Environmental Protection Agency Region 8
Office of Partnerships & Regulatory Assistance
Water Program
Attn: Drinking Water Unit (Mail Code: 8P-W-DW)
1595 Wynkoop Street
Denver, CO 80202-1129
Business Hours Contact: 1- 800-227-8917
Emergency After-Hours Contact: 303-312-6327
FAX Number: 303-312-6131

Monitoring Plan Template

For

Drinking Water

Disinfectants and Disinfection Byproducts Rule

&

Interim Enhanced Surface Water Treatment Rule

December 2003

This Template is provided by the Environmental Protection Agency in Region 8 for Public Water Systems to use to prepare their Monitoring Plans for the D/DBPR and LT1ESWTR. This document provides guidance to public water systems. The document is not, however, the actual Environmental Protection Agency regulation, nor is it a regulation itself. The actual regulation can be found in 40 CFR (Code of Federal Regulations) Part 141.

Table of Contents

Introduction

For the Disinfectants and Disinfection Byproducts Rule (D/DBPR), each water system must develop a monitoring plan to show how a system intends to comply with the monitoring requirements of the Rule. The monitoring plan serves as a uniquely tailored roadmap for each specific system to demonstrate that the water quality self-monitoring performed by the system is representative of the water distributed to consumers and is consistent with regulatory requirements.

Submission to Environmental Protection Agency Region 8

Submit one (1) copy of the final monitoring plan to:

Environmental Protection Agency Region 8
Office of Partnerships & Regulatory Assistance
Stage 1 DBPR Rule Manager
Mail Code: 8P-W-DW
1595 Wynkoop Street
Denver, CO 80202-1129

Revisions

Submit a revised Monitoring Plan Summary Sheet with each element revision to the above address.

Monitoring Plan Required Content Elements

PART I The *Monitoring Plan Summary Sheet* identifies the public water system and provides relevant information.

Following the Summary Sheet, the monitoring plan consists of the following sections that fully describe the characteristics of the system.

PART II *Water Sources Details* identifies all water sources used by the system.

PART III *Water Treatment Details* summarizes the system's operating characteristics, treatment trains and their associated temporal distribution that was assumed in the design of the monitoring plan (e.g., use of maximum capacity facilities, alternative water sources, maintenance schedules that take facilities off line, etc.).

PART IV Distribution System Details provides a schematic of the distribution system with all sources, entry points, post entry point treatment facilities, storage facilities and monitoring points.

Based on the specific information provided in Parts II-IV, the specific monitoring program for D/DBPR and LT1ESWTR is developed and justified in Part V, Sections A&B.

PART V Monitoring Plans provides a detailed plan for the monitoring of D/DBPR and LT1ESWTR for which a compliance determination is required including:

- Frequency and approximate time of collection
- Sample site location identification and associated identification number
- If appropriate, justification for the site selection
- Sample preservation requirements
- Analysis procedure (certified laboratory or on-site by party approved by EPA)
- Monitoring results presentation format
- Procedures to assess and report compliance status for MCLs, MRDLs, TTs and TOC removal efficiency.
- The rationale used by the system to identify the sampling locations selected to represent the distribution system.
- A process to review and update the selected distribution system sampling locations to account for changes due to growth or other significant changes to the distribution system.

Drinking Water Monitoring Plan

System Name

PWSID

PART I

MONITORING PLAN SUMMARY

1. Instructions for Completing the Monitoring Plan Summary Sheet

2. Monitoring Plan Summary Sheet

- Summary of System Information
- Summary of Water Sources
- Summary of Treatment Plants
- Summary of Distribution System

PWSID#
System Name
Date of Plan

Instructions for Completing Monitoring Plan Summary Sheet

Complete for the initial monitoring plan submission and with every addition, revision or up-date to the plan.

A. Summary of System Information

1. List your Public Water System Identification Number.
2. List the full name of the **legal** owner of the system. (Corporation, LLC, partnership, etc.)
3. Provide the legal entity's address.
4. Provide the name of the legal owner or the owner's authorized contact person responsible for the monitoring plan.
5. Provide the phone number for the legal owner or the owner's authorized monitoring plan contact person.
6. System Type Definitions:
   a. "**Public Water System**" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals. Such term includes: (A) Any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system, and (B) Any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system.
   b. "**Community Water System**" means a public water system that: (A) serves at least 15 service connections used by year-round residents of the area served by the system; or (B) Regularly serves at least 25 year-round residents.
   c. "**Non-Community Water System**" means a public water system that is not a community water system. A non-community water system is further defined as either a transient or a non-transient non-community water system.
      i. "**Non-Transient Non-Community Water System**" means a non-community water system that regularly serves at least 25 of the same persons over six months per year (schools, workplaces, hospitals, etc.).
      ii. "**Transient Non-Community Water System**" means a non-community water system which does not serve 25 or more of the same people for 60 or more days per year, (i.e., a restaurant, motel, campground, etc.).
7. Give the total population served by the system.
8. The cover sheet must be signed by the legal owner or the legal owner's authorized representative, include signer's title.

B. Summary of Water Sources

1. "Surface Water" means all water which is open to the atmosphere and/or subject to surface runoff. Groundwaters found to be under the direct influence of surface water will be classified as surface water.
2. "Groundwater Under the Direct Influence of Surface Water means any water beneath the surface of the ground with (1) significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as Giardia Lamblia or (2) significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.
3. "Groundwater" means any water under the surface of the ground, which is neither "surface water" nor "groundwater under the direct influence of surface water."
4. Number of purchased water sources (sources from which your system purchases water).

