

United States
Environmental
Protection Agency

Office of Water
(4601)

EPA 815-B-06-001
January 2006



**INITIAL DISTRIBUTION SYSTEM
EVALUATION GUIDE FOR SYSTEMS
SERVING FEWER THAN 10,000 PEOPLE**

**FOR THE FINAL STAGE 2 DISINFECTANTS
AND DISINFECTION BYPRODUCTS RULE**

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Note on the Initial Distribution System Evaluation Guide for Systems Serving Fewer than 10,000 People for the Final Stage 2 Disinfectants and Disinfection Byproducts Rule

Purpose:

The purpose of this guidance manual is solely to provide technical information for small water systems and states to assist them in complying with the Initial Distribution System Evaluation (IDSE), a component of the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR). This guidance is not a substitute for applicable legal requirements, nor is it a regulation itself. Thus, it does not impose legally-binding requirements on any party, including EPA, states, or the regulated community. Interested parties are free to raise questions and objections to the guidance and the appropriateness of using it in a particular situation. Although this manual describes many methods for complying with IDSE requirements, the guidance presented here may not be appropriate for all situations, and alternative approaches may provide satisfactory performance. The mention of trade names or commercial products does not constitute endorsement or recommendation for use.

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Acronyms

CBI	Confidential Business Information
CWS	Community water system
DBP	Disinfection byproduct
DBPR	Disinfectants and Disinfection Byproducts Rule
EPA	U.S. Environmental Protection Agency
FOIA	Freedom of Information Act
GWUDI	Ground water under the direct influence of surface water
HAA	Haloacetic acid
HAA5	The sum of five HAA species
HPC	Heterotrophic plate count
IDSE	Initial distribution system evaluation
IPMC	Information Processing and Management Center
LRAA	Locational running annual average
LT2ESWTR	Long Term 2 Enhanced Surface Water Treatment Rule
MCL	Maximum contaminant level
NTNCWS	Nontransient noncommunity water system
PWS	Public water system
PWSID	Public water system identification number
SDWA	Safe Drinking Water Act
SSS	System-specific study
STEP	Simple Tools for Effective Performance
TCR	Total Coliform Rule
THM	Trihalomethane
TOC	Total organic carbon
TNCWS	Transient noncommunity water system
TTHM	Total trihalomethanes
UV	Ultraviolet light
VSS	Very small system

Definitions

Biodegradation: a biological process where HAA5s are broken down into smaller compounds by microbes.

Booster disinfection: the practice of adding disinfectant in the distribution system to maintain disinfectant residual concentration throughout the distribution system.

Combined distribution system: the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water. 40 CFR 141.2

Community water system: a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents. 40 CFR 141.2

Consecutive system: a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems. 40 CFR 141.2

Disinfectant: any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic microorganisms. 40 CFR 141.2

Disinfectant residual concentration: the concentration of disinfectant that is maintained in a distribution system. Disinfectant could be free chlorine (the sum of the concentrations of hypochlorous acid (HOCl) and hypochlorite (OCl⁻)) or combined chlorine (chloramines). It is used in Surface Water Treatment Rule as a measure for determining CT.

Disinfection: a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents. 40 CFR 141.2

Disinfection byproduct (DBP): compound formed from the reaction of a disinfectant with organic and inorganic compounds in the source or treated water during disinfection and distribution.

Dual Sample set: a set of two samples collected at the same time and same location, with one sample analyzed for TTHM and the other sample analyzed for HAA5. Dual sample sets are collected for the purpose of conducting an IDSE under subpart U and determining compliance with the TTHM and HAA5 MCLs under subpart V. 40 CFR 141.2

Entry Point: the point(s) where finished water first enters the distribution system from one or more sources. Samples taken at these points represent minimum residence time in the distribution system.

Finished Water: water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as treatment

necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals). 40 CFR 141.2

Ground water system: public water systems that use ground water only or purchase ground water from other systems (40 CFR 141.2). For the purposes this guidance manual, ground water systems refers to the subset of systems that disinfect their water, or purchase disinfected ground water, even if they do not apply any additional treatment.

Ground water under the direct influence of surface water (GWUDI): any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia*, or *Cryptosporidium*, or significant and relative rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Direct influence must be determined for individual sources in accordance with criteria established by the State. The State determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluation. 40 CFR 141.2

Haloacetic acid (HAA): one of the family of organic compounds named as a derivative of acetic acid, wherein one to three hydrogen atoms in the methyl group in acetic acid are each substituted by a halogen atom (namely, chlorine and bromine) in the molecular structure.

Haloacetic acids (five) (HAA5): the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two significant figures after addition. 40 CFR 141.2

Heterotrophic plate count (HPC): a procedure for estimating the number of heterotrophic bacteria in water, measured as the number of colony forming units per 100 mL.

Information Processing and Management Center (IPMC): a receiving, processing, and mailing facility with a web-based data management system that allows EPA and states to access, track, and respond to IDSE submissions.

Locational running annual average (LRAA): the average of sample results taken at a particular monitoring location during the previous four calendar quarters. 40 CFR 141.2

Maximum contaminant level (MCL): the maximum permissible level of a contaminant in water which is delivered to any user of a public water system. 40 CFR 141.2

Maximum contaminant level goal (MCLG): the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. Maximum contaminant level goals are nonenforceable health goals. 40 CFR 141.2

Mixing Zone: an area in the distribution system where water flowing from two or more different sources blend.

Monitoring site: the location where samples are collected.

Non-community water system: a public water system that is not a community water system. A non-community water system is either a “transient non-community water system (TNCWS)” or a “non-transient non-community water system (NTNCWS) 40 CFR 141.2

Non-transient non-community water system (NTNCWS): a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year. 40 CFR 141.2

Population served: the retail number of people served by a water system. Systems typically work with their State to determine population served for compliance purposes. Note that IDSE and Stage 2 compliance monitoring requirements (e.g., number of samples and sampling frequency) are based on the population served by the water system. IDSE and Stage 2 compliance monitoring schedules, however, are based on the largest population served by systems in the combined distribution system. If you do not know the population of your system, ask your state.

Public water system (PWS): a system for the provision to the public of water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least 60 days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any “special irrigation district.” A public water system is either a “community water system” or a “noncommunity water system. 40 CFR 141.2

Residence time: the time period lasting from when the water is treated to a particular point in the distribution system. Also referred to as water age.

Residual disinfection: also referred to as “secondary disinfection.” The process whereby a disinfectant (typically Chlorine or Chloramines) is added to finished water in order to maintain a disinfection residual in the distribution system.

State: the agency of the State or Tribal government which has jurisdiction over public water systems. During any period when a State or Tribal government does not have primary enforcement responsibility pursuant to Section 1413 of the Safe Drinking Water Act, the term “State” means the Regional Administrator, U.S. Environmental Protection Agency. 40 CFR 141.2

Subpart H systems: public water systems using surface water or ground water under the direct influence of surface water as a source that are subject to the requirements of 40 CFR 141 Subpart H (the Surface Water Treatment Rule). 40 CFR 141.2

Surface water: all water which is open to the atmosphere and subject to surface runoff. 40 CFR 141.2

Total chlorine residual: the sum of combined chlorine (chloramine) and free available chlorine residual.

Total trihalomethanes (TTHM): the sum of the concentration in milligrams per liter of the trihalomethane compounds (trichloromethane [chloroform], dibromochloromethane, bromodichloromethane, and tribromomethane [bromoform]), rounded to two significant figures. 40 CFR 141.2

Tracer study: a procedure for estimating hydraulic properties of the distribution system, such as residence time. Where more than one water source feeds the distribution system, tracer studies can be used to determine the zone of influence of each source.

Transient Non-Community Water System (TNCWS) - a non-community water system that does not regularly serve at least 25 of the same persons over six months per year. 40 CFR 141.2

Trihalomethane (THM): one of the family of organic compounds named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure. 40 CFR 141.2

Water distribution system model: a computer program that can simulate the hydraulic, and in some cases, water quality behavior of water in a distribution system.

Wholesale system: a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems. 40 CFR 141.2

1.0 Introduction

This chapter covers:

- 1.1 Getting Started (*Read this Section First*)
- 1.2 Overview of IDSE Options
- 1.3 Early Implementation Process

The Administrator of the EPA signed the Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR) on December 15, 2005 and it was published in the Federal Register on January 4, 2006 (71 FR 388). This rule applies to all community and non-transient noncommunity water systems that provide disinfected water (other than water disinfected only by Ultraviolet [UV] light) to their customers. The rule has two primary sections. Subpart U is referred to as the Initial Distribution System Evaluation (IDSE) section. The requirements of this part of the rule are discussed in this manual. Subpart V, the Stage 2 Disinfection Byproducts Requirements, is referred to as Stage 2 Compliance Monitoring in this guidance manual. Stage 2 Compliance Monitoring Requirements are an extension of the Stage 1 DBPR. Note that systems that are exempt from the IDSE portion of the rule may not be exempt from the Stage 2 Compliance Monitoring section.

EPA developed this **Initial Distribution System Evaluation (IDSE) Guide for Systems Serving < 10,000 People** to help these small systems meet the IDSE requirements of the Stage 2 DBPR. System personnel should start by reading Section 1.1 to answer basic questions about the IDSE, select the appropriate guidance materials to meet IDSE requirements, and get instructions on how to use this manual.

1.1 Getting Started



Read this Section First

1.1.1 What is the IDSE? What is its purpose?

IDSEs are an important part of the Stage 2 DBPR. They are one-time studies conducted by water systems to identify distribution system locations with high concentrations of trihalomethanes (THMs) and haloacetic acids (HAAs). Water systems will use results from the IDSE, in conjunction with their Stage 1 DBPR compliance monitoring data, to select compliance monitoring locations for the Stage 2 DBPR.

1.1.2 Do I have to conduct an IDSE?

Community water systems (CWS) serving fewer than 10,000 people are subject to the IDSE requirements of the Stage 2 DBPR if they use a primary or residual disinfectant other than

ultraviolet light (UV), or are a consecutive system that delivers water that has been treated with a primary or residual disinfectant other than UV.

IDSE requirements do not apply to NTNCWSs serving fewer than 10,000 people, although these systems have other requirements under the Stage 2 DBPR. Transient non-community water systems (TNCWSs) *are not* subject to any part of the Stage 2 DBPR.

There are **four options** systems can use to comply with the IDSE requirements of the Stage 2 DBPR:

- Qualify for a Very Small System (VSS) Waiver
- Meet 40/30 Certification requirements
- Conduct Standard Monitoring
- Conduct a System Specific Study (SSS) using existing monitoring results or a distribution system hydraulic model

The first three options are described briefly in Section 1.2 of this chapter, with further details provided in the remainder of this guidance manual. Because small systems are less likely to conduct an SSS, this option is not covered in this guidance manual. However, if interested, you can find information about this option in other materials discussed below.

1.1.3 What guidance materials are available for the IDSE?

EPA has developed two guidance manuals and an on-line tool to help you comply with the IDSE requirement. The manual you are reading is targeted to smaller systems and focuses on information they are most likely to use. It covers VSS waivers, 40/30 certifications for systems with low DBP levels, and standard monitoring. As mentioned previously, this manual does not discuss the SSS option of the IDSE.

In addition to this *IDSE Guide for Systems Serving < 10,000 People*, EPA has developed the *The Initial Distribution System Evaluation (IDSE) Guidance Manual*. The IDSE Guidance Manual is comprehensive and contains technical guidance for all system sizes and types and all IDSE options (including System Specific Studies). If you already have extensive TTHM and HAA5 monitoring results and/or a hydraulic model of your distribution system, you should read the IDSE Guidance Manual to determine if you qualify for the SSS option to meet IDSE requirements.

EPA has also developed the **IDSE Tool**, available on-line at <http://www.epa.gov/safewater/disinfection/stage2> and on CD. The IDSE tool walks systems through the entire IDSE process, and it can be used in place of the IDSE guidance manuals. It contains a **Wizard** you can use to determine your requirements and select the best IDSE option for your system. The tool then creates **Custom Forms** for your system size and type that can be submitted electronically for EPA or state review. See Section 1.3 for more information. Exhibit 1.1 shows the IDSE Tool home page.

Exhibit 1.1 IDSE Tool Home Page



[Help](#) [Print](#)

Welcome to the IDSE Tool!

The Initial Distribution System Evaluation (IDSE) Tool is an application designed to assist Public Water Systems in determining two things:

1. If IDSE Requirements apply
2. If so, what to do to fulfill the requirements.

The IDSE Tool provides access to a wizard to help you determine requirements as well as an entry portion to assist in creating and submitting a plan and/or report.

If you prefer to work offline, you can download a desktop version of the IDSE Tool. However, the desktop version has limited functionality (i.e. general information about your system will not be automatically filled in, you cannot submit completed plans and/or reports online). To download the desktop version, click here.

Instructions:

The IDSE Tool provides you with the ability to determine what, if any, IDSE Requirements apply to your Public Water System. If you already know which IDSE option is best for your system, select the Plan/Report Entry button below. If you are not sure what your requirements are or which IDSE option is best for you, then select the Begin Wizard button.

You should have your schedule information letter sent by EPA or their State with you while going through the IDSE Wizard as some questions refer to the letter. Systems that EPA or the State anticipate are on schedules 1 or 2 should receive a letter in January 2006. Systems that EPA or the State anticipate are on schedules 3 or 4 should receive a letter in July 2006. If you did not receive a letter, you can still use the IDSE Tool. However, if you buy or sell water (i.e. you are part of a combined distribution system), you will need to call EPA or your state to determine your compliance schedule for the IDSE. To identify your point of contact, click here.

NOTE: You will not be able to go back to a previous question once you have answered a question. If you feel that you have answered a question incorrectly or if you would like to work through the wizard more than once, click the Home button to begin the wizard again.

Go To Plan/Report Entry

(I know what my requirements are)

If you know which plan and / or report you would like to fill out, select the button below to go directly to the Plan/Report Entry portion of the IDSE Tool. You will be taken to the CDX login page. If you have an existing CDX account, please login. If you are a new user, select "register with CDX" to create a username and password. This login ensures the information you submit is secure, and also allows you to save your work so you don't have to complete your entire plan or report all at once.

