 Provide the reason for the selection of a specific sample location. (*i.e.,* “High TTHM”: Highest TTHM levels expected at this location based on distribution system

modeling and special sampling).

2 Even if a system qualifies for reduced compliance monitoring, the monitoring plan must still include the required number of routine monitoring sites (under the Stage 2 DBPR) and identify which locations will be used for reduced monitoring.

### **PART 3 - Proposed Schedule & Compliance Calculations**

Parameters: **Total Trihalomethanes (TTHM) / Haloacetic Acids (HAA5)**

*Required*: if water contains any disinfectant or oxidant

*Report to State*: same as monitoring frequency

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Monitoring Type** | **Monitoring Frequency** | Total # of Monitoring Locations / Monitoring Period | **Samples [[2]](#footnote-2)** | **Schedule****(*i.e.,* 1stWk/Jul, 1stWk/Oct, etc.) [[3]](#footnote-3)** |
| Routine | Quarterly [ ] Annually [ ]  |       | Individual Samples [ ] Dual Sample Sets [ ]  |       |
|       |
|       |
|       |
| Reduced **[[4]](#footnote-4)** | Quarterly [ ] Annually [ ] Triennially [ ]  |       | Individual Samples [ ] Dual Sample Sets [ ]  |       |
|       |
|       |
|       |
| Increased **[[5]](#footnote-5)** | Quarterly [ ]  |       | Dual Sample Sets [ ]  |       |

Compliance Information:

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Compliance Location** | **Maximum Contaminant Level (MCL)** |
| TTHM | Each Monitoring Site | MCL = 0.080 mg/L |
| HAA5 | Each Monitoring Site | MCL = 0.060 mg/L |
| Compliance Calculation:**Quarterly Monitoring**: An MCL violation occurs if the Locational Running Annual Average (LRAA), computed quarterly for the most recent 4 quarters, at any monitoring location, exceeds the MCL, or if the LRAA calculated based on fewer than 4 quarters of data demonstrates that the MCL will be exceeded regardless of the monitoring results of subsequent quarters. If more than one sample is taken at a location in any given quarter, then those values are averaged to obtain that quarter’s average for use in the LRAA calculation.**Annual or Triennial** A system required to monitor annually or less frequently shall determine that each sample result is less than the MCL.**Monitoring**: If any single sample result exceeds the MCL, the system shall increase monitoring to dual sample sets once per quarter (taken every 90 days) at all locations. MCL compliance is then calculated as described for quarterly monitoring.  |

Operational Evaluation Level (OEL) Information:

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Compliance Location** | **Maximum OEL Level** |
| TTHM | Each Monitoring Site | OEL = 0.080 mg/L |
| HAA5 | Each Monitoring Site | OEL = 0.060 mg/L |
| Compliance Calculation:**Quarterly Monitoring**: Each quarter, public water systems shall calculate the TTHM and HAA5 Operational Evaluation Level (OEL) for each monitoring location to be aware of any pending follow-up activities as indicated below. The OEL for TTHM and HAA5 is the sum of the two previous quarters’ results plus twice the current quarter's result, divided by 4. OEL = (2 X current quarter result) + (previous quarter result) + (quarter before previous quarter result) 4If the TTHM OEL exceeds 0.080 mg/L, or the HAA5 OEL exceeds 0.060 mg/L at any monitoring location, the system shall conduct an operational evaluation to identify the cause of the exceedance and submit a written report of the evaluation to the North Carolina Public Water Supply Section no later than 90 days after being notified of the analytical result that causes the system to exceed the operational evaluation level. The written report must be made available to the public upon request.**Annual or Triennial** OEL calculations are not required.**Monitoring**: |

Parameter: **DBP Precursors**

*Required*: if systems using SW / GWUDI sources have conventional filtration [ ]  N/A – Not Applicable

*Report to State*: monthly or quarterly (if quarterly, report data for each month of the quarter)

