

**STAGE 2**  
**DBP MONITORING**  
**PLAN**

**for the**

**PWSID**

**Date Prepared:**

## **Table of contents**

	<b><u>Page</u></b>
Purpose	3
System Information	4
Required DBP Monitoring	5
DBP Sample Collection Schedule, MCLs, and Compliance	5
Operational Evaluation Level (OEL) Compliance	6
Chlorine MRDL Sample Collection Schedule and Compliance	7
Total Organic Carbon (TOC) Collection Schedule and Compliance	8
Public Notification Procedures	9
Sample Notice Template (HAA5)	10
Sample Notice Template (TTHM)	11
Stage 2 Sample Site Locations - List	12
Sample Site Locations – Map	13

## **Purpose**

The purpose of this Stage 2 *Disinfection Byproduct (DBP)* Monitoring Plan is to provide guidance for operators and other personnel to properly locate DBP sampling sites for the analysis of Total Trihalomethanes (TTHM) and Five Haloacetic Acids (HAA5). Included are the sample site addresses and a map showing the approximate location of each site.

This monitoring plan contains additional information regarding compliance determination, system information, sample schedules, sampling procedures, disinfection byproduct maximum contaminant limits, MRDL requirements, TOC requirements and public notice procedures and templates.

## System Information

**System Name:**

**PWSID Number:**

**Address:**

**Contact:**

**System Type:** Community System

**Population Served:**

**Water Source:**

**Regulating Agency:** Alabama Department of Environmental Management  
(ADEM)

**Primary Laboratory:**

**Contact:**

**Address:**

**Telephone:**

**FAX:**

**Alternate Laboratory:**

**Contact:**

**Address:**

**Telephone:**

**FAX:**

## **Required DBP Monitoring**

The \_\_\_\_\_ Water and Sewer Department produces its own water and has a population of approximately \_\_\_\_\_. Therefore it must monitor for disinfection byproducts (TTHM and HAA5) at \_\_\_\_\_ locations and in specific months and weeks as determined by a *Distribution System Evaluation (DSE)*. Additionally, a finished water sample must be collected from each water treatment plant.

**Source:**

**Required Samples:**

**Peak Historical Month:**

**Sample Months:**

**Sample Week:**

## **DBP Sample Collection Schedule**

The water system is required to collect \_\_\_ distribution samples and \_\_\_ water treatment plant effluent samples each quarter in week \_\_\_ of the designated sample months. Samples are analyzed for both TTHM and HAA5. **In addition, the chlorine residual is analyzed and recorded at the time the samples are collected.**

## **Disinfection Byproduct MCLs and Compliance**

The Maximum Contaminate Limit (MCL) for TTHM is 0.080 ppm (parts per million) or 80 ppb (parts per billion) and 0.060 ppm or 60 ppb for HAA5.

For each sample site, an average of all samples for four quarters will be calculated. This number (*Locational Running Annual Average – LRAA*) will be used to determine compliance against the MCLs. If this average is above the MCL for any site, the system must notify the Department and provide appropriate public notice (Templates attached).

## **Operational Evaluation Level (OEL) Compliance**

The water system has exceeded the operational evaluation level at any monitoring location where the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by 4, exceeds 0.080 ppm (80 ppb), or where the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by 4, exceeds 0.060 ppm (60 ppb).

If the OEL has been exceeded, an operational evaluation must be conducted and a written report of the evaluation submitted to ADEM no later than 90 days after being notified of the exceedance. The written report must be made available to the public upon request.

The operational evaluation must include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedances.

A request may be made to limit the scope of the evaluation if the system is able to identify the cause of the operational evaluation level exceedance. ADEM must approve this limited scope of evaluation in writing and that approval must be kept with the completed report.

## **Chlorine Maximum Residual Disinfectant Level**

The water system is required to measure the free chlorine residual level at the time and location of monthly distribution Bacteriological (BACT) samples.

The MRDL for chlorine is 4.0 ppm.

Compliance is determined by averaging all the chlorine residual results from each month's BACT monitoring, then averaging the most recent twelve (12) months together to determine the ***Running Annual Average (RAA)***. If the RAA is above 4.0 ppm, then this is a violation of the MRDL.

## **Total Organic Carbon (TOC)**

Each water treatment plant is requirement to test monthly for TOC. The samples shall be collected from the raw water and the combined filter effluent tap. The samples shall be analyzed for TOC. Additionally, at the time the raw water sample is collected, the raw water alkalinity shall be determined and reported along with the TOC results.