[Plan/Report Entry](#)

Go To Wizard

(I am not sure what my requirements are)

The wizard will help you determine if the IDSE requirements apply to your system and if so, what you have to do to meet the requirements. The wizard will ask you a series of questions. Based on your response the wizard will determine the next question as well as which requirements apply to you. Once completed, the wizard will provide you with a results screen that will display your schedule and the best IDSE option for your system based on your responses. You will also be able to continue to the Plan/Report Entry portion from the results screen. Click the button below to begin.

[Begin Wizard](#)

This *IDSE Guide for Systems Serving < 10,000 People*, the *IDSE Guidance Manual*, and the IDSE Tool address only IDSE requirements and DO NOT cover other provisions of the Stage 2 DBPR. For additional guidance on implementing the Stage 2 DBPR, you can refer to the following EPA materials:

- *The Stage 2 DBPR Quick Reference Guide*
- *Stage 2 Disinfectant and Disinfection Byproducts Rule: Small Entity Compliance Guide – One of the Simple Tools for Effective Performance (STEP) Guide Series (draft version)*

EPA will be releasing draft versions of additional Stage 2 DBPR guidance manuals soon, including *The Consecutive Systems Guidance Manual*, *The Simultaneous Compliance Guidance Manual*, and *The Operational Evaluation Guidance Manual*. Your state may have additional, state-specific materials to assist you in complying with the Stage 2 DBPR.

1.1.4 How can I get copies of EPA guidance materials?

- You can download guidance manuals and fact sheets from EPA's Web site at <http://www.epa.gov/safewater/disinfection/stage2>.
- You can call the Safe Drinking Water Hotline at 1-800-426-4791
- You can call the National Service Center for Environmental Publications at 1-800-490-9198 or visit their Web site at <http://www.epa.gov/ncepihom>.

Also, you may wish to contact your state drinking water program office for additional guidance.

1.1.5 How do I use this guidance manual?

To help you find information quickly, EPA has designed this manual in a **modular format**. Exhibit 1.2 lists the chapters and appendices in this manual. Chapters 1 and 2 contain information for all systems. After reading Chapter 1, you should go to Chapter 2 to determine your IDSE schedule and option using the **flowchart** in Exhibit 2.3. Chapter 2 also contains **requirements summary sheets** for your IDSE option and schedule. These sheets contain compliance deadlines for IDSE submissions and other important information. You should make a copy of your requirements summary sheet(s) and keep them handy throughout the IDSE process.

After you have determined your IDSE option and schedule, you only need to refer to **Chapter 3, 4, or 5** of this manual for guidance on all of your IDSE requirements. If you are a **consecutive or wholesale system**, you should refer to Appendix A for specific issues that you should consider.

Exhibit 1.2 Organization of the IDSE Guide for Systems Serving < 10,000

Chapter 1	Introduction
Chapter 2	Determining Your IDSE Schedule and Option
Chapter 3*	Very Small System Waiver
Chapter 4*	40/30 Certification
Chapter 5*	Standard Monitoring
Appendix A	Consecutive and Wholesale System Issues
Appendix B	Example IDSE Standard Monitoring Plan and Report for a Surface Water System Serving 6,000 People

* You need **one** of these Chapters for the IDSE

Note: Technical appendices related to DBP formation and TTHM and HAA5 sampling protocol as well as Stage 2 and LT2ESWTR compliance schedules are available in the IDSE Guidance Manual.

1.2 Overview of IDSE Options

There are four options available to systems to meet IDSE requirements. Your option will depend on your technical resources, existing monitoring results, size, and preference.

- **Very Small System (VSS) Waiver.** Systems serving fewer than 500 people that have TTHM and HAA5 data automatically receive the VSS waiver unless they are notified by EPA or their state that they must conduct an IDSE. Systems receiving the VSS waiver have no further IDSE requirements.
- **40/30 Certification.** Systems can fulfill the IDSE requirements by certifying that all individual TTHM and HAA5 monitoring results for compliance with the Stage 1 DBPR are less than or equal to 0.040 mg/L for TTHM and 0.030 mg/L for HAA5 during a prescribed 2-year time period. In addition, the system must not have had any Stage 1 DBPR monitoring violations for TTHM and HAA5 during the same period. The system must submit the required 40/30 certification and, unless told otherwise by EPA or their state, they have no further requirements under the IDSE.
- **Standard Monitoring.** Any system can choose to conduct standard monitoring, even if they receive a VSS or qualify for the 40/30 certification. Standard monitoring entails 1 year of distribution system monitoring at multiple locations (in addition to Stage 1 DBPR monitoring). The required sampling frequency and minimum number of sample locations depend on population served and source water type. Systems conducting standard monitoring must prepare a standard monitoring plan and IDSE report.
- **System Specific Study (SSS).** Systems can meet IDSE requirements using existing monitoring results or a hydraulic model if their data or model meet certain minimum criteria. Systems conducting an SSS must prepare an SSS plan and IDSE report. Refer to the *IDSE Guidance Manual* if you are considering this option.

1.3 Early Implementation Process

Because IDSE activities begin soon after the Stage 2 DBPR is finalized, EPA and states will be working together to implement the IDSE. To facilitate review and processing of IDSE submissions, EPA has created the **Information Processing and Management Center (IPMC)**. The IPMC is both a receiving facility and a web-based data management system that allows EPA and states to access, track, and respond to IDSE submissions.

The IPMC is password protected and accessible only by EPA and state drinking water representatives. IDSE submissions will not, however, be considered confidential business information (CBI) and are subject to the Freedom of Information Act (FOIA). ***Therefore, your IDSE submissions should not contain information that poses a security risk to your system.*** Chapter 5 of this manual provide guidelines on the kinds of information you may want to exclude from your distribution system schematic for security reasons.

One advantage of the IPMC is that it provides a one-stop location for IDSE submissions. Regardless of whether EPA or your state is reviewing your IDSE materials, all submissions go to the same address. See Exhibit 1.3 for ways in which you can submit IDSE materials to the IPMC.

If you have questions during the IDSE, you should visit EPA’s website at <http://www.epa.gov/safewater/disinfection/stage2> to determine the contact name and phone number for the IDSE for your state. You can also call the Safe Drinking Water Hotline at 1-800-426-4791 for this information.



Exhibit 1.3 Options for Submitting IDSE Material to EPA and States Through the IPMC

Option 1	Option 2	Option 3
Use the IDSE Tool to submit completed certifications, plans and reports electronically	Mail paper copies of submissions to: STAGE 2 DBPR US EPA-IPMC P O Box 98 Dayton, OH 45401-0098	E-mail electronic submissions as attachments to: stage2mdbp@epa.gov

Note:

1. You can use one of these three options to submit IDSE materials to the IPMC.

The IPMC accepts a variety of electronic formats:

- Adobe PDF file (*.pdf)
- Microsoft Word (*.doc)
- WordPerfect (*.wpd)
- Image files (*.gif, *.bmp, *.jpg, *.jpeg)
- Microsoft Excel (*.xls)
- Text file (*.txt)

2.0 Determining Your IDSE Schedule and Option

This chapter covers:

- 2.1 System Characteristics that Affect IDSE Requirements
- 2.2 Determining Your IDSE Schedule
- 2.3 Determining Your IDSE Option
- 2.4 IDSE Requirements Summary Sheets

2.1 System Characteristics that Affect IDSE Requirements

Your IDSE schedule, option, and other requirements depend on your system characteristics. In general, there are three system characteristics that drive IDSE requirements:

- Whether you are a subpart H system or a ground water system.
- The population served by your system.
- If you are a consecutive or wholesale system, the population served by the largest system in your combined distribution system.

Regulatory definitions for subpart H systems, consecutive systems, wholesale systems, and combined distribution systems are provided in the **definitions section** at the beginning of this guidance manual. Appendix A provides additional discussion of important definitions for consecutive and wholesale systems.

2.2 Determining Your IDSE Schedule

EPA has established four IDSE compliance schedules, summarized in the table in Exhibit 2.1. If you are a ***consecutive or wholesale system***, your schedule is based on the population served by the largest system in your ***combined distribution system***. If you are not a consecutive or wholesale system, your schedule is based on the population served by your individual system. EPA and your state have worked together to identify which systems are part of combined distribution systems.

Exhibit 2.1 IDSE Schedule Number

<i>If you are this kind of system:</i>	<i>You are on IDSE schedule number</i>	<i>Your first deadline is</i>
Systems belonging to a combined distribution system in which the largest system serves 100,000 people or more	1	October 1, 2006
Systems belonging to a combined distribution system in which the largest system serves 50,000 to 99,999 people	2	April 1, 2007
Systems belonging to a combined distribution system in which the largest system serves 10,000 to 49,999 people	3	October 1, 2007
Systems serving fewer than 10,000 people and not connected to a system serving 10,000 people or more	4	April 1, 2008

Every system that is subject to the Stage 2 DBPR should receive a **letter** from EPA or the state with information on the Stage 2 DBPR and a determination of IDSE schedule (i.e., schedule 1, 2, 3, or 4). Exhibit 2.2 is an example of a letter sent by EPA to a system on schedule 1. Letters from states and letters to systems on other schedules look similar. Systems that EPA or the state anticipates are on schedules 1 and 2 should receive a letter in February 2006. Systems that EPA or the state anticipates are on schedules 3 and 4 should receive a letter in July 2006. States determined your schedule based on their records on your population served and connections to other systems. You should make sure the schedule determination in the letter is consistent with your system size, source water type, and buying / selling relationships with other systems before proceeding.

Some systems may be planning treatment changes before, during, or after the IDSE. Most treatment plant modifications should not impact the relative formation of DBPs in your distribution system. There are no provisions in the Stage 2 DBPR that allow the IDSE schedule to be changed or delayed¹. Not meeting the IDSE compliance deadlines in your requirements summary sheets results in a Tier 3 monitoring and reporting violation for your system.

¹ The Stage 2 DBPR contains provisions that allow systems to modify their Stage 2 DBPR compliance monitoring plan after their IDSE has been completed. Systems should work with their state if they believe that their Stage 2 compliance monitoring sites should be changed after their IDSE is completed.

Exhibit 2.2 Example Letter from EPA to System on Schedule 1



System Name
System Address
City State Zip

January 31, 2006

★★★ Important New Rule Roll Out ★★★
Stage 2 Disinfectants and Disinfection Byproduct Rule (Stage 2 DBPR)

This letter applies to those systems serving 100,000 or more people OR those systems in which the largest system in their combined distribution system serves 100,000 or more people. These systems may also be referred to as Schedule 1 systems.

This letter is the third in a series of communications to inform you of the Stage 2 DBPR requirements. The Rule was published in the *Federal Register* on January 4, 2006. The Stage 2 DBPR builds on existing regulations by requiring water systems to meet disinfection byproduct maximum contaminant levels (MCLs) **at each disinfection byproduct monitoring site in the distribution system** to better protect public health. All community water systems (CWSs) and non-transient noncommunity water systems (NTNCWSSs) that use or deliver water treated with a primary or residual disinfectant other than ultraviolet light are subject to the Stage 2 DBPR requirements. However, NTNCWS, serving less than 10,000 people do not have to comply with the Initial Distribution System Evaluation (IDSE) requirements (see below for an explanation of IDSE). An electronic copy of the Stage 2 DBPR can be downloaded from EPA's website at www.epa.gov/safewater/disinfection/stage2.

The first major requirement of the Stage 2 DBPR is for systems to conduct an IDSE. The purpose of the IDSE is to identify locations in the distribution system that have the highest trihalomethane (TTHM) and highest haloacetic acid (HAA5) concentrations. The locations in the distribution system with the highest TTHM and highest HAA5 concentrations will be used as Stage 2 DBPR compliance monitoring sites.

EPA and State records show that your system is required to comply with Schedule 1 IDSE requirements. These requirements are based on the information that your system:

- Serves 100,000 or more people (or those systems those systems in which the largest system in your combined distribution system serves 100,000 or more people); and
- Provides water that has been treated with a primary or residual disinfectant other than ultraviolet light.

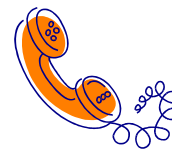
If you believe our records are incorrect please notify us at stage2mdbp@epa.gov as soon as possible.

By October 1, 2006, Schedule 1 systems will have to comply with IDSE requirements by submitting a standard monitoring plan, system specific study plan, or a 40/30 certification. Systems that qualify for a very small system waiver would be exempt from this IDSE requirement.

(Continued)

Whom should I call if I don't receive my letter?

To identify your point of contact for the IDSE, visit EPA's website at <http://www.epa.gov/safewater/disinfection/stage2>. The website contains a list of contact numbers for the IDSE by state. You can also call the EPA SDWA hotline at 1-800-426-4791 for this information.



2.3 Determining Your IDSE Option

There are four options available to meet the requirements of the IDSE:

- Qualify for a Very Small System (VSS) Waiver
- Meet 40/30 Certification requirements
- Conduct a System Specific Study (SSS) using existing monitoring results or a hydraulic model
- Conduct Standard Monitoring

You can use the flowchart in Exhibit 2.3 to help you determine the right IDSE option for your system. Example 2.1 shows how a surface water system serving 4,000 people used the information in this chapter to determine their requirements.

The **IDSE Tool** works through the flowchart to determine the most suitable IDSE Option for your system. The tool is available on EPA's website at <http://www.epa.gov/safewater/disinfection/stage2>.



2.4 IDSE Requirements Summary Sheets

EPA has prepared **Requirements Summary Sheets** that contain key information and compliance deadlines for each IDSE schedule and option. A list of requirements summary sheets and their page numbers is provided in Exhibit 2.4 and in the table of contents of this guidance manual. EPA recommends that you **make a copy of** the requirements summary sheet for your IDSE schedule and option and keep it handy throughout the IDSE process.

How does population served affect my IDSE requirements?