TOC

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Monitoring Type** | **Monitoring Frequency** | **Sample Type** | **Samples per Period****[[6]](#footnote-6)** | **Monthly Schedule** **(*i.e.,* 1st Tues. of month)** **Quarterly Schedule (*i.e.,* 1st Wk/Jul )** | **Associated Treatment Plant (Facility) ID or Associated SW / GWUDI Source (Facility) ID** |
| Routine | Monthly | Raw Water (RW)  |       |       |       |
| Monthly | Plant (PS) |       |       |       |
| Reduced **[[7]](#footnote-7)** | Quarterly | Raw Water (RW)  |       |       |       |
| Quarterly | Plant (PS) |       |       |       |

Alkalinity **[[8]](#footnote-8)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Monitoring Type** | **Monitoring Frequency** | **Sample Type** | **Samples per Period** | **Schedule** | **Associated SW / GWUDI Source (Facility) ID** |
| Same as for TOC | Same as for TOC | Raw Water (RW)  | Same as for TOC | Same as for TOC | Same as for TOC |

*Optional* SUVA (only if a system wishes to meet the SUVA *Alternative Compliance Criteria*)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Monitoring Type** | **Monitoring Frequency** | **Sample Type** | **Samples per Period**  | **Schedule (*i.e.,* 1st Tues. of month)** | **Associated Treatment Plant (Facility) ID or Associated SW / GWUDI Source (Facility) ID** |
| Routine | Monthly | Raw Water (RW)  |       |       |       |
| Monthly | Plant (PS) |       |       |       |

Compliance Information:

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Compliance Location** | **Compliance Requirement** |
| Disinfection Byproduct Precursors | Each Treatment Plant | Treatment Technique = TOC removal ratio (calculated as a running annual average) must be > 1.00 |
| Compliance Calculation: A treatment technique violation occurs if the system does not achieve the TOC percent removed specified in the matrix below (Step 1) and the State has not approved an alternate minimum TOC removal percentage (Step 2). Compliance with the Step 1 removal requirement is determined by a running annual average, calculated quarterly, of the ratio of TOC percent removal achieved to the TOC percent removal required. A violation occurs if the running annual average is < 1.00. |

Step 1 Required TOC Removal by Enhanced Coagulation and Enhanced Softening **[[9]](#footnote-9)**

|  |  |
| --- | --- |
|  | Source Water Alkalinity, mg/L as CaCO3 (in percentages) |
| Source Water TOC (mg/L) | 0 – 60 | > 60 – 120 | > 120 **[[10]](#footnote-10)** |
| > 2.0 – 4.0 | 35.0 | 25.0 | 15.0 |
| > 4.0 – 8.0 | 45.0 | 35.0 | 25.0 |
| > 8.0 | 50.0 | 40.0 | 30.0 |

There are other *Alternative Compliance Criteria* (ACC) that a system may use on a monthly or annual basis to achieve compliance with the Enhanced Coagulation Treatment Technique. If ACC are used on a monthly basis a 1.0 may be substituted in the compliance calculation for the Step 1 removal ratio.

1. If the source water TOC is less than 2.0 mg/L **[[11]](#footnote-11)**
2. If the treated water TOC is less than 2.0 mg/L **3**
3. If the source water SUVA values are 2.0 L/mg-m or less **3**
4. If the finished water SUVA values are 2.0 L/mg-m or less **3**
5. If the TTHM levels are 0.040 mg/L or less AND HAA5 levels are 0.030 mg/L or less (as running annual averages) and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system. (annual ACC only)

There are also two other annual ACC for systems using Enhanced Softening.