C. Summary of Treatment Plants

1. Treatment Plant: Consists of any chemical, physical or biological process applied to any source of water thereafter provided to persons served by the system.
2. "Conventional Treatment" means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal and/or hardness removal. The number listed in (2) must equal the sum of 2a plus 2b.
3. Are any of the plants using these treatments at any point in the treatment process or for residual maintenance?
4. Is your system providing any additional treatment to water that is purchased from another public water system?

D. Summary of Distribution System

1. Check: Do you supply treated water to another public water system?
2. Entry Point to the Distribution System: is where any source or treated water enters the system of pipes or other fixtures used to provide drinking water to persons served by the public water system.
3. Microbiological Samples: as required by the Total Coliform Rule in 40 CFR Parts 141 National Primary Drinking Water Regulations.
4. List the number of chlorine booster stations in your distribution system.

5.

MONITORING PLAN SUMMARY SHEET

A. Summary of System Information

1. PWSID Number: _____
2. System Legal Name: _____
3. Legal Address: _____
4. E-mail Address: _____
5. Legal Contact Name: _____
6. Legal Contact's Phone Number: _____
7. System Type: Community ☐ Non-Transient Non-Community ☐
8. Total Population Served: _____

B. Summary of Water Sources Provide a sketch of all source locations in Part II

1. Number of Surface Water Sources: _____
2. Number of Ground Water Under the Direct Influence of Surface Water Sources: _____
3. Number of Ground Water Sources: _____
4. Number of Sources from which your system Purchases Water: _____

C. Summary of Treatment Plants Provide a block process schematic for each plant in Part III

1. Number of Treatment Plants: _____
2. Number of Treatment Plants using Conventional Treatment: _____
    a. Number Subject to Enhanced Coagulation: _____
    b. Number Subject to Enhanced Softening: _____
3. Number of Treatment Plants Using one or more of the following at any point in the treatment process or for residual maintenance:
    a. Free Chlorine: _____
    b. Chloramines: _____
    c. Chlorine Dioxide: _____
    d. Ozone: _____
    e. Other disinfectant: _____
4. Do you provide additional treatment to any water purchased from another Public Water System?
    Yes ☐ No ☐

D. Summary of Distribution System See schematic map supplied by EPA in Part IV

1. Does your system supply treated water to other systems? No ☐ Yes ☐, provide details in Part IV
    If Yes, enter the total population served by these systems: _____
2. Number of Entry Points to your Distribution System: _____
3. Number of Routine Microbiological Samples Submitted to EPA per Month: _____
4. Number of Chlorine Booster Stations in your Distribution System: _____

_____ _____
Signature of Owner or Authorized Representative and Title Date

PART II
WATER SOURCES DETAILS

1. **Instructions for Completing Part II—Water Sources Details**
2. **Inventory of Water Sources**
3. **Sketch of Water Sources**
4. **Additional Information**

Instructions for Completing PART II –Water Sources Details

A. Inventory of Water Sources

1. For all groundwater sources, including emergency sources list the:
   a. Source names
   b. Source ID numbers*
   c. Aquifer name (if known)
   d. Source type (P-permanent, S-seasonal, or E-emergency).
2. For all surface water (SW) or groundwater under the direct influence of surface water (GWUDI) sources, including seasonal and/or emergency sources:
   a. For each untreated surface water source, including seasonal, emergency or purchased sources please provide the following information:
      i. List each source by name and source ID* number
      ii. Identify the sources as SW or GWUDI.
      iii. Identify the sources that are used seasonally.
      iv. Identify the sources that are used only for emergencies.
   b. For those sources that are listed as seasonal, provide the
      i. Source name and source ID number.
      ii. The usual or expected months of operation
3. For each source of treated purchased water:
   a. List the type(s)of additional treatment provided for each source if any, if none so indicate. P*rovide a full explanation of the treatment processes in Part III*; or
   b. Certify whether your system has an agreement with each supplier to monitor water quality for you. If so, indicate which rules are covered by the agreement.

Expand or contract each table as necessary.

B. **Schematic Map of Water Sources** ***(supplied by EPA and modify the schematic if necessary)***

1. Review and verify each source by Source ID number.
2. Review the schematic and verify how the sources connect to any headers, storage tanks and to the water treatment plant(s) and show the relative distances between components. Label lines with approximate lengths between components.

C. Additional Information

Modify the schematic map supplied by EPA to include any additional information that would be helpful to understanding your water source(s) and how they are operated within your overall production scheme.

PART II – Water Sources Details

A. Inventory of Water Sources

1. Untreated Groundwater Sources (Include Purchased Untreated Water Sources)

a. Source Name	**Source ID# (se_id)**	**Aquifer Name**	**Type: Permanent (P) Seasonal (S) Emergency (E)**
			P ☐ S ☐ E ☐
			P ☐ S ☐ E ☐
			P ☐ S ☐ E ☐
			P ☐ S ☐ E ☐

b. Seasonal Sources	**Months of Operation**											
	J	F	M	A	M	J	J	A	S	O	N	D
Months of Operation for Source # _____:	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Months of Operation for Source # _____:	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