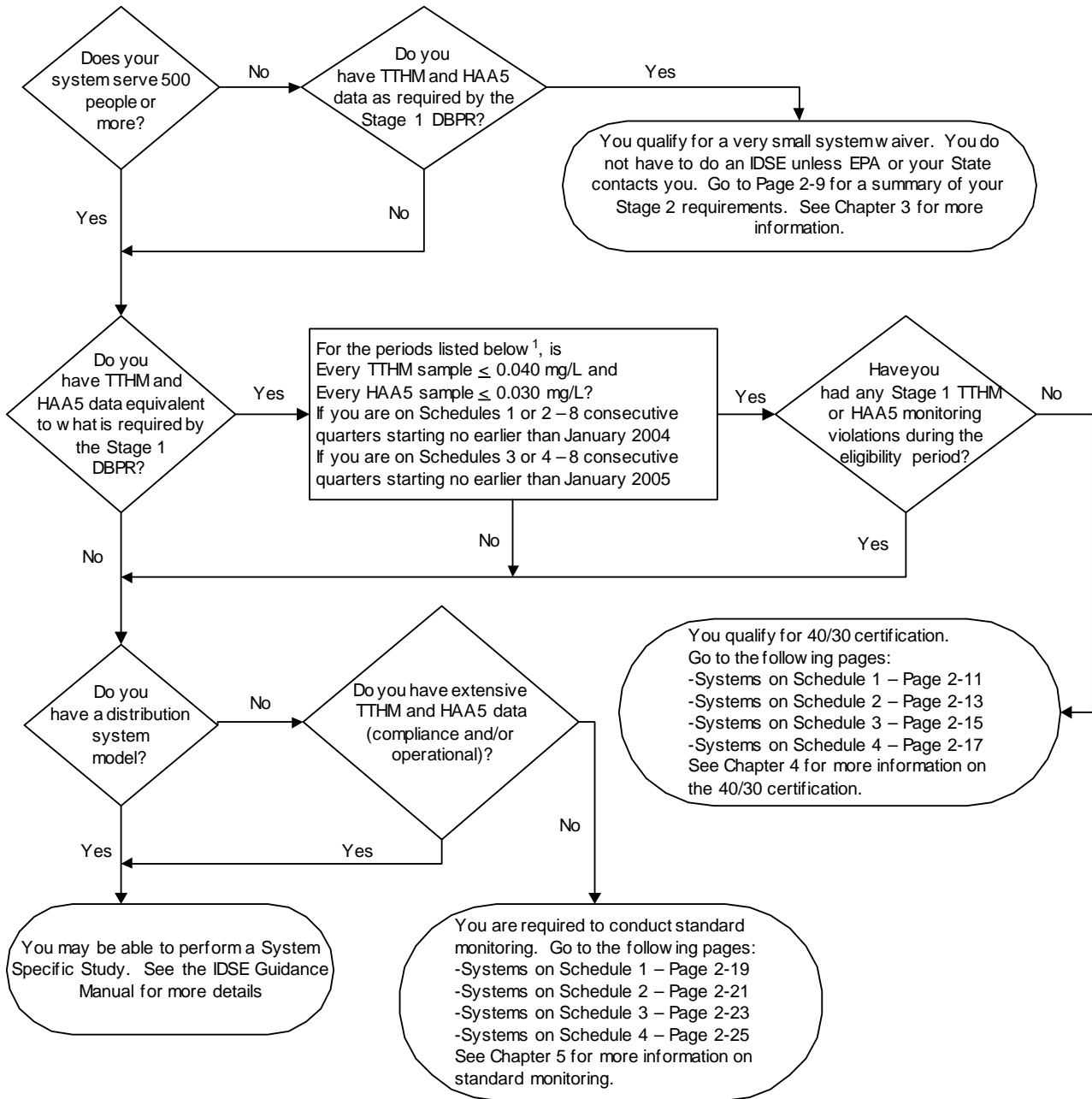
IDSE Schedule

- If you are a consecutive or wholesale system, your IDSE schedule is based on the population served by the largest system in your combined distribution system and is designated in a **letter** from EPA or your state.
- If you are not a consecutive or wholesale system, your IDSE schedule is based on the population served by your system.

IDSE Monitoring

- For all systems, IDSE monitoring locations and sampling frequency are based on the population served by your individual system.
-

Exhibit 2.3 Flowchart for Determining Your IDSE Option



¹Unless you are on reduced monitoring for Stage 1 and were not required to monitor during the specified period. If you did not monitor during the specified period, you must base your eligibility on compliance samples taken during the 12 months preceding the specified period.

Example 2.1 Determining IDSE Requirements for a Consecutive System Serving 4,000 People

System X is a consecutive system serving 4,000 people. They purchase all of their water from System Y, which is a wholesale surface water system that serves their own retail population of 110,000 people. System X received a letter from their state notifying them of the new Stage 2 DBPR and stating that they are on **Schedule 1**. System X called System Y right away to confirm that they were on the same schedule.

Next, System X began working through the flowchart in Exhibit 2.3 of the IDSE Guide for Systems Serving < 10,000 to determine their IDSE option.

- They serve more than 500 people and cannot qualify for the VSS waiver.
- Their Stage 1 DBPR monitoring results for TTHM were between 45 and 70 micrograms per liter ($\mu\text{g/L}$), so they did not qualify for the 40/30 certification.
- System X does not have a hydraulic model or extensive existing TTHM an HAA5 data. Therefore System X was required to perform **Standard Monitoring**.

To determine which chapters of the IDSE manual they needed, System X referred to Exhibit 1.2. System X then downloaded Chapters 1, 2, and 5 and Appendices A and B of the IDSE Guide for Systems Serving < 10,000 People from <http://www.epa.gov/safewater/disinfection/stage2> to build their own custom manual. They made a copy of the requirements summary sheet titled "Standard Monitoring - Schedule 1" to keep handy throughout the IDSE process. They began preparing their IDSE Standard Monitoring Plan.

Note: If System X had used the IDSE tool, it would have done these steps for them and created a custom form for their IDSE Standard Monitoring Plan.



Exhibit 2.4 List of Requirements Summary Sheets

Requirement Summary Sheet	Page
Requirements for Very Small System Waivers	2-9
40/30 Certification Requirements - Schedule 1	2-11
40/30 Certification Requirements - Schedule 2	2-13
40/30 Certification Requirements - Schedule 3	2-15
40/30 Certification Requirements - Schedule 4	2-17
Standard Monitoring Requirements - Schedule 1	2-19
Standard Monitoring Requirements - Schedule 2	2-21
Standard Monitoring Requirements - Schedule 3	2-23
Standard Monitoring Requirements - Schedule 4	2-25
Standard Monitoring Requirements - Attachment (For All Schedules)	2-27

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Requirements for Very Small System Waivers

Page 1 of 2

This summary sheet is for systems that:

- Serve fewer than 500 people, and
- Have taken TTHM and HAA5 samples.

WHAT TO DO NOW:

You have **NO** further requirements for the IDSE unless EPA or your state contacts you. If EPA or your state contacts you, they will work with you to determine an appropriate IDSE schedule for your system. See **Chapter 3** for more information.

Continue compliance monitoring for the Stage 1 DBPR until you begin compliance monitoring for the Stage 2 DBPR

NEXT STEPS:

You must start taking Stage 2 DBPR compliance monitoring samples by the deadline listed on the next page. You must prepare a Stage 2 compliance monitoring plan before you take your first compliance sample.

If you have high levels of DBPs, you may need to make system changes to meet the requirements of the Stage 2 DBPR. See **Chapter 1, Section 1.1** of this guidance manual, for a list of additional guidance materials for the Stage 2 DBPR. If you buy water from another public water system, see EPA's *Consecutive System Guidance Manual* for more information.

Reminder:

Your requirements for Stage 2 DBPR compliance monitoring (locations and frequency) are based on the population served by your system and are listed on the next page.

Stage 2 DBPR Compliance Monitoring Deadlines

Schedule (population served) ¹	Year in Which You Must Begin Stage 2 Compliance Monitoring
Schedule 1 (≥ 100,000)	2012
Schedule 2 (50,000 - 99,999)	2012
Schedule 3 (10,000 - 49,999)	2013
Schedule 4 (< 10,000)	2013 or 2014 ²

¹ If you are a consecutive or wholesale system, your schedule is based on the largest system in your combined distribution system. You should have received a letter from EPA or your state with your schedule for the Stage 2 DBPR.

² 2014 if *Cryptosporidium* monitoring is required under 141.701(a)(4) or (a)(6).

Stage 2 DBPR Compliance Monitoring Requirements

Source Water Type	Population Size Category ¹	Monitoring Frequency ²	Distribution System Monitoring Location ³
Subpart H	<500	per year	2
Ground Water	<500	per year	2

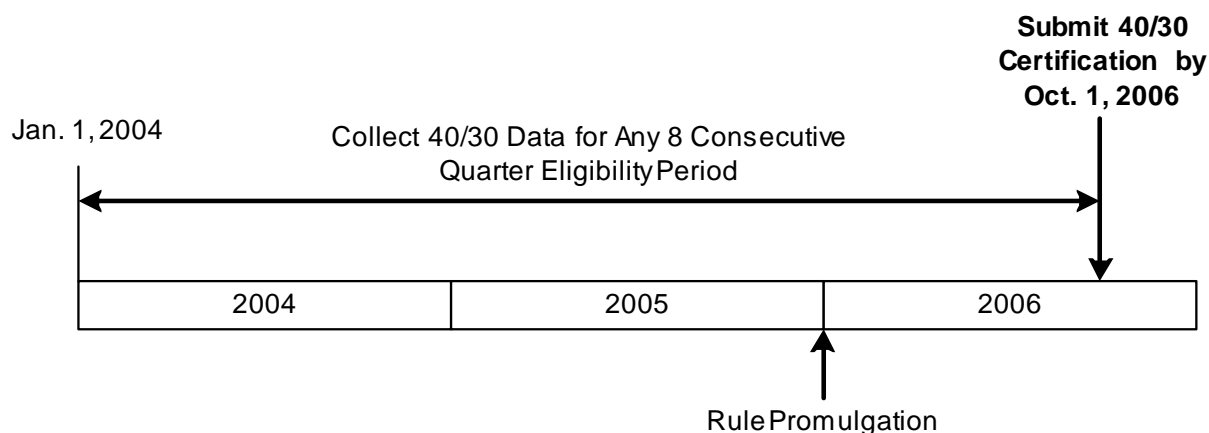
¹ Your monitoring requirements (location and frequency) are based on the population served by your individual system.

² You must monitor during the month of highest DBP concentrations.

³ You are required to take individual TTHM and HAA5 samples at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location and month.

40/30 Certification Requirements - Schedule 1

Page 1 of 2



This summary sheet is for systems that satisfy all of the following requirements for any **8 consecutive quarter eligibility period** beginning no earlier than **January 2004**:

- You are part of a combined distribution system where the largest system serves 100,000 people or more
- You have TTHM and HAA5 data equivalent to what is required by the Stage 1 DBPR
- No individual sample exceeds 0.040 mg/L for TTHM
- No individual sample exceeds 0.030 mg/L for HAA5
- Your system did not have any TTHM or HAA5 monitoring violations

WHAT TO DO NOW:

1. Prepare a certification letter

Due: October 1, 2006

You must submit the certification letter to the address or e-mail provided below, or use the **IDSE Tool** to prepare and submit your certification letter. Note that EPA or your state could contact you and require more information, or require you to conduct an IDSE.

For more information and letter templates:

See **Chapter 4** of this guidance manual. If you are a consecutive or wholesale system, see Appendix A of this guidance manual. A template you can use for your 40/30 certification letter is included on Page 4-4. If you would like an electronic template, use the **IDSE Tool**, available at <http://www.epa.gov/safewater/disinfection/stage2>.



2. Mail your 40/30 certification letter to:

STAGE 2 DBPR
US EPA-IPMC
P O Box 98
Dayton, OH 45401-0098

Email to stage2mdbp@epa.gov or submit electronically via the IDSE tool

3. Continue compliance monitoring for the Stage 1 DBPR until you begin compliance monitoring for the Stage 2 DBPR.

NEXT STEPS:

You have additional Stage 2 DBPR requirements. You must:

- Select Stage 2 DBPR compliance monitoring sites
- Develop a Stage 2 compliance monitoring plan before you take your first compliance sample. If you are a subpart H system and you serve more than 3,300 people, you need to submit your plan to the state.
- Begin annual or quarterly Stage 2 compliance monitoring during the period starting with **April 2012**, according to your Stage 2 compliance monitoring plan.

See **Chapter 1, Section 1.1** of this guidance manual for a list of additional guidance materials for the Stage 2 DBPR.

Reminder:

Your requirements for Stage 2 compliance monitoring are based on the population of your system and are listed below.

Stage 2 DBPR Compliance Monitoring Requirements

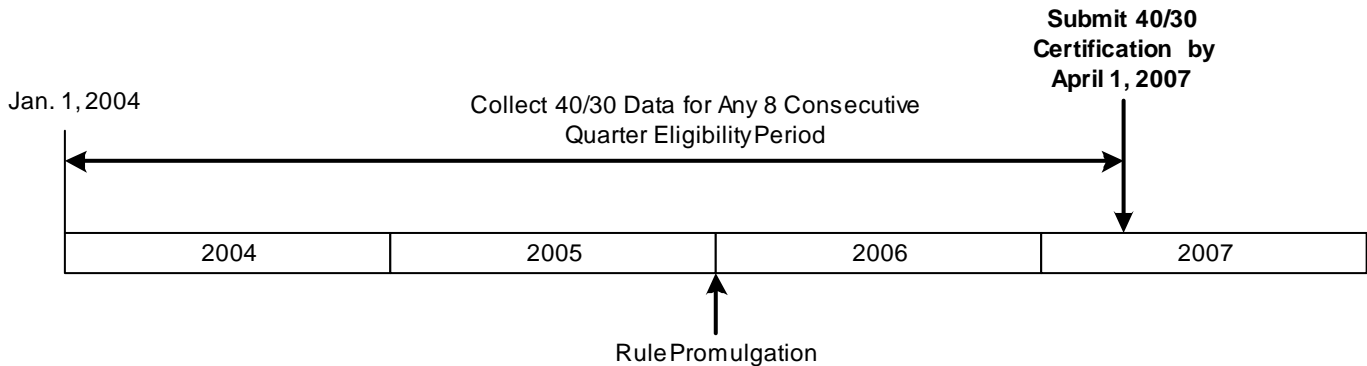
Source Water Type	Population Size Category ¹	Monitoring Frequency ²	Distribution System Monitoring Location		
			Total per monitoring period ³	Highest TTHM Locations	Highest HAA5 Locations
Subpart H	<500	per year	2	1	1
	500-3,300	per quarter	2	1	1
	3,301-9,999	per quarter	2	1	1
Ground Water	<500	per year	2	1	1
	500-9,999	per year	2	1	1

¹ Your monitoring requirements (location and frequency) are based on the population served by your system.

² All systems must monitor during month of highest DBP concentrations.

³ Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for subpart H systems serving 500-3,300. Systems on annual monitoring and subpart H systems serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5 concentrations occur at the same location (and month, if monitored annually).

40/30 Certification Requirements - Schedule 2



This summary sheet is for systems that satisfy all of the following requirements for any **8 consecutive quarter eligibility period** beginning no earlier than **January 2004**:

- You are part of a combined distribution system where the largest system serves 50,000-99,999 people
- You have TTHM and HAA5 data equivalent to what is required by the Stage 1 DBPR
- No individual sample exceeds 0.040 mg/L for TTHM
- No individual sample exceeds 0.030 mg/L for HAA5
- Your system did not have any TTHM or HAA5 monitoring violations

WHAT TO DO NOW:

1. Prepare a certification letter

Due: April 1, 2007

You must submit the certification letter to the address or e-mail provided below, or use the **IDSE Tool** to prepare and submit your certification letter. Note that EPA or your state could contact you and require more information, or require you to conduct an IDSE.

For more information and letter templates:

See **Chapter 4** of this guidance manual. If you are a consecutive or wholesale system, see Appendix A of this guidance manual. A template you can use for your 40/30 certification letter is included on Page 4-4. If you would like an electronic template, use the **IDSE Tool**, available at <http://www.epa.gov/safewater/disinfection/stage2>.



IDSE Tool

2. Mail your 40/30 certification letter to:

STAGE 2 DBPR
US EPA-IPMC
P O Box 98
Dayton, OH 45401-0098

Email to stage2mdbp@epa.gov or submit electronically via the IDSE tool

3. Continue compliance monitoring for the Stage 1 DBPR until you begin compliance monitoring for the Stage 2 DBPR.

NEXT STEPS:

You have additional Stage 2 DBPR requirements. You must:

- Select Stage 2 compliance monitoring sites
- Develop a Stage 2 compliance monitoring plan before you take your first compliance sample. If you are a subpart H system and you serve more than 3,300 people, you need to submit your plan to the state.
- Begin annual or quarterly Stage 2 compliance monitoring during the period starting with **October 2012**, according to your Stage 2 compliance monitoring plan.

See **Chapter 1, Section 1.1** of this guidance manual for a list of additional guidance materials for the Stage 2 DBPR.

Reminder:

Your requirements for Stage 2 compliance monitoring are based on the population of your system and are listed below.

Stage 2 DBPR Compliance Monitoring Requirements

Source Water Type	Population Size Category ¹	Monitoring Frequency ²	Distribution System Monitoring Location		
			Total per monitoring period ³	Highest TTHM Locations	Highest HAA5 Locations
Subpart H	<500	per year	2	1	1
	500-3,300	per quarter	2	1	1
	3,301-9,999	per quarter	2	1	1
Ground Water	<500	per year	2	1	1
	500-9,999	per year	2	1	1

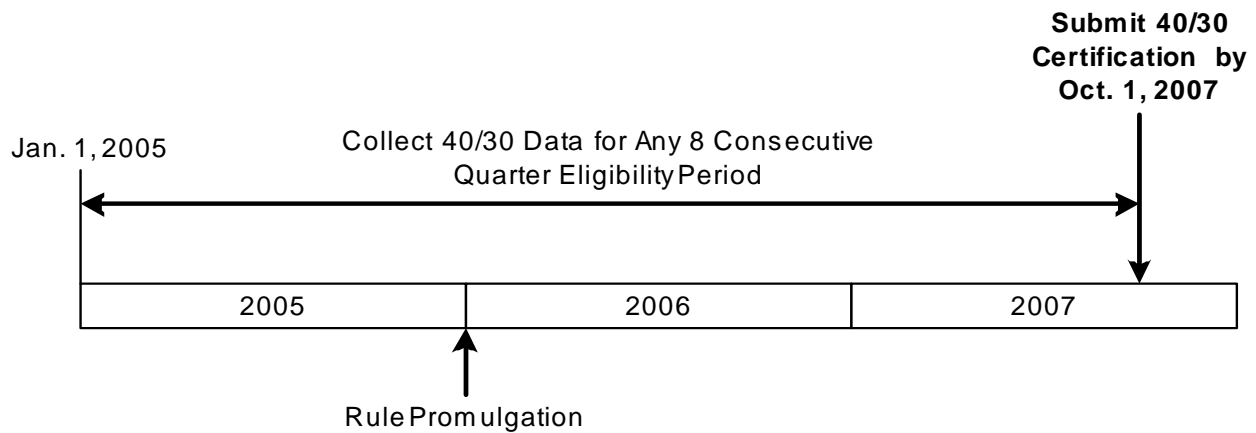
¹ Your monitoring requirements (location and frequency) are based on the population served by your system.

² All systems must monitor during month of highest DBP concentrations.

³ Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for subpart H systems serving 500-3,300. Systems on annual monitoring and subpart H systems serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5 concentrations occur at the same location (and month, if monitored annually).

40/30 Certification Requirements - Schedule 3

Page 1 of 2



This summary sheet is for systems that satisfy all of the following requirements for any **8 consecutive quarter eligibility period** beginning no earlier than **January 2005**:

- You are part of a combined distribution system where the largest system serves 10,000-49,999 people
- You have TTHM and HAA5 data equivalent to what is required by the Stage 1 DBPR
- No individual sample exceeds 0.040 mg/L for TTHM
- No individual sample exceeds 0.030 mg/L for HAA5
- Your system did not have any TTHM or HAA5 monitoring violations

WHAT TO DO NOW:

1. Prepare a certification letter

Due: October 1, 2007

You must submit the certification letter to the address or e-mail provided below, or use the **IDSE Tool** to prepare and submit your certification letter. Note that EPA or your state could contact you and require more information, or require you to conduct an IDSE.

For more information and letter templates:

See **Chapter 4** of this guidance manual. If you are a consecutive or wholesale system, see Appendix A of this guidance manual. A template you can use for your 40/30 certification letter is included on Page 4-4. If you would like an electronic template, use the **IDSE Tool**, available at <http://www.epa.gov/safewater/disinfection/stage2>.



2. Mail your 40/30 certification letter to:

STAGE 2 DBPR
US EPA-IPMC
P O Box 98
Dayton, OH 45401-0098

Email to stage2mdbp@epa.gov or submit electronically via the IDSE tool

3. Continue compliance monitoring for the Stage 1 DBPR until you begin compliance monitoring for the Stage 2 DBPR.

NEXT STEPS:

You have additional Stage 2 DBPR requirements. You must:

- Select Stage 2 compliance monitoring sites
- Develop a Stage 2 compliance monitoring plan before you take your first compliance sample. If you are a subpart H system and you serve more than 3,300 people, you need to submit your plan to the state.
- Begin annual or quarterly Stage 2 compliance monitoring during the period starting with **October 2013**, according to your Stage 2 compliance monitoring plan.

See **Chapter 1, Section 1.1** of this guidance manual for a list of additional guidance materials for the Stage 2 DBPR.

Reminder:

Your requirements for Stage 2 compliance monitoring are based on the population of your system and are listed below.

Stage 2 DBPR Compliance Monitoring Requirements

Source Water Type	Population Size Category ¹	Monitoring Frequency ²	Distribution System Monitoring Location		
			Total per monitoring period ³	Highest TTHM Locations	Highest HAA5 Locations
Subpart H	<500	per year	2	1	1
	500-3,300	per quarter	2	1	1
	3,301-9,999	per quarter	2	1	1
Ground Water	<500	per year	2	1	1
	500-9,999	per year	2	1	1

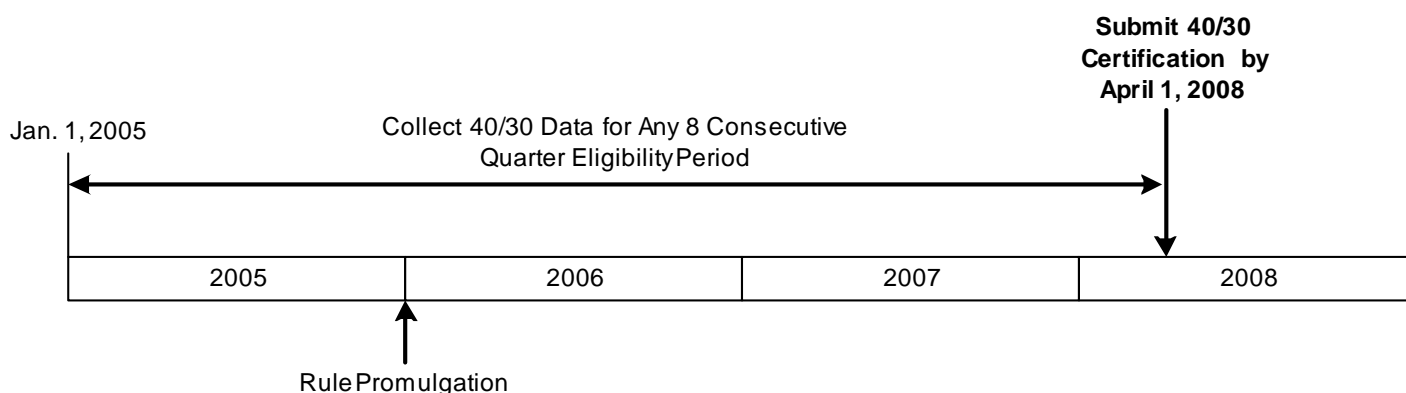
1 Your monitoring requirements (location and frequency) are based on the population served by your system.

2 All systems must monitor during month of highest DBP concentrations.

3 Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for subpart H systems serving 500-3,300. Systems on annual monitoring and subpart H systems serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5 concentrations occur at the same location (and month, if monitored annually).

40/30 Certification Requirements - Schedule 4

Page 1 of 2



This summary sheet is for systems that satisfy all of the following requirements for any **8 consecutive quarter eligibility period** beginning no earlier than **January 2005**:

- You serve fewer than 10,000 people OR are part of a combined distribution system where the largest system serves fewer than 10,000 people
- You have TTHM and HAA5 data equivalent to what is required by the Stage 1 DBPR
- No individual sample exceeds 0.040 mg/L for TTHM
- No individual sample exceeds 0.030 mg/L for HAA5
- Your system did not have any TTHM or HAA5 monitoring violations

WHAT TO DO NOW:

1. Prepare a certification letter

Due: April 1, 2008

You must submit the certification letter to the address or e-mail provided below, or use the **IDSE Tool** to prepare and submit your certification letter. Note that EPA or your state could contact you and require more information, or require you to conduct an IDSE.

For more information and letter templates:

See **Chapter 4** of this guidance manual. If you are a consecutive or wholesale system, see Appendix A of this guidance manual. A template you can use for your 40/30 certification letter is included on Page 4-4. If you would like an electronic template, use the **IDSE Tool**, available at <http://www.epa.gov/safewater/disinfection/stage2>.



2. Mail your 40/30 certification letter to:

STAGE 2 DBPR
US EPA-IPMC
P O Box 98
Dayton, OH 45401-0098

Email to stage2mdbp@epa.gov or submit electronically via the IDSE tool

3. Continue compliance monitoring for the Stage 1 DBPR until you begin compliance monitoring for the Stage 2 DBPR.

NEXT STEPS:

You have additional Stage 2 DBPR requirements. You must:

- Select Stage 2 compliance monitoring sites
- Develop a Stage 2 compliance monitoring plan before you take your first compliance sample. If you are a subpart H system and you serve more than 3,300 people, you need to submit your plan to the state.
- Begin annual or quarterly Stage 2 compliance monitoring during the period starting with **October 2013 or October 2014**, according to your Stage 2 compliance monitoring plan.

See **Chapter 1, Section 1.1** of this guidance manual for a list of additional guidance materials for the Stage 2 DBPR.

Reminder:

Your requirements for Stage 2 compliance monitoring are based on the population of your system and are listed below.

Stage 2 DBPR Compliance Monitoring Requirements

Source Water Type	Population Size Category ¹	Monitoring Frequency ²	Distribution System Monitoring Location		
			Total per monitoring period ³	Highest TTHM Locations	Highest HAA5 Locations
Subpart H	<500	per year	2	1	1
	500-3,300	per quarter	2	1	1
	3,301-9,999	per quarter	2	1	1
Ground Water	<500	per year	2	1	1
	500-9,999	per year	2	1	1

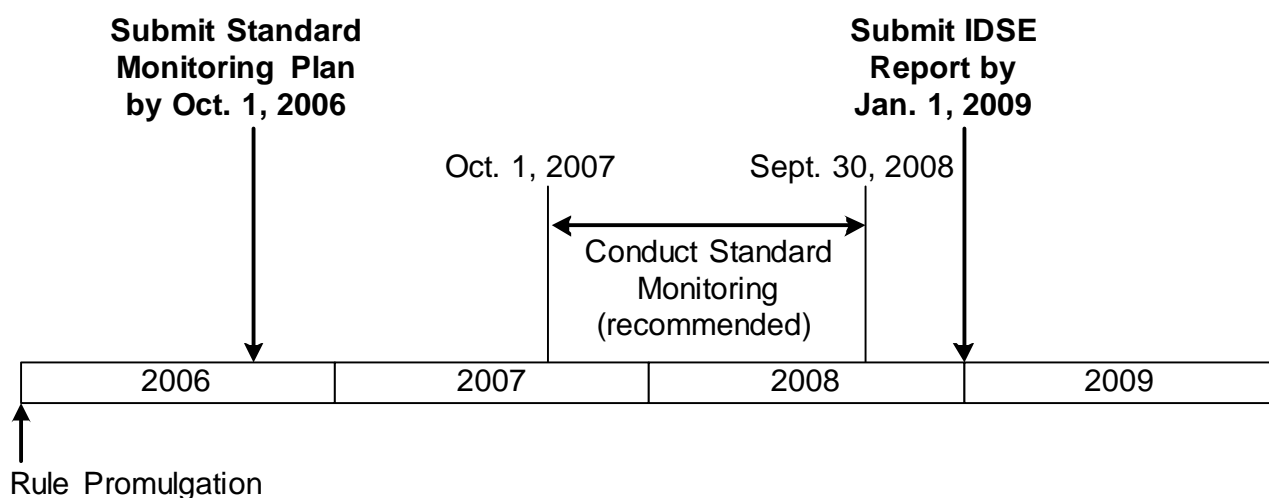
¹ Your monitoring requirements (location and frequency) are based on the population served by your system.

² All systems must monitor during month of highest DBP concentrations.

³ Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for subpart H systems serving 500-3,300. Systems on annual monitoring and subpart H systems serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5 concentrations occur at the same location (and month, if monitored annually).

Standard Monitoring Requirements - Schedule 1

Page 1 of 2



This summary sheet is for systems that serve 100,000 people or more OR are part of a combined distribution system where the largest system serves 100,000 people or more.

WHAT TO DO NOW:

1. Develop Standard Monitoring Plan

Due: October 1, 2006

- See Chapter 5, Section 5.1.3 for guidance on how to develop your IDSE Standard Monitoring Plan. Your monitoring requirements are also listed on the attachment on Page 2-27.
- Chapter 5 contains plan templates. If you would like an electronic template, see the IDSE Tool: <http://www.epa.gov/safewater/disinfection/stage2>.

Mail your standard monitoring plan to:

STAGE 2 DBPR
US EPA-IPMC
P O Box 98
Dayton, OH 45401-0098



IDSE Tool

E-mail to stage2mdbp@epa.gov or submit electronically via the IDSE tool

EPA or your state will review your standard monitoring plan and contact you before October 1, 2007 to either let you know it has been approved or discuss necessary changes. If you do not hear anything by this deadline, consider your plan approved and start monitoring.

2. Conduct Standard Monitoring

Oct. 1, 2007 - Sept. 30, 2008

Monitoring should be done according to your standard monitoring plan.

WHAT TO DO NOW (cont'd):

3. Select Stage 2 Compliance Monitoring Sites and Develop IDSE Standard Monitoring Report

Due: January 1, 2009

- See Chapter 5, Section 5.3 for guidance on how to select Stage 2 compliance monitoring sites and write the IDSE report. The number of Stage 2 compliance monitoring sites required for your system is listed on the attachment on Page 2-28.
- **EPA or your state will review your IDSE report and contact you before April 1, 2009** to either let you know your Stage 2 compliance monitoring sites and schedule have been approved or to discuss necessary changes. If you do not hear anything by this deadline, consider your plan approved and start preparing for Stage 2 compliance.

4. Continue compliance monitoring for the Stage 1 DBPR until you begin compliance monitoring for the Stage 2 DBPR.

NEXT STEPS:

You will have additional requirements for Stage 2 compliance. Your system will need to do the following:

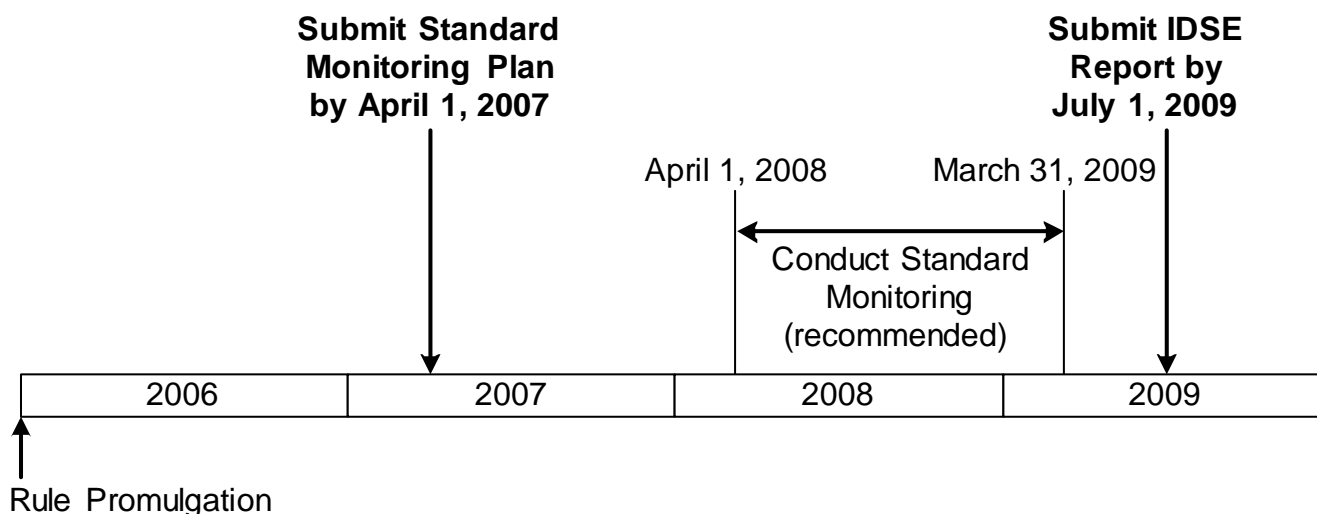
- If you have high levels of DBPs, you may need to make system changes before **April 1, 2012** to meet the Stage 2 MCLs. If you buy water, see the Consecutive System Guidance Manual for more information.
- Develop a Stage 2 compliance monitoring plan before you take your first compliance sample. If you are a subpart H system and you serve more than 3,300 people, you need to submit your plan to the state.
- Begin annual or quarterly Stage 2 compliance monitoring during the period starting with **April 2012**, according to your Stage 2 compliance monitoring plan.

Reminder:

Your system's monitoring requirements for both the IDSE and Stage 2 compliance monitoring are based on the population of your system and are listed in the attachment on Pages 2-27 and 2-28.

Standard Monitoring Requirements - Schedule 2

Page 1 of 2



This summary sheet is for systems that serve 50,000-99,999 people OR are part of a combined distribution system where the largest system serves 50,000-99,999 people.

WHAT TO DO NOW:

1. Develop Standard Monitoring Plan

Due: April 1, 2007

- See Chapter 5, Section 5.1.3 for guidance on how to develop your IDSE Standard Monitoring Plan. Your monitoring requirements are also listed on the attachment on Page 2-27.
- Chapter 5 contains plan templates. If you would like an electronic template, see the IDSE Tool:
<http://www.epa.gov/safewater/disinfection/stage2>.



Mail your standard monitoring plan to:

STAGE 2 DBPR
US EPA-IPMC
P O Box 98
Dayton, OH 45401-0098

E-mail to stage2mdbp@epa.gov or submit electronically via the IDSE tool

EPA or your state will review your standard monitoring plan and contact you before April 1, 2008 to either let you know it has been approved or discuss necessary changes. If you do not hear anything by this deadline, consider your plan approved and start monitoring.

2. Conduct Standard Monitoring

Apr. 1, 2008 - March 31, 2009

Monitoring should be done according to your standard monitoring plan.

WHAT TO DO NOW (cont'd):

3. Select Stage 2 Compliance Monitoring Sites and Develop IDSE Standard Monitoring Report

Due: July 1, 2009

- See Chapter 5, Section 5.3 for guidance on how to select Stage 2 compliance monitoring sites and write the IDSE report. The number of Stage 2 compliance monitoring sites required for your system is listed on the attachment on Page 2-28.
- **EPA or your state will review your IDSE report and contact you before October 1, 2009** to either let you know your Stage 2 compliance monitoring sites and schedule have been approved or to discuss necessary changes. If you do not hear anything by this deadline, consider your plan approved and start preparing for Stage 2 compliance.

4. Continue compliance monitoring for the Stage 1 DBPR until you begin compliance monitoring for the Stage 2 DBPR.

NEXT STEPS:

You will have additional requirements for Stage 2 compliance. Your system will need to do the following:

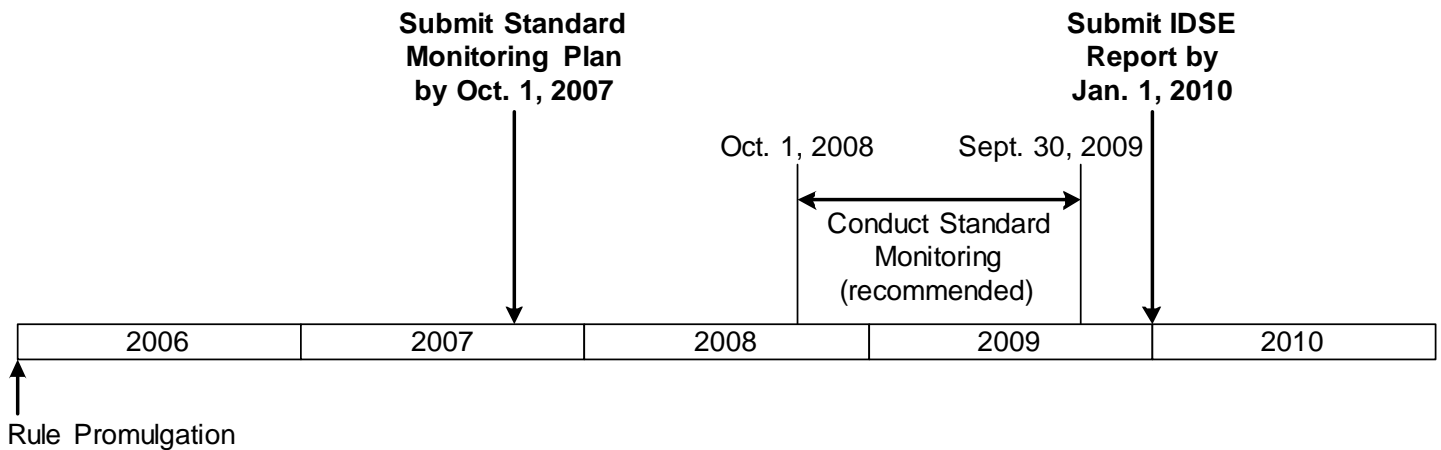
- If you have high levels of DBPs, you may need to make system changes before **October 1, 2012** to meet the Stage 2 MCLs. If you buy water, see the Consecutive System Guidance Manual for more information.
- Develop a Stage 2 compliance monitoring plan before you take your first compliance sample. If you are a subpart H system and you serve more than 3,300 people, you need to submit your plan to the state.
- Begin annual or quarterly Stage 2 compliance monitoring during the period starting with **October 2012**, according to your Stage 2 compliance monitoring plan.

Reminder:

Your system's monitoring requirements for both the IDSE and Stage 2 compliance monitoring are based on the population of your system and are listed in the attachment on Pages 2-27 and 2-28

Standard Monitoring Requirements - Schedule 3

Page 1 of 2



This summary sheet is for systems that serve 10,000-49,999 people OR are part of a combined distribution system where the largest system serves 10,000-49,999 people.

WHAT TO DO NOW:

1. Develop Standard Monitoring Plan

Due: October 1, 2007

- See Chapter 5, Section 5.1.3 for guidance on how to develop your IDSE Standard Monitoring Plan. Your monitoring requirements are also listed on the attachment on Page 2-27.
- Chapter 5 contains plan templates. If you would like an electronic template, see the IDSE Tool: <http://www.epa.gov/safewater/disinfection/stage2>.

Mail your standard monitoring plan to:

STAGE 2 DBPR
US EPA-IPMC
P O Box 98
Dayton, OH 45401-0098

E-mail to stage2mdbp@epa.gov or submit electronically via the IDSE tool

EPA or your state will review your standard monitoring plan and contact you before October 1, 2008 to either let you know it has been approved or discuss necessary changes. If you do not hear anything by this deadline, consider your plan approved and start monitoring.

2. Conduct Standard Monitoring

Oct. 1, 2008 - Sept. 30, 2009

Monitoring should be done according to your IDSE Standard Monitoring Plan.

WHAT TO DO NOW (cont'd):

3. Select Stage 2 Compliance Monitoring Sites and Develop IDSE Standard Monitoring Report

Due: January 1, 2010

- See Chapter 5, Section 5.3 for guidance on how to select Stage 2 compliance monitoring sites and write the IDSE report. The number of Stage 2 compliance monitoring sites required for your system is listed on the attachment on Page 2-28.
- **EPA or your state will review your IDSE report and contact you before October 1, 2010** to either let you know your Stage 2 compliance monitoring sites and schedule have been approved or to discuss necessary changes. If you do not hear anything by this deadline, consider your plan approved and start preparing for Stage 2 compliance.

4. Continue compliance monitoring for the Stage 1 DBPR until you begin compliance monitoring for the Stage 2 DBPR.

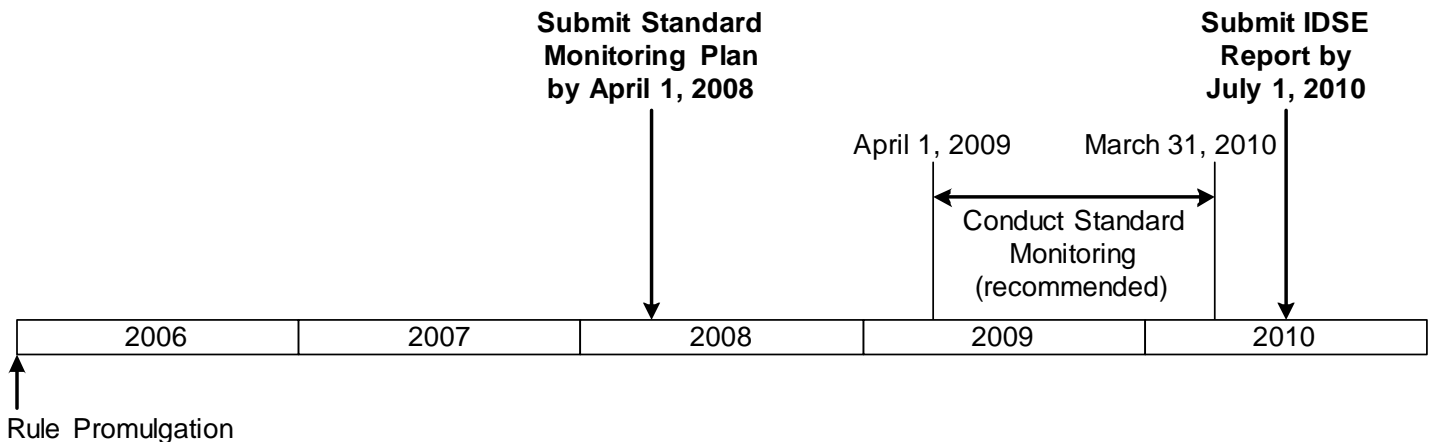
NEXT STEPS:

You will have additional requirements for Stage 2 compliance. Your system will need to do the following:

- If you have high levels of DBPs, you may need to make system changes before **October 1, 2013** to meet the Stage 2 MCLs. If you buy water, see the Consecutive System Guidance Manual for more information.
- Develop a Stage 2 compliance monitoring plan before you take your first compliance sample. If you are a subpart H system and you serve more than 3,300 people, you need to submit your plan to the state.
- Begin annual or quarterly Stage 2 compliance monitoring during the period starting with **October 2013**, according to your Stage 2 compliance monitoring plan.