1. Softening that results in lowering the treated water alkalinity to less than 60 mg/L (as CaCO3), measured monthly and calculated quarterly as a running annual average. (annual ACC only)

2. Softening that results in removing at least 10 mg/L of magnesium hardness (as CaCO3), measured monthly and calculated quarterly as an annual running average. (annual ACC only)

Parameter: ***Optional* Total Organic Carbon (TOC)**

*Required:***[[12]](#footnote-12)** for any SW or GWUDI system serving > 500 people requesting to reduce TTHM/HAA5 monitoring that are ***not*** conducting TOC monitoring for compliance [ ]  N/A – Not Applicable

*Report to State*: same as monitoring frequency

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Monitoring Type** | **Monitoring****Frequency** | **Sample Type** | **Samples per Period [[13]](#footnote-13)** | **Monthly Schedule** **(*i.e.,* 1st Tues. of month)** **Quarterly Schedule (*i.e.,* 1stWk/Jul )[[14]](#footnote-14)** | **Associated SW / GWUDI Source (Facility) ID**  |
| Routine (to qualify for a reduced TTHM/HAA5 monitoring frequency) | Monthly [ ]  | Raw Water (RW) |       |       |       |
| Reduced (once on a reduced TTHM/ HAA5 monitoring frequency) | Quarterly [ ]  | Raw Water (RW) |       |        |       |

Compliance Information:

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Compliance Location** | **Compliance Requirement** |
| TOC | Each Treatment Plant | Post-sedimentation TOC running annual average must be *<* 4.0 mg/L |
| Compliance Calculation:In addition to meeting the TTHM/HAA5 levels, the post-sedimentation TOC running annual average (RAA) must be < 4.0 mg/L at each plant treating SW or GWUDI sources to qualify for and remain on a reduced TTHM/HAA5 monitoring frequency. The running annual average is calculated quarterly from the most recent 4 quarters of data. If the TOC frequency is monthly, a quarterly value is first calculated for each calendar quarter of monthly data. If the frequency is quarterly, the result for that quarter is the quarterly value. These quarterly values are then used to calculate the running annual average. Post-sedimentation TOC RAA = Sum (results from 4 most recent quarters) 4 |

Parameter: **Chlorine Dioxide (ClO2)**

*Required*: if water is treated with chlorine dioxide [ ]  N/A – Not Applicable

*Report to State*: monthly

ClO2 treatment is used: [ ]  Year round [ ]  Seasonally (if seasonally, please indicate the months ClO2 treatment is in use)      \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Monitoring Type** | **Monitoring Frequency** | **Sample Type** | **# Samples / Month[[15]](#footnote-15)** | **Schedule** | **Associated Treatment Plant (Facility) ID** |
| Routine | Daily (when ClO2 in use) | Entry Point (EP) **[[16]](#footnote-16)** |       | Daily |  |
| Day after any “EP” measurement > 0.8 mg/L | Distribution (DS) **[[17]](#footnote-17)** | A 3-sample set for each “EP” result > 0.8 mg/L | Day after “EP” > 0.8 mg/L | N/A |

Calculation for determining number of # Samples (Entry Point Treatment Days)

ClO2 must be measured at *each* entry point *each* day that water treated with ClO2 is supplied to the distribution system. Because a water system may have more than one entry point supplying water treated with ClO2 on any given day, the number of “Entry Point Treatment Days” is used to calculate the number of “EP” samples required each month. The number of “Entry Point Treatment Days” is determined by adding up the total number of days all entry points are delivering ClO2 treated water each month.

Number of days per month each additional “EP” delivering chlorine dioxide treated water.

Number of entry point treatment days

1st Entry Point

Number of days per month delivering water containing chlorine dioxide.

2nd Entry Point

Number of days per month delivering water containing chlorine dioxide.

Number of samples per period

 + + = =

Compliance Information:

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Compliance Type** | **Maximum Contaminant Level (MCL)** |
| Chlorine Dioxide | System Level | MCL = 0.8 mg/L |
| Compliance Calculation:**Acute Violation**: An acute MRDL violation occurs if any daily “EP” sample exceeds the MRDL, and on the following day 1 or more of the 3 “DS” samples also exceeds the MRDL (or the system fails to take the 3 required “DS” samples the following day).**Nonacute Violation**: A nonacute MRDL violation occurs if any 2 consecutive daily “EP” samples exceed the MRDL but all “DS” samples are below the MRDL. Failure to conduct “EP” sample monitoring the day following an “EP” sample exceedance of the chlorine dioxide MRDL is also a nonacute MRDL violation. |