2. Untreated Surface Water (SW) or Groundwater Under the Direct Influence of Surface Water (GWUI) (Include Purchased Untreated Water Sources)

a. Source Name	**Source ID#**	**(SW) or (GWUDI)**	**Type: Permanent (P) Seasonal (S) Emergency (E)**
		SW ☐ GWUDI ☐	P ☐ S ☐ E ☐
		SW ☐ GWUDI ☐	P ☐ S ☐ E ☐
		SW ☐ GWUDI ☐	P ☐ S ☐ E ☐
		SW ☐ GWUDI ☐	P ☐ S ☐ E ☐

b. Seasonal Sources	**Months of Operation**											
	J	F	M	A	M	J	J	A	S	O	N	D
Months of Operation for Source #:	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Months of Operation for Source # _____:	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

3. Purchased **Treated** Water Received by your System

Supplier System Name	**Supplier PWSID Number**	**Additional Treatment Applied**	**Type(s) of Treatment Applied***	**Written Agreement for Supplier to Monitor Your Water Quality**	**Rules Covered by the Agreement**						
					TC*	**IOC***	**OC***	**R***	**Pb/ Cu***	**D/ DBP***	**IE***
		YES ☐ NO ☐		YES ☐ NO ☐	☐	☐	☐	☐	☐	☐	☐
		YES ☐ NO ☐		YES ☐ NO ☐	☐	☐	☐	☐	☐	☐	☐
		YES ☐ NO ☐		YES ☐ NO ☐	☐	☐	☐	☐	☐	☐	☐
		YES ☐ NO ☐		YES ☐ NO ☐	☐	☐	☐	☐	☐	☐	☐

*** See Table 1 Part III A. Treatment Process Code**

Table Legend

Microbiological = TC
Inorganic Chemicals = IOC
Organic Chemicals = OC
Radionuclides = R
Lead and Copper = Pb/Cu
Disinfectants and Disinfection Byproducts = DDBP
Interim Enhanced Surface Water Treatment = IE

B. Schematic Map of Water Sources—*(supplied by EPA)*

Schematic Map of each PWS.

C. Additional Information *(If appropriate.)*

PART III

Water Treatment Details

1. **Instructions for Completing Part III—Water Treatment Details**
2. **Treatment Plant Information**
3. **Process Schematic of the Water Treatment Plant**
4. **Additional Information**

Instructions for Completing *PART III –Water Treatment Details*

A. Treatment Plant Information

NOTE: In the event treatment is provided at each well source rather than at a centralized treatment plant, depict each of the treatment processes on the source sketch in section B, combining the sketches for sources and treatment in one sketch or provide a schematic of each treatment process applied at each of the individual sources.

Complete for each Water Treatment Plant

1. Treatment Plant Name
2. Treatment Plant ID number*
3. Contributing sources ID* number
4. Rated capacity in million gallons per day (MGD), or in gallons per minute (GPM)
5. Detail all treatment techniques used: See list of codes at end of section and enter all that apply to each treatment plant.
6. Indicate any use of an oxidant for disinfection and for any other purpose.

B. Process Schematic of the Water Treatment Plant

1. Size — preferably no larger than 8 ½ x 14 inches
2. Prepare a separate schematic for each water treatment plant (WTP).
3. Show the points where any chemical is added within the treatment train and indicate the chemical added. IF any chemical or physical pretreatment processes are used, include a similar schematic for each pretreatment train and indicate its location on the overall treatment schematic. If this is not feasible, show the pretreatment process locations on the source water schematic.
4. If your system has more than one treatment plant, indicate which sources supply each treatment plant.

C. Additional Information

Include additional information that would be helpful to understanding your WTP or processes.

PART III – Water Treatment Details

A. Treatment Plant Information

Treatment Plant Name	Treatment Plant ID #	Contributing Sources ID #	Rated Capacity (MGD, or GPM)	Treatment Process Codes List all that Apply*				

***** See Next Page for a list of Codes

TABLE 1 - TREATMENT PROCESS CODE *

100	Activated Alumina	421	Hypochlorination, Post
121	Activated Carbon, Granular	423	Hypochlorination, Pre
125	Activated Carbon, Powdered	441	Inhibitor, Bimetallic Phosphate
141	Aeration, Cascade	443	Inhibitor, Hexametaphosphate
143	Aeration, Diffused	445	Inhibitor, Orthophosphate
145	Aeration, Packed Tower	447	Inhibitor, Polyphosphate
147	Aeration, Slat Tray	449	Inhibitor, Silicate
149	Aeration, Spray	455	Iodine
160	Algae Control	460	Ion Exchange
180	Bone Char	500	Lime - Soda Ash Addition
190	Brominization (Special Use)	520	Microscreening
200	Chloramines	541	Ozonation, Post
220	Chlorine Dioxide	543	Ozonation, Pre
240	Coagulation	560	Permanganate
300	Distillation	580	Peroxide
320	Electrodialysis	600	Rapid Mix
341	Filtration, Cartridge or Bag	620	Reducing Agents
342	Filtration, Diatomaceous Earth	623	Reducing Agent, Sodium Bisulfate
343	Filtration, Greensand	625	Reducing Agent, Sodium Sulfite
344	Filtration, Pressure Sand	627	Reducing Agent, Sulfur Dioxide
345	Filtration, Rapid Sand	640	Reverse Osmosis
346	Filtration, Slow Sand	660	Sedimentation
347	Filtration, Ultrafiltration or Microfiltration	680	Sequestration
348	Filtered	700	Sludge Treatment
360	Flocculation	720	Ultraviolet Radiation
380	Fluoridation	740	Ph Adjustment
401	Gaseous Chlorination, Post	741	Ph Adjustment, Post
403	Gaseous Chlorination, Pre	742	Ph Adjustment, Pre
		999	Innovative