Reminder:

Your system's monitoring requirements for both the IDSE and Stage 2 compliance monitoring are based on the population of your system and are listed in the attachment on Pages 2-27 and 2-28.



This summary sheet is for systems that serve fewer than 10,000 people OR are part of a combined distribution system where the largest system serves fewer than 10,000 people.

WHAT TO DO NOW:

1. Develop Standard Monitoring Plan

Due: April 1, 2008

- See Chapter 5, Section 5.1.3 for guidance on how to develop your IDSE Standard Monitoring Plan. Your monitoring requirements are also listed on the attachment on Page 2-27.
- Chapter 5 contains plan templates. If you would like an electronic template, see the IDSE Tool:
<http://www.epa.gov/safewater/disinfection/stage2>.



Mail your standard monitoring plan to:

STAGE 2 DBPR
US EPA-IPMC
P O Box 98
Dayton, OH 45401-0098

E-mail to stage2mdbp@epa.gov or submit electronically via the IDSE tool

EPA or your state will review your standard monitoring plan and contact you before April 1, 2009 to either let you know it has been approved or discuss necessary changes. If you do not hear anything by this deadline, consider your plan approved and start monitoring.

2. Conduct Standard Monitoring

Apr. 1, 2009 - March 31, 2010

Monitoring should be done according to your standard monitoring plan.

WHAT TO DO NOW (cont'd):

3. Select Stage 2 Compliance Monitoring Sites and Develop IDSE Standard Monitoring Report

Due: July 1, 2010

- See Chapter 5, Section 5.3 for guidance on how to select Stage 2 compliance monitoring sites and write the IDSE report. The number of Stage 2 compliance monitoring sites required for your system is listed on the attachment on Page 2-28.
- **EPA or your state will review your IDSE report and contact you before October 1, 2010** to either let you know your Stage 2 compliance monitoring sites and schedule have been approved or to discuss necessary changes. If you do not hear anything by this deadline, consider your plan approved and start preparing for Stage 2 compliance.

4. Continue compliance monitoring for the Stage 1 DBPR until you begin compliance monitoring for the Stage 2 DBPR.

NEXT STEPS:

You will have additional requirements for Stage 2 compliance. Your system will need to do the following:

- If you have high levels of DBPs, you may need to make system changes before **October 1, 2013** to meet the Stage 2 MCLs. If you buy water, see the Consecutive System Guidance Manual for more information.
- Develop a Stage 2 compliance monitoring plan before you take your first compliance sample. If you are a subpart H system and you serve more than 3,300 people, you need to submit your plan to the state.
- Begin annual or quarterly Stage 2 compliance monitoring during the period starting with **October 2013 or October 2014**, according to your Stage 2 compliance monitoring plan.

Reminder:

Your system's monitoring requirements for both the IDSE and Stage 2 compliance monitoring are based on the population of your system and are listed in the attachment on Pages 2-27 and 2-28.

Standard Monitoring Requirements - Attachment (For All Schedules)

IDSE Standard Monitoring Requirements

Source Water Type	Population Size Category ¹	Monitoring Periods and Frequency of Sampling	Distribution System Monitoring Locations ²				
			Total per monitoring period	Near Entry Points	Average Residence Time	High TTHM Locations	High HAA5 Locations
Subpart H	<500 consecutive systems	one (during peak historical month) ³	2	1	.....	1	.....
	<500 non-consecutive systems		2	.....	.....	1	1
	500-3,300 consecutive systems	four (every 90 days)	2	1	.....	1	.....
	500-3,300 non-consecutive systems		2	.....	.....	1	1
	3,301-9,999		4	.....	1	2	1
Ground Water	<500 consecutive systems	one (during peak historical month) ³	2	1	.....	1	.....
	<500 non-consecutive systems		2	.....	.....	1	1
	500-9,999	four (every 90 days)	2	.....	.....	1	1

¹ Your monitoring requirements (locations and frequency) are based on the population served by your system.

² A dual sample set (i.e., a TTHM and an HAA5 sample) must be taken at each monitoring location during each monitoring period.

³ The peak historical month is the month with the highest TTHM or HAA5 levels or the warmest water temperature.

Stage 2 Compliance Monitoring Requirements

Source Water Type	Population Size Category ¹	Monitoring Frequency ²	Distribution System Monitoring Location		
			Total per monitoring period ³	Highest TTHM Locations	Highest HAA5 Locations
Subpart H	<500	per year	2	1	1
	500-3,300	per quarter	2	1	1
	3,301-9,999	per quarter	2	1	1
Ground Water	<500	per year	2	1	1
	500-9,999	per year	2	1	1

¹ Your monitoring requirements (locations and frequency) are based on the population served by your system.

² All systems must monitor during month of highest DBP concentrations.

³ Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for subpart H systems serving 500-3,300.

Systems on annual monitoring and subpart H systems serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5 concentrations occur at the same location (and month, if monitored annually).

3.0 Very Small System Waiver

This chapter covers:

- 3.1 Qualifying for the VSS Waiver
- 3.2 Selecting a Stage 2 Compliance Monitoring Site
- 3.3 Next Steps: Preparing the Stage 2 DBPR Compliance Monitoring Plan

EPA recognizes that very small systems typically have small distribution systems where the high total trihalomethane (TTHM) and high haloacetic acid-five (HAA5) levels occur at the same location. For this reason, systems serving fewer than 500 people are automatically exempt from IDSE requirements as long as the criteria in Section 3.1 are met, and EPA or your state does not require otherwise.

This chapter discusses the requirements for VSS waivers. These requirements are also outlined on your **requirements summary sheet** in Chapter 2 of this manual. Refer to Appendix A if you are a **consecutive or wholesale system** for specific issues that you should consider.

As long as you have TTHM and HAA5 data, you are qualified for the VSS Waiver. You have ***NO further requirements for the IDSE*** unless EPA or your state tells you otherwise.

3.1 Qualifying for the VSS Waiver

How can I qualify for the waiver?

To automatically qualify for the VSS waiver, you must serve fewer than 500 people and have taken TTHM and HAA5 samples. VSS eligibility is not dependent on your Stage 1 DBPR compliance monitoring or other TTHM or HAA5 data results. The results do not have to be below any particular level for you to receive the waiver.

What if I don't have Stage 1 compliance data, but I have other TTHM & HAA5 data?

Some systems in combined distribution systems may not have conducted Stage 1 DBPR compliance monitoring. If you have not conducted compliance monitoring but have other TTHM and HAA5 data, you should contact EPA or the state to determine if this data is sufficient to qualify for the waiver. Some of the criteria that the reviewer might use to evaluate your data are:

- Were samples analyzed by approved methods?
- Were samples analyzed at a certified laboratory?
- Are the sites located in areas of maximum residence time?
- Were samples taken during the month of warmest water temperature?

Consecutive systems that do not have any TTHM and HAA5 data should check with their wholesaler to determine if the wholesaler collected any TTHM and HAA5 data in their system.

What if EPA or the state contacts me and requires me to conduct an IDSE?

Remember that even if you qualify for the VSS waiver, ***EPA or the state may require you to conduct an IDSE.*** IDSE sampling requirements for systems serving < 500 people are minor compared to requirements for medium and large systems. Standard monitoring for systems serving < 500 people consists of preparing a monitoring plan, taking a dual sample set at two distribution system locations during the peak month, and completing an IDSE report. Refer to the Chapter 5 of this manual for guidance on conducting standard monitoring.

3.2 Selecting a Stage 2 DBPR Compliance Monitoring Site

All systems serving <500 people are required to take one TTHM sample at the location with the highest TTHM concentration, and one HAA5 sample at the location with the highest HAA5 concentration. You can collect a dual sample set at ***one location*** if the highest TTHM and HAA5 concentrations occur at the same sample location and during the same month.

EPA recommends that you consider using your **Stage 1 monitoring location** for Stage 2 DBPR compliance monitoring if it meets these criteria. If you did not have a Stage 1 compliance monitoring location, you should work with your state to select the best Stage 2 compliance monitoring location(s). The high TTHM site will typically be an area of high residence time, located at an extreme end or isolated portion of the distribution system. The high HAA5 site will often be at the same location, unless you have difficulty maintaining a distribution system residual. You should ***not*** select high HAA5 sites in locations that regularly or in the summer months have free chlorine residuals < 0.2 mg/L or chloramine residuals < 0.5 mg/L.

3.3 Next Steps: Preparing the Stage 2 DBPR Compliance Monitoring Plan

As the final step before you can begin compliance monitoring for the Stage 2 DBPR, you must develop a **Stage 2 DBPR compliance monitoring plan**. The plan will be similar to your Stage 1 DBPR monitoring plan in that it will identify how you intend to sample for compliance with Stage 2. You do not need to submit the monitoring plan to EPA or your state, but you must keep it on file for state and public review. Note that Stage 1 DBPR compliance monitoring requirements are in effect until you begin Stage 2 DBPR compliance monitoring.

Because compliance monitoring plans are not addressed as part of the IDSE provisions of the Stage 2 DBPR, EPA has not included detailed guidance for developing Stage 2 compliance monitoring plans in this guidance manual. EPA has developed the *Stage 2 Disinfectant and Disinfection Byproducts Rule: Small Entity Compliance Guide – One of the Simple Tools for Effective Performance (STEP) Guide Series (draft version)* to help you develop your monitoring plan. See EPA's website at <http://www.epa.gov/safewater/disinfection/stage2> for an up-to-date inventory of Stage 2 DBPR guidance manuals and training materials, or call the Safe Drinking Water Hotline at 1-800-426-4791.

4.0 40/30 Certification

This chapter covers:

- 4.1 Qualification Criteria
- 4.2 Preparing and Submitting the Certification Letter
- 4.3 Recordkeeping
- 4.4 Selecting Stage 2 Compliance Monitoring Sites
- 4.5 Preparing the Stage 2 DBPR Compliance Monitoring Plan

Systems can qualify for the IDSE 40/30 certification if they have measured consistently low total trihalomethane (TTHM) and haloacetic acid-five (HAA5) levels during Stage 1 DBPR compliance monitoring. The term “40/30” refers to a system having all individual Stage 1 DBPR compliance samples less than or equal to 0.040 milligrams per liter (mg/L) for TTHM and 0.030 mg/L for HAA5 during a specific time period.

If you qualify for the 40/30 certification and comply with the certification requirements, and EPA or your state does not notify you that you need to conduct an IDSE, ***your system has NO further requirements for the IDSE.*** Your next steps will be to prepare a compliance monitoring plan and begin monitoring for the Stage 2 DBPR. You must continue with Stage 1 DBPR monitoring until you begin Stage 2 monitoring.

If you have not already done so, complete the **flowchart** in Exhibit 2.3 of this guidance manual before reading this chapter. The flowchart directs you to a 2-page **Requirements Summary Sheet** which contains compliance dates and additional requirements for complying with the Stage 2 DBPR. You should keep your requirements summary sheet handy as you work through this chapter.

This chapter provides guidance on how to prepare and submit a 40/30 certification letter and select Stage 2 DBPR compliance monitoring sites. If you are a **consecutive or wholesale system**, refer to Appendix A for specific issues that you should consider.

4.1 Qualification Criteria

To be eligible for 40/30 certification, you must meet all of the following requirements for the **8 consecutive quarter eligibility period** shown in Exhibit 4.1.

- You have TTHM and HAA5 data equivalent to what is required by the Stage 1 DBPR for your system (e.g., quarterly, annual, or every third year)
- No individual sample exceeds 0.040 mg/L for TTHM
- No individual sample exceeds 0.030 mg/L for HAA5
- Your system did not have any TTHM or HAA5 monitoring violations

Exhibit 4.1 40/30 Criteria Compliance Dates

Schedule ¹	Stage 1 DBPR Data Eligibility Period ²	40/30 Certification Deadline
1	8 consecutive calendar quarters starting no earlier than January 2004	October 1, 2006
2		April 1, 2007
3	8 consecutive calendar quarters starting no earlier than January 2005	October 1, 2007
4		April 1, 2008

Notes:

1. Your schedule is defined by population served by your system or by the largest system in your combined distribution system. See Chapter 2 for more information.
2. If you were not required to sample during this period, use data from the 12-month period prior to the eligibility period shown.

Example 4.1 is an example of a system determining whether they meet the 40/30 criteria.

If you don't have Stage 1 compliance data, EPA or your state may allow you to use operational TTHM and HAA5 data to qualify for 40/30 certification if your sampling and analysis met the general intent of Stage 1 DBPR compliance. These data should have been taken and sampled in accordance with approved methods and at appropriate locations (i.e., maximum residence time in the distribution system).

Remember that even if you meet the eligibility criteria and submit the certification, ***EPA or your state may still require you to conduct an IDSE*** using standard monitoring or an SSS. If this occurs, you may need to work with EPA or your state to determine a schedule for completing a standard monitoring or SSS plan and submitting an IDSE report.

Example 4.1 Qualifying for a 40/30 Certification

A ground water system serving 8,000 people with two wells has been sampling annually at two locations in their distribution system under the Stage 1 DBPR. Because they do not buy or sell water, this system is on schedule 4. The table below shows their TTHM and HAA5 data for their eligibility period.

	July 21, 2005		July 24, 2006		July 23, 2007	
	TTHM (mg/L)	HAA5 (mg/L)	TTHM (mg/L)	HAA5 (mg/L)	TTHM (mg/L)	HAA5 (mg/L)
Stage 1 Site 1	0.033	0.015	0.037	0.020	0.035	0.021
Stage 1 Site 2	0.040	0.022	0.035	0.021	0.037	0.019

No individual sample exceeded 0.040 mg/L for TTHM or 0.030 mg/L for HAA5. The system does not have any TTHM or HAA5 monitoring violations during the eligibility period. The system determines that they meet the criteria for the 40/30 certification and they submit their certification for the period of January 1, 2006 to December 31, 2007 by their deadline of April 1, 2008.

4.2 Preparing and Submitting the Certification Letter

At a minimum, you **must** prepare and submit a statement certifying that you meet the eligibility criteria in Section 4.1. Your certification should also contain basic system information including population served by your system, your system type (subpart H or ground water, community or non-community), and contact information. EPA has developed a **40/30 Certification Letter Form**, shown on the next page, that can be used by any system to prepare a certification letter. This form is also available electronically as part of the **IDSE Tool**. Example 4.2 is a completed certification form for a hypothetical system.