Each water treatment plant must operate with enhanced coagulation to achieve the TOC percent removal levels specified in the following table:

Raw Water TOC, mg/L	Source Water Alkalinity, mg/L as CaCO <sub>3</sub>		
	0 to 60	>60 to 120	> 120
➤ 2.0 to 4.0	35.0%	25.0%	15.0%
➤ 4.0 to 8.0	45.0%	35.0%	25.0%
➤ 8.0	50.0%	40.0%	30.0%

Determine compliance by dividing the actual TOC percent removal by the required TOC percent removal for each month, then average these values for the previous twelve months. If this value is less than 1.00, the system is in non-compliance with TOC percent removal requirements.

If for any month the raw or combined filtered water is less than or equal to 2.0 mg.L or the SUVA is less than or equal to 2.0 L/mg-m, the system may assign a monthly value of 1.0 when calculating compliance with TOC removal requirements.

Failure to achieve and maintain the required TOC removal requirements is a treatment technique violation that requires public notice. Contact ADEM for specific public notice requirements. Additionally, if a WTP cannot achieve the required TOC requirements due to water quality parameters or operational constraints, the water system must apply for an alternate TOC removal requirement.



## PUBLIC NOTIFICATION PROCEDURES

### Monitoring, MRDL, and MCL Violations

- The water system will notify their customers by placing a copy of the appropriate public notification with the next set of water bills mailed to each customer or by a separate mailing to each customer.
- A copy of the notification will be provided the following newspaper:
- Violations will be included in the next *Consumer Confidence Report*.

**Note:** Some or all of the above procedures will be used for public notice of violations. The type and scope of a particular violation will determine which method(s) are required. The requirements for a particular occurrence will normally be communicated to us by the Alabama Department of Environmental Management.

**THE \_\_\_\_\_ WATER AND SEWER DEPARTMENT HAS LEVELS OF HALOACETIC ACIDS  
ABOVE DRINKING WATER STANDARDS**

OUR WATER SYSTEM RECENTLY VIOLATED A DRINKING WATER STANDARD. ALTHOUGH THIS IS NOT AN EMERGENCY, AS OUR CUSTOMERS, YOU HAVE A RIGHT TO KNOW WHAT HAPPENED, WHAT YOU SHOULD DO, AND WHAT WE ARE DOING TO CORRECT THIS SITUATION.

WE ROUTINELY MONITOR FOR THE PRESENCE OF DRINKING WATER CONTAMINANTS. TESTING RESULTS WE RECEIVED ON (DATE) SHOW THAT OUR SYSTEM EXCEEDED THE STANDARD OR MAXIMUM CONTAMINANT LEVEL (MCL), FOR HALOACETIC ACIDS. THE STANDARD FOR HALOACETIC ACIDS IS 0.060 MG/L. THE AVERAGE LEVEL FOR HALOACETIC ACIDS AT ONE OF OUR SYSTEM'S LOCATIONS OVER THE PAST YEAR WAS (LEVEL) MG/L.

THIS IS NOT AN IMMEDIATE RISK. IF IT HAD BEEN, YOU WOULD HAVE BEEN NOTIFIED IMMEDIATELY. HOWEVER, SOME PEOPLE WHO DRINK WATER CONTAINING HALOACETIC ACIDS IN EXCESS OF THE MCL OVER MANY YEARS MAY HAVE AN INCREASED RISK OF GETTING CANCER. HOWEVER, IF YOU HAVE SPECIFIC HEALTH CONCERNS, CONSULT YOUR DOCTOR.

PLEASE SHARE THIS INFORMATION WITH ALL THE OTHER PEOPLE WHO DRINK THIS WATER, ESPECIALLY THOSE WHO MAY NOT HAVE RECEIVED THIS NOTICE DIRECTLY (FOR EXAMPLE, PEOPLE IN APARTMENTS, NURSING HOMES, SCHOOLS, AND BUSINESSES). YOU CAN DO THIS BY POSTING THIS NOTICE IN A PUBLIC PLACE OR DISTRIBUTING COPIES BY HAND OR MAIL.