 Parameter: **Chlorite**

*Required*: if water is treated with chlorine dioxide [ ]  N/A – Not Applicable

*Report to State*: monthly

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Monitoring Type** | **Monitoring Frequency** | **Sample Type** | **# Samples / Month** [[18]](#footnote-18) | **Monthly Schedule** **(*i.e.,* 1st Tues. of month) Quarterly Schedule** **(*i.e.,* 1stWk/Jul )** | **Associated Treatment Plant (Facility) ID** |
| Routine | Daily (when ClO2 in use) | Entry Point (EP) **[[19]](#footnote-19)** |       |       |       |
| Monthly | Distribution (DS) |        (See footnote**[[20]](#footnote-20)**) |       |       |
| Reduced **[[21]](#footnote-21)** | Quarterly | Distribution (DS) |       (See footnote**3**) |       |       |

Compliance Information:

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Compliance Type** | **Maximum Contaminant Level (MCL)** |
| Chlorite | System Level | MCL = 1.0 mg/L |
| Compliance Calculation:A MCL violation occurs if the arithmetic average of any 3-sample set in the distribution system exceeds the MCL. Compliance Value = Sum (each individual result of 3-sample set) 3 |

Parameter: **Bromate**

*Required*: if water is treated with ozone (O3) [ ]  N/A – Not Applicable

*Report to State*: monthly or quarterly (if quarterly, report data for each month of the quarter)

O3 treatment is used: [ ]  Year round [ ]  Seasonally (if seasonally, please indicate the months O3 treatment is in use)      \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Monitoring Type** | **Monitoring Frequency** | **Sample Type** | **Samples per Period** [[22]](#footnote-22) | **Monthly Schedule (*i.e.,* 1st Tues. of month) Quarterly Schedule (*i.e.,* 1stWk/Jul )** | **Associated Treatment Plant (Facility) ID** |
| Routine | Monthly | Entry Point (EP) **[[23]](#footnote-23)** |       |       |       |
| Reduced **[[24]](#footnote-24)** | Quarterly | Entry Point (EP) **2** |       |       |       |

Compliance Information:

|  |  |
| --- | --- |
| **Parameter** | **Maximum Contaminant Level (MCL)** |
| Bromate | MCL = 0.010 mg/L |
| Compliance Calculation:An MCL violation occurs if the running annual average, computed quarterly, of monthly samples exceeds the MCL. A RAA is calculated separately for each entry point supplying water treated with ozone. |

**PART 4 - System Schematic and System Changes**

A. Attach a map or drawing of your current distribution system. Include the location of any interconnections with other public water systems. Include the entire distribution system for any water systems for which your system is the responsible party for compliance monitoring. Also, where applicable, designate on the map, using the 3-digit location code, the locations of the following in relation to the distribution system mains:

* Sources
* Treatment Plants
* Entry Points
* Storage Facilities, including volume
* Booster Stations
* All compliance sample sites that are required under the Stage 2 DBPR
	+ 1. Have there been any major changes to your distribution system since you last updated your Stage 2 DBP compliance monitoring plan?

 If Yes, explain (attach additional sheets if necessary).