The **IDSE Tool** creates a custom 40/30 certification form for your system and submits the completed letter to EPA and your state for you. The tool is available on EPA's website at <http://www.epa.gov/safewater/disinfection/stage2>.



STAGE 2 DBPR
US EPA-IPMC
P O Box 98
Dayton, OH 45401-0098

System Information

PWS Name: _____ PWS ID: _____
Street Address: _____ Population Served: _____
City: _____
State: _____
Zip: _____

Source Water Type: Ground Subpart H
System Type: CWS NTNCWS
Combined Distribution System: Wholesale Consecutive Neither

Contact Person

Name: _____ Title: _____
Phone Number: _____ Fax Number (if available): _____
Email Address (if available): _____

Certification

I hereby certify that each individual Stage 1 DBPR compliance sample collected from _____ to _____ was less than or equal to 0.040 mg/L for TTHM and 0.030 mg/L for HAA5. I understand that to be eligible, each individual sample must be equal to or below these values. I also certify that this PWS collected all required Stage 1 samples and did not have any Stage 1 monitoring violations during this time period.

Signature: _____ Date: _____

Example 4.2 Completed 40/30 Certification Letter Form

STAGE 2 DBPR
US EPA-IPMC
P O Box 98
Dayton, OH 45401-0098

System Information

PWS Name: Hometown PWS ID: US 1234567
Street Address: 987 Main Street Population Served: 5,976
City: Hometown
State: XX
Zip: 12345

Source Water Type: Ground Subpart H
System Type: CWS NTNCWS
Combined Distribution System: Wholesale Consecutive Neither

Contact Person

Name: Jim Smith Title: Certified Operator
Phone Number: 987-6543 Fax Number (if available): _____
Email Address (if available): J.smith@hometown.gov

Certification

I hereby certify that each individual Stage 1 DBPR compliance sample collected from December 2005 to November 2007 was less than or equal to 0.040 mg/L for TTHM and 0.030 mg/L for HAA5. I understand that to be eligible, each individual sample must be equal to or below these values. I also certify that this PWS collected all required Stage 1 samples and did not have any Stage 1 monitoring violations during this time period.

Signature: Jim Smith Date: January 15, 2008

You **must** submit your certification letter by the deadline in Exhibit 4.1. You should submit the certification to the Information Processing and Management Center (IPMC) for review by EPA or your state. See Section 1.3 of this guidance manual for information on how to submit your letter to the IPMC. If you do not submit either a 40/30 certification, standard monitoring plan, or study plan by this deadline, you will incur a monitoring and reporting violation. You can submit the letter as early as you want after you have met the requirements.

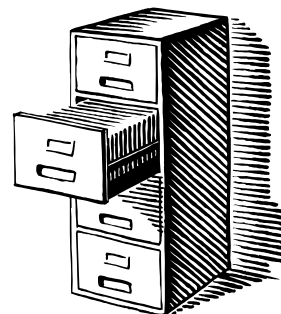
EPA or your state may require you to submit additional information listed below:

- Stage 1 compliance monitoring results
- A distribution system schematic
- Recommended Stage 2 compliance monitoring locations

If the reviewer wants to request additional information or to have you conduct an IDSE, they will contact you. However, you may not receive a confirmation that your 40/30 certification has been accepted. If you do not hear from EPA or your state within 12 months after the submission deadline, you can assume your certification has been accepted.

4.3 Recordkeeping

You must retain a complete copy of your 40/30 certification letter on file for **10 years** after you submit it to EPA or your state. You must also make your 40/30 certification letter and any notification from EPA or your state available for review by your state or the public.



4.4 Selecting Stage 2 Compliance Monitoring Sites

After you submit your 40/30 certification letter, your next steps are to select Stage 2 DBPR compliance monitoring sites and develop a monitoring plan. All systems serving fewer than 10,000 people are required to select **two compliance monitoring sites for the Stage 2 DBPR**, one high TTHM site and one high HAA5 site. Some small systems may be able to use one location as both their highest TTHM and highest HAA5 site if their highest concentrations occur at the same location and during the same month. Refer to the second page of your *Requirements Summary Sheet* in Chapter 2 for more information.

Due to the change from plant-based monitoring under Stage 1 DBPR to population-based monitoring for the Stage 2 DBPR, you may have **the same number, more, or fewer** monitoring sites for Stage 2 compared to Stage 1. Depending on how many Stage 1 sites you have, go to the appropriate subsection (4.4.1, 4.4.2, or 4.4.3) for guidance on selecting Stage 2 DBPR compliance monitoring sites.

4.4.1 You Have THE SAME Number of Stage 1 Sites as Required by the Stage 2 DBPR

If the number of Stage 1 DBPR monitoring locations in your system is exactly the same as the required number of Stage 2 DBPR monitoring locations, continue to use all of your Stage 1 DBPR sites for Stage 2 DBPR compliance monitoring.

4.4.2 You Have MORE Stage 1 Sites than Required by the Stage 2 DBPR

If you have more Stage 1 sites than you need for Stage 2 DBPR monitoring (this could be the case if you have multiple treated entry points in your system), you **must** select the sites with highest DBP levels for Stage 2 monitoring. You must alternate your site selection between locations representing high TTHM levels and high HAA5 levels, starting with high TTHM.

To identify locations representing high TTHM levels and high HAA5 levels, EPA recommends that you use Stage 1 DBPR monitoring results. Specifically, you can use the 3-Step process outlined below:

Step 1: Calculate **the locational running annual average (LRAA)** TTHM and HAA5 concentrations at each Stage 1 DBPR monitoring site. You should use data for the most recent calendar year, as long as this year is generally representative of typical system conditions.

For systems collecting quarterly data:
 $LRAA = (Q1 + Q2 + Q3 + Q4) / 4$

For systems collecting annual data
(once / year):
LRAA = result for warmest temperature

Step 2: Select the site with the highest TTHM LRAA as your high TTHM site

Step 3: Select the site with the highest HAA5 LRAA as your high HAA5 site

4.4.3 You Have FEWER Stage 1 Sites than Required by the Stage 2 DBPR

If you do not have enough Stage 1 sites to meet Stage 2 DBPR monitoring requirements, you **must** select additional sites. You must identify additional locations by alternating selection of locations representing high TTHM and high HAA5 levels, starting with high TTHM. Remember that you will need to provide a justification for the new site selection in your Stage 2 compliance monitoring plan discussed in Section 4.5 below.

When selecting new sites, you should consider site access issues, as each site should remain accessible over the long term. You should also consider selecting sites that provide the best geographic and hydraulic representation of your system. Additional guidance for selecting high TTHM and high HAA5 sites is provided on the next page. If you have one Stage 1 site, it is likely to be at a maximum residence time site which is typically representative of a **high TTHM** location. If this is the case, you should use the guidance below to select a high HAA5 site. Chapter 5 of this manual provides a more in-depth discussion of how to select these sites.

High TTHM sites

In general, **higher water temperatures** and **increased water age** lead to higher TTHM concentrations. Storage facilities in a distribution system typically increase water age. Therefore, if your system has storage tanks or reservoirs, you should locate high TTHM sites downstream of those tanks. In addition, sites near dead ends and sparsely populated residential areas can be likely sites for high TTHM. Be sure to locate the sites before or at the last group of customers on a dead end line. Samples taken at the very end of a dead end line are not representative of the water received by customers.

High HAA5 Sites

As with TTHM, higher temperatures and increased residence time can lead to higher HAA5 concentrations. However, **HAA5 can biodegrade** where biological activity is present and disinfectant residual levels are low or non-existent. Therefore, you should consider locating high HAA5 sites where disinfectant residuals are significantly less than the system average (indicating a long residence time), but **avoid areas that have very low or no residual**. When booster disinfection is applied, the disinfectant residual will increase despite advanced water age. Therefore, if your system practices booster disinfection, you should locate high HAA5 sites after booster disinfection is applied.

You should **not** select high HAA5 sites in locations that regularly or in the summer months have free chlorine residuals less than 0.2 mg/L or with chloramine residuals less than 0.5 mg/L.

4.5 Next Steps: Preparing the Stage 2 DBPR Compliance Monitoring Plan

As the final step before you can begin compliance monitoring for the Stage 2 DBPR, you must prepare a **Stage 2 DBPR compliance monitoring plan**. The plan will be similar to your Stage 1 DBPR monitoring plan in that it will identify how you intend to sample for compliance with Stage 2. You must keep your plan on file for state and public review. If you are a subpart H system serving > 3,300 people, you **must** also submit your plan to EPA or your state prior to when you are required to start monitoring.

Exhibit 4.2 contains the minimum requirements for what must be included in your Stage 2 DBPR compliance monitoring plan. Because compliance monitoring plans are not addressed as part of the IDSE provisions of the Stage 2 DBPR, **EPA has not included detailed guidance for developing Stage 2 compliance monitoring plans in this guidance manual**. EPA plans to develop other manuals and training that specifically address the compliance monitoring provisions of the Stage 2 DBPR.

See EPA's website at <http://www.epa.gov/safewater/disinfection/stage2> for an up-to-date inventory of Stage 2 DBPR guidance manuals and training materials, or call the Safe Drinking Water Hotline at 1-800-426-4791.

Exhibit 4.2 Required Contents of Stage 2 DBPR Compliance Monitoring Plans

All Systems	Additional Requirements for Systems Getting the 40/30 Certification	Additional Requirements for Consecutive and Wholesale Systems¹
<ul style="list-style-type: none"> • Monitoring locations • Monitoring dates • Compliance calculation procedures 	<ul style="list-style-type: none"> • If you had FEWER Stage 1 DBPR compliance monitoring sites than required by the Stage 2 DBPR, you must include the rationale for identifying locations as having high levels of TTHM or HAA5 	<ul style="list-style-type: none"> • If your state has used its special primacy authority to modify your monitoring requirements, you must include monitoring plans for other systems in your combined distribution system

1. See Appendix A of this manual for guidance specifically for consecutive and wholesale systems.

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5.0 Standard Monitoring

This chapter covers:

- 5.1 Selecting Standard Monitoring Sites and Preparing Your Standard Monitoring Plan
 - ✎ *Standard Monitoring Plan Form for Systems Serving < 10,000*
- 5.2 Conducting Standard Monitoring
- 5.3 Selecting Stage 2 DBPR Compliance Monitoring Sites and Preparing the IDSE Report
 - ✎ *Form for the IDSE Report for Standard Monitoring for Systems Serving < 10,000*
- 5.4 Recordkeeping
- 5.5 Next Step: Preparing the Stage 2 DBPR Compliance Monitoring Plan

Standard monitoring is **one year** of increased distribution system monitoring to find locations with high total trihalomethane (TTHM) and haloacetic acid-five (HAA5) concentrations. Results from standard monitoring will be used in conjunction with results from Stage 1 compliance monitoring to select Stage 2 compliance monitoring locations. **Any system** can conduct standard monitoring to meet the IDSE requirements of the Stage 2 Disinfectants and Disinfection Byproducts Rule (DBPR).

The flowchart in Exhibit 2.3 will direct you to a 2-page **Requirements Summary Sheet** for your IDSE schedule. You will also be directed to the **Standard Monitoring Requirements - Attachment** sheet containing detailed requirements for standard monitoring and Stage 2 compliance monitoring (e.g., number of samples and sampling frequency). You should keep these sheets handy as you work through this chapter.

This chapter is specifically targeted to help systems serving < 10,000 people conduct standard monitoring and select their Stage 2 DBPR compliance monitoring sites. Additional technical guidance is also provided in the *IDSE Guidance Manual* (January 2006). It is important that **consecutive and wholesale systems** communicate with each other throughout the IDSE process. If you are a consecutive or wholesale system, refer to **Appendix A** for specific issues that you should consider.

IMPORTANT: Results from IDSE standard monitoring **should not** be used to determine compliance with maximum contaminant levels (MCLs) of the Stage 1 DBPR. During the entire IDSE period, you **must** continue to monitor according to your Stage 1 DBPR monitoring plan and comply with Stage 1 DBPR MCLs at your Stage 1 sites.

5.1 Selecting Standard Monitoring Sites and Preparing Your Standard Monitoring Plan

Every system that conducts IDSE standard monitoring **must** prepare and submit a Standard Monitoring Plan. You should submit the plan to the Information Processing and Management Center (IPMC) for review by EPA or your state. See Section 1.3 of this guidance manual for information on how to submit your plan to the IPMC.

This section contains EPA's recommended technical approach for selecting standard monitoring sites. It also contains the recommended approach for selecting the peak historical month and scheduling standard monitoring. Lastly, this section provides guidance on completing the IDSE standard monitoring plan.

EPA has developed a **Standard Monitoring Plan Form for Systems Serving < 10,000**, presented in Section 5.1.3 and available electronically as part of the **IDSE Tool**. You are not required to use this form; however, if you choose not to use it, refer to Exhibit 5.1 for a list of the minimum elements you must include in your standard monitoring plan. The IDSE Tool is available on EPA's website at <http://www.epa.gov/safewater/disinfection/stage2>

Exhibit 5.1 Required Elements of Your Standard Monitoring Plan

- The population served by your system
- Your system type (subpart H or ground water)
- A distribution system schematic showing
 - entry points
 - sources
 - storage facilities
 - locations and dates of all projected standard monitoring and Stage 1 DBPR compliance samples
- Peak historical month
- Justification of standard monitoring site selection and a summary of data you relied on to justify standard monitoring site selection

5.1.1 Recommended Approach for Selecting Standard Monitoring Sites

You are required to select **up to four types** of standard monitoring sites for the IDSE: near entry point sites, average residence time sites, high TTHM sites, and high HAA5 sites. See Exhibit 5.2 below for how many of each type of site are required for your system (this information is repeated in Chapter 2). Note that the number of sites and frequency of sampling is based on the population served by *your system*, not the population served by the largest system in your combined distribution system.