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B. Process Schematic of the Water Treatment Plant----*(Not necessary to be drawn to scale.)*

C. List all chemicals that are added in each treatment plant (and if applicable each pretreatment facility).

D. Additional Information *(If appropriate.)*

Part IV

Distribution System Details

1. **Instructions for Completing Part IV—Distribution System Details**
2. **Entry Points to the Distribution System**
3. **Sketch of the Distribution System**
4. **Water Wholesalers**
5. **Additional Information**

Instructions for Completing *PART IV – Distribution System Details*

A. Distribution System Average and Maximum Residence Times

Explain the methodology used to determine the locations in the distribution system that represent average residence time and maximum residence time.

a.) **Maximum residence times**--Explain the criteria you used to make this determination and why it is appropriate. Identify any overlapping zones of influence that represent maximum distribution system residence times.

b.) **Average residence times**--Explain the criteria you used to make this determination and why it is appropriate. Identify areas in the distribution system where waters from two or more entry points are expected to mix or represent water from multiple entry points (overlapping zones of influence) and represent at least average residence time.

B. Entry Points to the Distribution System

Identify by number or code all entry points to the distribution system and their associated treatment plants, treated purchased sources and, if applicable, any untreated sources.

C. Sketch of Distribution System—

(Use the schematic map supplied by EPA to depict relative features and distances.)

1. Include details:
   a. Locations representative of Maximum residence times and associated sampling locations
   b. Locations representative of Average residence times and associated sampling locations
   c. All Entry Points to the distribution system
   d. All treatment facilities within the distribution system, such as booster chlorination stations
   e. All storage facilities
   f. Overlapping zones of Influence
   g. Points of connection to other public water system(s)
   h. Identify all sampling locations by their sample location identifier number

D. Suppliers of Treated Water to other Public Water Systems

1. For each system that you provide with treated drinking water:
   a. List the system name and their Public Water System Identification number.
   b. The population served by each system.
2. Explain how your system is physically connected to the purchasing system and the plan to be used to ensure appropriate monitoring and water quality are achieved.
3. Explain your relationship, if any, to the purchasing system with respect to water quality monitoring or compliance within the purchasing system.

E. Additional Information

Include additional information that would be helpful to understanding your distribution system.

PART IV – Distribution System Details

A. Residence Times Determination

1. Provide an explanation of the method(s) used to determine Maximum Distribution System Residence Time
2. Provide an explanation of the method(s) used to determine Average Distribution System Residence Time
3. Provide an explanation of how the distribution system first customer was determined (if applicable).

B. Entry Points to the Distribution System

1. Entry Point Designation Description

Entry Point Location Name	Entry Point Location Identifier	Name of the Contributing:		
		Treatment Plants	Purchased Sources	Untreated Sources

2. Evaluation and description of the extent to which Zones of Influence from each source overlap, if applicable.

C. Sketch of Distribution System

D. Identify the Systems that Purchase Treated Water from your System

Purchasing System Name	Purchasing System PWSID Number	Purchasing System Population Served	Written Agreement for Purchaser to be Integrated System	Rules Covered by the Agreement						
				TC*	IOC*	OC*	R*	Pb/ Cu*	D/ DBP*	IE*
			YES ☐ NO ☐	☐	☐	☐	☐	☐	☐	☐
			YES ☐ NO ☐	☐	☐	☐	☐	☐	☐	☐
			YES ☐ NO ☐	☐	☐	☐	☐	☐	☐	☐
			YES ☐ NO ☐	☐	☐	☐	☐	☐	☐	☐

*** Table Legend**

Microbiological = TC
Inorganic Chemicals = IOC
Organic Chemicals = OC
Radionuclides = R
Lead and Copper = Pb/Cu
Disinfectants and Disinfection Byproducts = D/DBP
Interim Enhanced Surface Water Treatment = IE

E. Additional Information *(If appropriate)*

Part V

Monitoring Plans

Section A Disinfectants and Disinfection Byproducts Rule

Section B Interim Enhanced Surface Water Treatment Rule

Section A

Disinfectants and Disinfection Byproducts Rule

I. D/DBPR Monitoring Plan Summary

- **i. Table of Treatment Processes**
- **ii. Summary of the System's D/DBP Monitoring Plan Considerations**
- **iii. Summary of Monitoring Records Location and Maintenance**

II. Disinfection Byproducts Monitoring

- **i. Paired TTHM/HAA5 Distribution System Monitoring**
- **ii. Chlorite Monitoring (for Systems Using Chlorine Dioxide)**
- **iii. Bromate Monitoring (for Systems Using Ozone)**
- **iv. Disinfection Byproducts Reporting Forms**

III. Maximum Residual Disinfectant Level (MRDL) Monitoring

- **i. Chlorine or Chloramine Monitoring**
- **ii. Chlorine Dioxide Monitoring**
- **iii. Disinfectant Residual Sample Analysis**
- **iv. Disinfectant Residual Reporting Forms**

IV. Disinfection Byproduct Precursors Monitoring – Conventional Filtration Only *(if not different from information provided in Part IV-refer to Part IV rather than repeating the same information)*

- **i. Raw and Finished Water "Paired" Sampling Sites**
- **ii. "Paired" Sample Analysis for DBP Precursor Removal**
- **iii. Disinfection Byproduct Precursors Removal Reporting Forms**