1. [↑](#footnote-ref-1)
2. 1 Individual samples indicate that only one parameter, TTHM or HAA5, is being monitored at the monitoring locations. Dual sample sets indicate that both TTHM and HAA5 are being monitored at all monitoring locations. [↑](#footnote-ref-2)
3. 2 Schedules indicated for TTHM/HAA5 monitoring should be a specific week (*i.e.,* 1st Wk/Jul), ensuring that the compliance monitoring is scheduled during the peak historical month, as determined by historical DBP sampling results or as justified using other criteria such as the month of warmest water temperature. Systems on a quarterly schedule must monitor every 90 days. [↑](#footnote-ref-3)
4. 3 In addition to meeting the TTHM and HAA5 criteria for reduced monitoring, any system using surface water or GWUDI sources serving ≥ 500 people that want to reduce TTHM/HAA5 monitoring must also demonstrate a source water TOC running annual average is equal to or less than 4.0 mg/L (based on the most recent 4 quarters of monitoring), on a continuing basis, at each treatment plant treating surface water or GWUDI. [↑](#footnote-ref-4)
5. 4 Systems on increased monitoring are required to take dual sample sets at all locations. [↑](#footnote-ref-5)
6. This represents the total number of samples for all conventional treatment plants. [↑](#footnote-ref-6)
7. Monitoring may be reduced to quarterly if the running annual average post-sedimentation TOC is < 2.0 mg/L for 2 consecutive years or < 1.0 mg/L for 1 year. [↑](#footnote-ref-7)
8. Source water alkalinity samples must be taken on the same day, at the same time, and from the same tap as the source water TOC samples. [↑](#footnote-ref-8)
9. Enhanced softening means the improved removal of DBP precursors by precipitative softening. [↑](#footnote-ref-9)
10. Systems practicing enhanced softening must meet the TOC removal requirements in this column. [↑](#footnote-ref-10)
11. ACCs can be used on a monthly or permanent basis. [↑](#footnote-ref-11)
12. Systems using conventional filtration that are conducting TOC monitoring for the Enhanced Coagulation TT should complete the TOC proposed schedule on page 10. [↑](#footnote-ref-12)
13. The number of samples equals the number of entry points from SW or GWUDI sources. [↑](#footnote-ref-13)
14. Monthly monitoring should be conducted every 30 days; quarterly monitoring should be conducted every 90 days. [↑](#footnote-ref-14)
15. The number of samples is expressed as ‘entry point treatment days’ (see formula). [↑](#footnote-ref-15)
16. Purchased water entry points are excluded, unless chlorine dioxide is added to the purchased water at that entry point. [↑](#footnote-ref-16)
17. Distribution system samples are not required as long as the “EP” samples are at or below the MRDL. “DS” samples (a 3-sample set) must be taken on each day following any “EP” sample result that exceeds the MRDL. A 3-sample set is required for each “EP” sample that exceeds the MRDL. Therefore, the total number of “DS” samples per month equals 3 times the number of “EP” samples that exceed the MRDL. [↑](#footnote-ref-17)
18. The monitoring period is expressed in terms of a month. The number of **chlorite** entry point samples per month is equal to the same number of **chlorine dioxide** samples per month (see formula in Chlorine Dioxide section). One set equals 3 samples per month. [↑](#footnote-ref-18)
19. Purchased water entry points are excluded unless chlorine dioxide is added to the purchased water at that entry point. [↑](#footnote-ref-19)
20. At least one 3-sample set must be taken each monitoring period. However, for any daily “EP” sample that exceeds the chlorite MCL value, a 3-sample set of ”DS” samples must be taken the following day. One such set will fulfill the routine monthly requirement. [↑](#footnote-ref-20)
21. If, after one year of monitoring, no individual chlorite samples (“EP” *or* “DS”) have exceeded the chlorite MCL, distribution system monitoring may be reduced to one 3-sample set per quarter. The entry point chlorite monitoring frequency may not be reduced. [↑](#footnote-ref-21)
22. A bromate sample is required for each entry point that supplied water treated with ozone during the period. [↑](#footnote-ref-22)
23. Purchased water entry points are excluded unless ozone is added to the purchased water at that entry point. [↑](#footnote-ref-23)
24. A system required to analyze for bromate may reduce monitoring from monthly to quarterly at an entry point, if the running annual average bromate concentration, computed quarterly, is less than or equal to 0.0025 mg/L for that entry point (based on the monthly measurements for the most recent 4 quarters). Entry points qualifying for reduced bromate monitoring may remain on reduced monitoring as long as the running annual average of quarterly bromate samples is less than or equal to 0.0025 mg/L. If the running annual average bromate concentration is greater than 0.0025 mg/L, the “EP” shall resume routine monitoring. [↑](#footnote-ref-24)