*INSERT FOLLOW UP MEASURES TAKEN SUCH AS A STATEMENT AS TO WHAT THE SYSTEM IS DOING TO REDUCE THE LEVELS OF HALOACETIC ACIDS*

SHOULD YOU HAVE ANY QUESTIONS CONCERNING THIS VIOLATION OR MONITORING REQUIREMENTS, PLEASE CONTACT:

*INSERT CONTACT PERSON WITH THE SYSTEM, ADDRESS AND TELEPHONE NUMBER THAT CAN BEST ANSWER QUESTIONS ABOUT THE VIOLATION*

**THE \_\_\_\_\_ WATER AND SEWER DEPARTMENT HAS LEVELS OF  
TRICHALOMETHANES ABOVE DRINKING WATER STANDARDS**

OUR WATER SYSTEM RECENTLY VIOLATED A DRINKING WATER STANDARD. ALTHOUGH THIS IS NOT AN EMERGENCY, AS OUR CUSTOMERS, YOU HAVE A RIGHT TO KNOW WHAT HAPPENED, WHAT YOU SHOULD DO, AND WHAT WE ARE DOING TO CORRECT THIS SITUATION.

WE ROUTINELY MONITOR FOR THE PRESENCE OF DRINKING WATER CONTAMINANTS. TESTING RESULTS WE RECEIVED ON (DATE) SHOW THAT OUR SYSTEM EXCEEDED THE STANDARD OR MAXIMUM CONTAMINANT LEVEL (MCL) FOR TOTAL TRICHALOMETHANES. THE STANDARD FOR TOTAL TRICHALOMETHANES IS 0.080 MG/L. THE AVERAGE LEVEL OF TOTAL TRICHALOMETHANES AT ONE OF OUR SYSTEM'S LOCATIONS OVER THE LAST YEAR WAS (LEVEL) MG/L.

THIS IS NOT AN IMMEDIATE RISK. IF IT HAD BEEN, YOU WOULD HAVE BEEN NOTIFIED IMMEDIATELY. HOWEVER, SOME PEOPLE WHO DRINK WATER CONTAINING TRICHALOMETHANES IN EXCESS OF THE MCL OVER MANY YEARS MAY EXPERIENCE PROBLEMS WITH THEIR LIVER, KIDNEYS, OR CENTRAL NERVOUS SYSTEM, AND MAY HAVE AN INCREASED RISK OF GETTING CANCER. HOWEVER, IF YOU HAVE SPECIFIC HEALTH CONCERNS, CONSULT YOUR DOCTOR.

PLEASE SHARE THIS INFORMATION WITH ALL THE OTHER PEOPLE WHO DRINK THIS WATER, ESPECIALLY THOSE WHO MAY NOT HAVE RECEIVED THIS NOTICE DIRECTLY (FOR EXAMPLE, PEOPLE IN APARTMENTS, NURSING HOMES, SCHOOLS, AND BUSINESSES). YOU CAN DO THIS BY POSTING THIS NOTICE IN A PUBLIC PLACE OR DISTRIBUTING COPIES BY HAND OR MAIL.

*INSERT FOLLOW UP MEASURES TAKEN SUCH AS A STATEMENT AS TO WHAT THE SYSTEM IS DOING TO REDUCE THE LEVELS OF TRICHALOMETHANES AND HALOACETIC ACIDS*

SHOULD YOU HAVE ANY QUESTIONS CONCERNING THIS VIOLATION OR MONITORING REQUIREMENTS, PLEASE CONTACT:

*INSERT CONTACT PERSON WITH THE SYSTEM, ADDRESS AND TELEPHONE NUMBER THAT CAN BEST ANSWER QUESTIONS ABOUT THE VIOLATION*

## Stage 2

### Sample Site Locations

Site 1  
(High TTHM)

Site 2  
(High HAA5)

Site 3  
(Stage 1 Ave – High HAA5)

Site 4  
(High TTHM)

Site 5  
(High TTHM)

Site 6  
(High HAA5)

Site 7  
(Stage 1 Ave – High TTHM)

Site 8  
(High HAA5)

Site 9  
(WTP Effluent 1)

Site 10  
(WTP Effluent 2)

INSERT MAP SHOWING LOCATIONS TO ALL SAMPLE LOCATIONS  
HERE. MULTIPLE PAGES MAY BE NEEDED.

MAPS SHOULD BE DEVELOPED TO ALLOW ANY PERSON TO  
EASILY NAVIGATE TO ANY SAMPLE LOCATION.