PWSID#
System Name
Date of Plan

I. D/DBPR Monitoring Plan Summary

i. Table of Treatment Processes

Treatment Plant Name	Treatment Plant ID #	Associated Entry Point Location Identifier	Treatment Processes (circle the final filtration barrier)	Primary Disinfectant For microbial inactivation	Secondary Disinfectant- For maintaining disinfectant residual	Other Oxidants
			☐ Direct filtration ☐ Disinfection ☐ Conventional ☐ Softening ☐ GAC ☐ Membrane filtration ☐ Other	☐ Free Chlorine ☐ Chloramines ☐ Ozone ☐ Chlorine Dioxide ☐ UV ☐ Other	☐ Free Chlorine ☐ Chloramines ☐ Chlorine Dioxide	
			☐ Direct filtration ☐ Disinfection ☐ Conventional ☐ Softening ☐ GAC ☐ Membrane filtration ☐ Other	☐ Free Chlorine ☐ Chloramines ☐ Ozone ☐ Chlorine Dioxide ☐ UV ☐ Other	☐ Free Chlorine ☐ Chloramines ☐ Chlorine Dioxide	
			☐ Direct filtration ☐ Disinfection ☐ Conventional ☐ Softening ☐ GAC ☐ Membrane filtration ☐ Other	☐ Free Chlorine ☐ Chloramines ☐ Ozone ☐ Chlorine Dioxide ☐ UV ☐ Other	☐ Free Chlorine ☐ Chloramines ☐ Chlorine Dioxide	
			☐ Direct filtration ☐ Disinfection ☐ Conventional ☐ Softening ☐ GAC ☐ Membrane filtration ☐ Other	☐ Free Chlorine ☐ Chloramines ☐ Ozone ☐ Chlorine Dioxide ☐ UV ☐ Other	☐ Free Chlorine ☐ Chloramines ☐ Chlorine Dioxide	

ii. Summary of the System's D/DBP Monitoring Plan Considerations

Provide a narrative summary of the system's source treatment and distribution system characteristics that were assumed in the design of the monitoring plan to ensure the sampling plan represents system conditions and regulatory requirements. Include as appropriate:

1. Use of maximum capacity facilities,
2. Alternative water sources,
3. Maintenance schedules that take facilities (treatment, storage, booster stations, etc.) off line,
4. The process to be used to review and update the sampling locations to account for changes in average or maximum residence time due to seasonal change, growth or other significant changes to the physical operational characteristics of the distribution system,
5. For ground water systems, if multiple wells draw from a single aquifer and are considered as one treatment plant for the purpose of determining the minimum number of TTHM and HAA5 samples required, please explain the justification for making this determination.
6. Identification of the existence of consecutive systems and how the monitoring plan will or will not assess water quality within each consecutive system for each parameter regulated by the D/DBP regulations.
7. Other factors significant to the design of a representative monitoring plan, including the contingencies to be exercised in the event the planned sampling sites are invalid at the time of scheduled sampling, and
8. If your final filtration barrier is conventional filtration, indicate the method your system will use to demonstrate compliance with the DDBP precursor removal requirements by checking either (a), (b) or both.

(a) ☐ The percent (%) removal ("3x3") table at 40 CFR 141.135
(b) ☐ Alternative Compliance Criteria (ACC)

If you have checked (b), choose the criteria that you will use to demonstrate compliance from either *Enhanced Coagulation* or *Enhanced Softening.* (A system can use more than one ACC when determining compliance so please be sure to check all that apply.)

§141.135 (a)(2) *Enhanced Coagulation*
- (i) ☐ Source Water TOC Running Annual Average (RAA)< 2.0 mg/L
- (ii) ☐ Treated Water TOC RAA < 2.0 mg/L
- (iii) ☐ Source Water TOC RAA < 4.0 mg/L, Source Water Alkalinity RAA < 60 mg/LTTHM RAA < 0.040 mg/L and HAA5 RAA < 0.030 mg/L
- (iv) ☐ TTHM RAA < 0.040 mg/L, HAA5 RAA < 0.030 mg/L and system uses only chlorine for 1º disinfection and maintenance of residual in distribution system.
- (v) ☐ Source Water SUVA RAA ≤ 2.0 mg/L
- (vi) ☐ Treated Water SUVA RAA ≤ 2.0 mg/L

OR

§141.135 (a)(3) *Enhanced Softening*
- (i) ☐ Treated Water Alkalinity RAA lowered to less than 60 mg/L.
- (ii) ☐ Magnesium Hardness Removed RAA ≥ 10 mg/L.

iii. Summary of Monitoring Records Location and Maintenance

Disinfection Byproducts

Parameter	Records Location	Responsible Party Name or Position	Phone Number
TTHM/HAA5			
Chlorite			
Bromate			

Maximum Residual Disinfectant Level

Parameter	Records Location	Responsible Party Name or Position	Phone Number
Total Chlorine			
Free Chlorine			
Combined Chlorine			
Chlorine Dioxide			

Disinfection Byproducts Precursors (Conventional Filtration Only)

Parameter	Records Location	Responsible Party Name or Position	Phone Number
TOC Source			
TOC Treated			
Alkalinity Source			
Bromide			
DOC Source			
UV_{254} Source			
DOC Finished			
UV_{254} Finished			
$MgCO_3$ Source			
$MgCO_3$ Finished			
Alkalinity Finished			

II. Disinfection Byproducts Monitoring

i. Paired TTHM/HAA5 Distribution System Monitoring

1. Complete for each paired TTHM/HAA5 distribution system (DS) sampling site:

Sample Site Location Identifier	**Site Name**	**Site Address**	**Indicate whether this site represents DS maximum or average residence time**
			☐ Maximum ☐ Average
			☐ Maximum ☐ Average
			☐ Maximum ☐ Average
			☐ Maximum ☐ Average

2. Show the location of each sampling point (by location identifier) on the distribution system sketch in Part IV of your system's monitoring plan.
3. Explain how any monitoring, including that in excess of minimum requirements, will be scheduled so as to be representative of system conditions and how this data will be used to calculate compliance. This explanation should include information about the use of seasonal sources and/or treatment plants and how they will affect the systems TTHM and HAA5 sampling.
4. If any samples are associated with a consecutive system, explain how sampling points were selected to be representative of the entire service area and associated population served.

ii. Chlorite Monitoring (for all systems using chlorine dioxide)

1. Show the location of each chlorite distribution system (DS) sampling site on the distribution system schematic provided in Part IV of your system's monitoring plan and provide here a list of all distribution system samples and their associated location identifiers:

Sampling Site Location Identifier	**Sampling Site Name**	**Sampling Site Address**	**Indicate sample location (DS max. DS average or DS first customer)**
			☐ DS Maximum ☐ DS Average ☐ DS First Customer
			☐ DS Maximum ☐ DS Average ☐ DS first Customer
			☐ DS Maximum ☐ DS Average ☐ DS First Customer

2. Explain how any monitoring, including that in excess of minimum requirements, will be scheduled so as to be representative of system conditions and how this data will be used to calculate compliance.
3. Show the location of each chlorite entry point sampling location on the distribution system schematic provided in Part IV of your system's monitoring plan and provide here a list of all entry point names and their associated location identifiers.

Entry Point Location Identifier	**Entry Point Name**

4. If any samples are associated with a consecutive or integrated system, explain how sampling points were selected to be representative of the entire service area and associated population served.
5. Quality Assurance/Quality Control (QA/QC) – For each analytical test to be performed by a party approved by EPA, other than a certified laboratory, explain the exact QA/QC procedures to be followed to ensure that the analytical result will be accurate and representative of the water being sampled for each analysis performed.

iii. Bromate Monitoring (for systems using Ozone):

1. Show the location of each bromate entry point sampling location on the distribution system schematic provided in Part IV of your system's monitoring plan and provide here a list of all entry point names and their associated location identifiers.

Entry Point Location Identifier	**Entry Point Name**

2. Explain how any monitoring, including that in excess of minimum requirements, will be scheduled so as to be representative of system conditions and how this data will be used to calculate compliance.

iv. Disinfection Byproduct Sample Analysis

1. Complete for each analyte tested (EP = entry point, DS = Distribution System):

Analyte	**Frequency (W/M/Q/A)**	**Analytical Method**	**Indicate whether analyst is a Certified Laboratory or EPA Approved Party**
TTHM			☐ Certified Laboratory
HAA5			☐ Certified Laboratory
Chlorite* - EP			☐ Certified Laboratory ☐ EPA Approved Party
Chlorite* - DS			☐ Certified Laboratory
Bromate** - EP			☐ Certified Laboratory

* Only systems using Chlorine Dioxide ** Only systems using Ozone

2. Quality Assurance/Quality Control (QA/QC) – For each analytical test to be performed by a party approved by EPA, other than a certified laboratory, explain the exact QA/QC procedures to be followed to ensure that the analytical result will be accurate and representative of the water being sampled.
3. Additional Information. (If appropriate to explain system characteristics)

v. Disinfection Byproducts Reporting Forms

DBP Form 1 TTHM Analysis **Laboratory** Report Form
DBP Form 2 HAA5 Analysis **Laboratory** Report Form
DBP Form 3 TTHM and HAA5 Quarterly Report Worksheet (do not submit to EPA)
DBP Form 4 Quarterly **Reporting Form** for Running Annual Average (RAA) for TTHMs and HAA5s.
DBP Form 5 Bromate and/or Chlorite Analysis **Laboratory** Report Form
DBP Form 6 Quarterly **Reporting Form** for Running Annual Average (RAA) for Bromate – Only for systems using Ozone.
DBP Form 7 Quarterly **Reporting Form** for Daily, Monthly, and Additional Chlorite Monitoring – Only for systems using Chlorine Dioxide in any process.
DBP Form 8 Quarterly **Reporting Form** for Running Annual Average (RAA) for Bromide – Only for systems using Ozone in any process.

III. Maximum Residual Disinfectant Level (MRDL) Monitoring

i. For Chlorine or Chloramine Monitoring

1. Complete for each chlorine residual/total coliform sampling site:

Site Location Identifier	Site Name	Site Address

1. Show each sampling site (by location number) on the distribution system map in Part IV.
2. Explain how any monitoring, including that in excess of minimum requirements, will be scheduled and located so as to be representative of system conditions and how this data will be used to calculate compliance.
3. Additional Information (If appropriate to explain system conditions)
4. Distinguish, if applicable, any chlorine sampling locations that are not associated with total coliform monitoring.
5. Quality Assurance/Quality Control (QA/QC) – For each analytical test to be performed by a party approved by EPA, other than a certified laboratory, explain the exact QA/QC procedures to be followed to ensure that the analytical result will be accurate and representative of the water being sampled for each analysis performed.

ii. Chlorine Dioxide Monitoring

1. Show the location of each chlorine dioxide entry point sampling location on the distribution system schematic provided in Part IV of your system's monitoring plan and provide here a list of all entry point names and their associated location identifiers.

Entry Point Location Identifier	**Entry Point Name**

2. Complete for each distribution system (DS) monitoring location:

Site Location Identifier	**Site Name**	**Site Address**	**Indicate sample location--(DS max., DS average, or DS first customer residence time)**
			☐ DS Maximum ☐ DS Average ☐ DS First Customer
			☐ DS Maximum ☐ DS Average ☐ DS First Customer
			☐ DS Maximum ☐ DS Average ☐ DS First Customer

3. Explain how any monitoring, including that in excess of minimum requirements, will be scheduled and located so as to be representative of system conditions and how this data will be used to calculate compliance.
4. Indicate whether disinfection booster stations exist within the distribution system.
5. Quality Assurance/Quality Control (QA/QC) – For each analytical test to be performed by a party approved by EPA, other than a certified laboratory, explain the exact QA/QC procedures to be followed to ensure that the analytical result will be accurate and representative of the water being sampled for each analysis performed.

iii. *Disinfectant Residual Sample Analysis*

1. Complete for each analyte tested (EP = Entry Point, DS = Distribution System):

Analyte	**Frequency** (W/M/Q/A)	**Analytical Method**	**Analysis Performed By: Indicate whether Certified Laboratory or EPA Approved Party**
Total Chlorine			☐ Certified Laboratory ☐ EPA Approved Party
Free Chlorine			☐ Certified Laboratory ☐ EPA Approved Party
Combined Chlorine			☐ Certified Laboratory ☐ EPA Approved Party
Chlorine Dioxide* (EP)			☐ Certified Laboratory ☐ EPA Approved Party
Chlorine Dioxide* (DS)			☐ Certified Laboratory ☐ EPA Approved Party

*Only systems using chlorine dioxide as disinfectant or oxidant in their treatment process

2. Quality Assurance/Quality Control (QA/QC) – For each analytical test to be performed by a party approved by EPA, other than a certified laboratory, explain the exact QA/QC procedures to be followed to ensure that the analytical result will be accurate and representative of the water being sampled.

iv. *Disinfectant Residual Reporting Forms*

MRDL Form 1 Chlorine and Chloramines, Maximum Residual Disinfectant Level (MRDL) Monthly Worksheet (do not submit to EPA)

MRDL Form 2 Quarterly **Report Form** for Chlorine and Chloramines Maximum Residual Disinfectant Level Running Annual Average (RAA)

MRDL Form 3 Quarterly **Report Form** for Daily Chlorine Dioxide

IV. Disinfection Byproduct Precursors Monitoring

i. Raw and Finished Water "Paired" Sampling Sites

1. Complete for each treatment plant:

Plant Name	Plant ID Number *	Untreated Water Sample Location Identifier	Finished Sample Location Identifier

* Correlate the plant ID number with the identifier used by the EPA

2. Show each sampling point on the treatment plant schematic in Part III.

ii. "Paired" Sample Analysis for DBP Precursor Removal

1. Complete for each analysis used (D = daily, W = weekly, M = monthly, Q = quarterly, A = annually); samples collected more frequently than the interval shown should be indicated with a number and letter. For example, if samples are taken 4 times a day, indicated as "4/D."

Analysis	**Sampling Frequency** (D/W/M/Q/A)	**Analytical Method**	**Indicate whether a Certified Laboratory or a EPA Approved Party**
TOC Source			☐ Certified Laboratory
TOC Treated			☐ Certified Laboratory
TOC Other (explain)			☐ Certified Laboratory
Total Alkalinity			☐ Certified Laboratory ☐ EPA Approved Party
DOC (alternative criteria)			☐ Certified Laboratory
UV-254 (alternative criteria)			☐ Certified Laboratory ☐ EPA Approved Party
Mg Hardness *			☐ Certified Laboratory ☐ EPA Approved Party
Bromide **			☐ Certified Laboratory ☐ EPA Approved Party

* Alternative criteria for softening systems

** Ozone systems applying for reduced monitoring only

2. Explain how any monitoring, including that in excess of minimum requirements, will be scheduled so as to be representative of system conditions and how this data will be used to calculate compliance.
3. With respect to paired TOC samples, explain whether the untreated and treated samples will be collected at virtually the same time or whether the detention time of the treatment process will be considered. In the event the detention time of the treatment process is to be considered, provide an explanation of the procedure to be used considering different possible plant operation configurations and flow rates.
4. Quality Assurance/Quality Control (QA/QC) – For each analytical test to be performed by a party approved by EPA, other than a certified laboratory, explain the exact QA/QC procedures to be followed to ensure that the analytical result will be accurate and representative of the water being sampled for each analysis performed.
5. Additional Information (Provide as appropriate to explain system characteristics)

iii. *Disinfection Byproduct Precursors Removal Reporting Forms:*

DBP Precursor Form 1	Disinfectant Byproducts Precursors **Laboratory** Report to Public Water System
DBP Precursor Form 2	Alternative Compliance Criteria Disinfection Byproduct Precursor Removal Compliance **Reporting Form** for Conventional Filtration Treatment Plants
DBP Precursor Form 3	Additional Alternative Compliance Criteria (for softening systems) **Reporting Form**
DBP Precursor Form 4	Disinfection Byproduct Precursor Removal – Quarterly Compliance **Report Form** for the Running Annual Average (RAA) – For Total Organic Carbon Removed

Section B

Enhanced Surface Water Treatment Rules

(Including IESWTR and LT1ESWTR)

I. Treatment Requirements Summary

- **i. Summary of Filtration Technology**
- **ii. Turbidimeter Calibration**
- **iii. Record Keeping**

II. Combined Filter Effluent Turbidity Monitoring

III. Individual Filter Effluent Turbidity Monitoring

IV. Disinfectant Residual Entering the Distribution System

V. Disinfection Profile

VI. Additional Information

I. Treatment Requirements Summary

i. Describe the filtration technology used at each treatment plant

Treatment Plant Name	Plant ID #	Filtration Technology
		☐ Conventional or Direct Filtration ☐ Slow Sand Filtration ☐ Diatomaceous Earth Filtration ☐ Other Filtration Technologies*
		☐ Conventional or Direct Filtration ☐ Slow Sand Filtration ☐ Diatomaceous Earth Filtration ☐ Other Filtration Technologies*
		☐ Conventional or Direct Filtration ☐ Slow Sand Filtration ☐ Diatomaceous Earth Filtration ☐ Other Filtration Technologies*

**** Provide a description of any "Other Filtration Technologies" that are being used.***

ii. Turbidimeter Calibration

Meter Identification	Filter Location	Calibration Frequency	Frequency of Calibration Checks
	☐ Combined ☐ Individual Filter		
	☐ Combined ☐ Individual Filter		
	☐ Combined ☐ Individual Filter		
	☐ Combined ☐ Individual Filter		

Quality Assurance/Quality Control (QA/QC) – Explain the exact QA/QC procedures to be followed to ensure that the analytical result will be accurate.

iii. Record Keeping

Please identify the physical location of the following records and the telephone number of the person responsible for their maintenance

Parameter	Records Location	Responsible Person Name or Position	Telephone Number
Turbidity			
Calibration			

II. Combined Filter Effluent Turbidity Monitoring – Conventional and Direct Filtration Only

Identify the sampling point and its designation and the times of the day that samples will be taken. Ensure there is **no more than 4 hours** between each sampling time.

Treatment Plant Name	Plant ID#	Sample Point Description	Sampling Times of Day	
			Mid-4 am	
			4 am-8 am	
			8 am-Noon	
			Noon-4 pm	
			4pm-8 pm	
			8pm-Mid	
			Mid-4 am	
			4 am-8 am	
			8 am-Noon	
			Noon-4 pm	
			4pm-8 pm	
			8pm-Mid	
			Mid-4 am	
			4 am-8 am	
			8 am-Noon	
			Noon-4 pm	
			4pm-8 pm	
			8pm-Mid	

III. Individual Filter Effluent Turbidity Monitoring – Conventional and Direct Filtration Only

i. Provide a relational sketch identifying the location of each individual filter sampling point*.

ii. Complete a table for each treatment plant in the system:

Treatment Plant Name: _____ Plant ID#: _____

Individual Filter Identifier	Sampling Point Description	Sample Point ID#

Treatment Plant Name: _____ Plant ID#: _____

Individual Filter Identifier	Sampling Point Description	Sampling Point ID#

IV. Disinfectant Residual Entering the Distribution System

Provide the description and ID# for the disinfectant residual level monitoring sampling points.

Treatment Plant Name	Plant ID#	Sampling Point Description	Sampling Point ID#

* Systems using 2 or 1 filters may monitor combined filter effluent to meet individual filter effluent requirements (LT1ESWTR).

V. Disinfection Profile – Required for Those Systems Not Granted Exemption from EPA Region 8:

i. Provide a relational sketch of each point of disinfection and its sampling point.
ii. For each point of disinfection complete the following:

a. Point of disinfection ID#: _____

Select Contactor Type	**Vessel Dimensions**	**Select Disinfectant**
☐ Rapid mix ☐ Flocculation basin ☐ Sedimentation basin ☐ Filter ☐ Clear Well or Storage Tank ☐ Pipeline	Length _____ Width _____ Depth _____ If circular tank or pipe: Diameter _____	☐ Free Chlorine ☐ Chloramines ☐ Chlorine Dioxide

Applied Baffling Factor: _____
☐ EPA Assigned
☐ Tracer Study

Sample point ID# representing this disinfection procedure: _____

b. Point of disinfection ID#: _____

Select Contactor Type	**Vessel Dimensions**	**Select Disinfectant**
☐ Rapid mix ☐ Flocculation basin ☐ Sedimentation basin ☐ Filter ☐ Clear Well or Storage Tank ☐ Pipeline	Length _____ Width _____ Depth _____ If circular tank or pipe: Diameter _____	☐ Free Chlorine ☐ Chloramines ☐ Chlorine Dioxide

Applied Baffling Factor: _____
☐ EPA Assigned
☐ Tracer Study

Sample point ID# representing this disinfection procedure: _____

c. Point of disinfection ID#: _____

Select Contactor Type	**Vessel Dimensions**	**Select Disinfectant**
☐ Rapid mix ☐ Flocculation basin ☐ Sedimentation basin ☐ Filter ☐ Clear Well or Storage Tank ☐ Pipeline	Length _____ Width _____ Depth _____ If circular tank or pipe: Diameter _____	☐ Free Chlorine ☐ Chloramines ☐ Chlorine Dioxide

Applied Baffling Factor: _____
- ☐ EPA Assigned
- ☐ Tracer Study

Sample point ID# representing this disinfection procedure: _____

VI. Additional Information (If applicable)