Exhibit 5.2 IDSE Standard Monitoring Requirements

Source Water Type	Population Size Category ¹	Monitoring Periods and Frequency of Sampling	Distribution System Monitoring Locations ²				
			Total per monitoring period	Near Entry Points	Average Residence Time	High TTHM	High HAA5
Subpart H	<500 consecutive systems	one (during peak historical month) ³	2	1	.....	1	.....
	<500 non-consecutive systems		2	.....	.....	1	1
	500-3,300 consecutive systems	four (every 90 days)	2	1	.....	1	.....
	500-3,300 non-consecutive systems		2	.....	.....	1	1
	3,301-9,999		4	.....	1	2	1
Ground Water	<500 consecutive systems	one (during peak historical month) ³	2	1	.....	1	.....
	<500 non-consecutive systems		2	.....	.....	1	1
	500-9,999	four (every 90 days)	2	.....	.....	1	1

¹ Your monitoring requirements (locations and frequency) are based on the population served by your system.

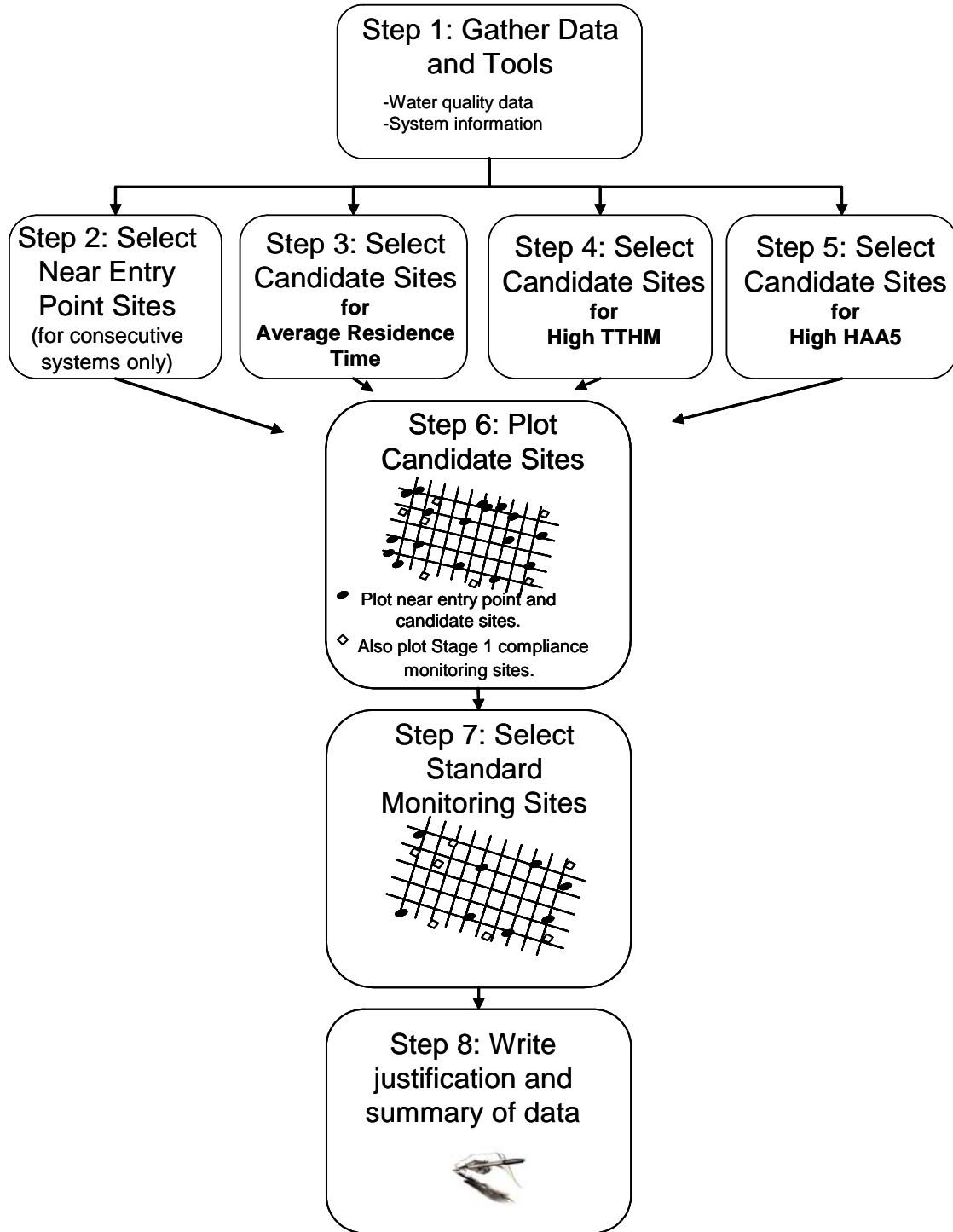
² A dual sample set (i.e., a TTHM and an HAA5 sample) must be taken at each monitoring location during each monitoring period.

³ The peak historical month is the month with the highest TTHM or HAA5 levels or the warmest water temperature.

EPA's recommended **8-Step technical approach** for selecting standard monitoring sites is shown in Exhibit 5.3. EPA recommends that you use tools and data sources available to select **at least twice** as many candidate sites as required for standard monitoring in Steps 3, 4, and 5. You may want to map and color-code your candidate sites as you select them to ensure that your distribution system is fully represented. Later, you can use additional criteria to select the most representative standard monitoring sites from these candidate sites (see Step 7).

The remainder of this section contains detailed guidance for each of these eight steps.

Exhibit 5.3 Recommended Approach to Selecting Standard Monitoring Sites



Remember that Stage 1 DBPR compliance monitoring sites *cannot* be used as standard monitoring sites.

Step 1: Gather Data and Tools

There are many kinds of data and tools that can be useful in selecting standard monitoring sites. Exhibit 5.4 shows the types of information typically available to water systems and for which types of sites they should be used.

One of the most important tools you can use to select standard monitoring sites is an up-to-date, detailed **map of your distribution system**. When you submit your standard monitoring plan, you are required to include a schematic of your distribution system showing all entry points, sources and storage facilities. Other useful map features include the layout of pipes, locations pump stations, pressure zone boundaries, locations of large users, and population density information. For security reasons, EPA recommends that you remove any information that could pose a security risk from your standard monitoring plan submittal. You may wish to use a separate, working version of your distribution system map for selecting sites, then transfer your information to a less detailed map for your standard monitoring plan submittal.

It is important that you consider available water quality data from your distribution system when selecting standard monitoring sites. In general, your water quality data should be less than 10 years old and should represent current system configurations to the extent possible. Most systems have collected disinfectant residual data from their distribution system, and this data can be very useful for selecting standard monitoring locations. EPA has provided additional guidelines for evaluating disinfectant residual data in Step 3.

Some systems, such as those that serve resort communities, have dramatic fluctuations in flow as well as population. If your system experiences widely varying demands on a **seasonal basis**, you should evaluate data and operational information for different seasons separately. When you are selecting sites, make sure that you select sites that represent the different operating scenarios of your system.

A key resource available to many systems is the experience and knowledge of **water system personnel**. Because distribution system operations and configuration are not always well documented, experienced operations personnel can provide valuable insights to the site selection process.

Some systems may have advanced tools available, namely:

- A hydraulic model
- Results from a distribution system tracer study

If you have these advanced tools, refer to the *IDSE Guidance Manual* for suggestions on how you can use these tools to select standard monitoring sites.

Exhibit 5.4 Data and Tools for Selecting Different Types of Standard Monitoring Sites

Type of Information	Type of Standard Monitoring Site			
	Near Entry Point	Average Residence Time	High TTHM	High HAA5
System Configuration				
Pipe layout, location of storage facilities		x	x	x
Location of sources	x	x	x	x
Pressure Zones		x	x	x
Information on Population Density		x	x	x
Locations of Large Customers		x		
Water Quality and Operational Data				
Disinfectant Residual Data		x	x	x
Stage 1 DBP Data			x	x
Other DBP Data			x	x
Microbiological Monitoring Data (e.g., HPC)				x
Tank Level Data, Pump Run Times		x	x	x
Customer Billing Records		x	x	x

Step 2: Identify Near Entry Point Standard Monitoring Sites (For Consecutive Systems Only)

A consecutive system is defined in the Stage 2 rule as a public water system that receives some or all of its finished water from one or more wholesale systems. If you are a consecutive system serving fewer than 3,300 people, you **must** monitor at or near the connection to your wholesale system and before the first customer. This will give you valuable information on TTHM and HAA5 levels coming into your system. If you do not have a sample tap prior to your first customer, consider using your first customer as your near entry point site. If you have more than one connection to a wholesale system, you should select the best connection to monitor based on a combination of the following:

- Annual flow (e.g., use the source with the highest flow in your system)
- Water quality (e.g., if you buy from one surface water system and one ground water system, monitor at the connection to your surface water system).

See Appendix A for additional guidance specifically for consecutive systems.

Step 3: Identify Candidate Average Residence Time Sites

Average residence time is the average age of water delivered to customers in a distribution system. Average residence time is *not* simply one-half the maximum residence time. One way to locate average residence time sites is to calculate **average disinfectant residual concentration** in your system, then identify sites with residual concentrations near the average. When calculating the average disinfectant residual concentration, it is important that you use data from sites that are representative of the entire distribution system. You can do this using residual data from TCR monitoring sites. This data should be useful since the TCR requires that monitoring sites represent water throughout the distribution system.

See the guidelines in Exhibit 5.5 for using disinfectant residual data. If you have good disinfectant residual data from multiple TCR sites in your distribution system, you can use the following 3-step procedure to locate average residence time sites:

- 1) Calculate an average disinfectant residual at each of the TCR sites using data from the summer months (e.g., June, July, and August).
- 2) Using averages from the individual sites, calculate an overall average distribution system residual concentration.
- 3) Sites with an average residual close to the distribution system average can be considered representative of average residence time in the distribution system. Select sites in areas with high population densities with disinfectant residuals close to the system average.

You should be careful when analyzing chloramine residual data. Chloramines are generally more stable than chlorine, and small changes in residual concentrations may not be significant.

Another way to select average residence time sites is by using billing records and a map. You should begin by identifying service areas with the most development. You can examine your customer billing records to determine where your large customers are located. The portions of the distribution system serving large water users will likely have low water age and will not be good candidate sites for average residence time. If your system does not have any large individual customers, consider locating your candidate average residence time sites in highly developed areas in the approximate geographic center of the distribution system.

Exhibit 5.5 Guidelines for Using Disinfectant Residual Data

When should I use disinfectant residual data?

Disinfectant residual in the distribution system generally decays as water age increases. Residual concentrations typically decay faster in the warmer months, and the magnitude of decay is more pronounced for free chlorine residuals compared to chloramine residuals.

Disinfectant residual can be helpful in locating areas of average and maximum residence time in the distribution system. This information can be used to select candidate average residence time, high TTHM, and high HAA5 sites.

Because disinfectant residual decay can be caused by factors other than residence time, you should be careful when interpreting your data. Other reasons why you might see a loss in disinfectant residual are listed below.

- Certain types of pipe material can exert a disinfectant residual demand. In particular, unlined cast iron pipe can cause residuals to decline.
- Residual decline can be caused by corrosion byproducts and sediment.
- Bacteriological activity can result in a significant depletion of disinfectant residual.

What are the sources of disinfectant residual data?

Residual data can be from TCR sites, Stage 1 sites, operational sample sites, or sites sampled following customer complaints.

Which data should I use to help identify candidate average residence time sites?

If you are using residual data to help identify sites with average water age, make sure that data is from locations distributed throughout the system. You may want to use only data from TCR sites, since these sites should be geographically representative of your system. Make sure you don't over-emphasize a particular area. You should also use data from the warmest months that show the biggest differences in residual levels.

What if I don't have residual data throughout the system?

You may wish to take more residual data. Take care to ensure that the data is comparable in terms of analytical method, distribution system configuration, and time of the year to the data to which it will be compared.

Step 4: Identify Candidate High TTHM Sites

It is not the intent of IDSE monitoring to identify sites with maximum daily or hourly TTHM concentrations. Instead, you should choose candidate sites to represent areas of the distribution system where you expect to find the highest TTHM levels throughout the year.

In general, **higher water temperatures** and **increased water age** lead to higher TTHM concentrations in distribution systems. The following guidelines can be used to select high TTHM sites.

Use your distribution system map

- If your system has booster disinfection, you should locate candidate high TTHM sites after booster disinfection has been applied (additional disinfectant may have increased DBP formation).
- If your system has storage tanks or reservoirs, you should locate candidate high TTHM sites hydraulically downstream of those tanks or reservoirs.
- You should locate candidate sites near dead ends, particularly those that are on smaller lines, far from major transmission lines. Sparsely populated residential areas can be good candidate sites for high TTHM. However, be sure to locate the candidate sites before or at the last group of customers on a dead end line. Samples taken at the very end of a dead end line are not representative of the water received by customers.



Locate candidate high TTHM and HAA5 sites downstream of tanks

Use residual disinfectant data

- You should locate high TTHM sites in areas with low disinfectant residual, or with residual concentrations that are significantly less than average. (See Step 3 of this section for how to calculate the system average disinfectant residual.) The low residual may indicate a long residence time. Be careful when interpreting disinfectant residual data because there are other conditions other than water age that can result in low residuals in the distribution system (see Exhibit 5.5).

Use additional water quality data and/or advanced tools

- Hydraulic models and tracer studies can be very useful in selecting candidate high TTHM sites. If one or more of these tools are available to your system, refer to Chapter 7 of the *IDSE Guidance Manual*

Step 5: Identify Candidate High HAA5 Standard Monitoring Sites

As with high TTHM standard monitoring sites, it is not the intent of IDSE monitoring to identify sites with maximum daily or hourly HAA5 concentrations. Instead, you should choose high HAA5 standard monitoring sites to represent areas of the distribution system where you expect to find the highest HAA5 levels throughout the year.

Higher temperatures and increased residence time can lead to higher HAA5 concentrations. However, microorganisms can consume HAA5, causing levels to decrease. This is known as *biodegradation*. Biodegradation is more likely to occur when disinfectant residual levels are low or non-existent, particularly in warmer months. Therefore, a high HAA5 site will not necessarily be the site with the longest residence time. You can use the following guidelines to select high HAA5 sites.

Review historical HAA5 data

One way to determine if HAA5 biodegrades in your system is to examine Stage 1 DBPR monitoring or other HAA5 data. You should evaluate the data over time at different locations in the distribution system to look for trends. Consider evaluating your data to answer the following questions:

Are the highest HAA5 levels typically in the summer months (if you monitor more than once per year)?

- Are your HAA5 levels at your Stage 1 DBPR maximum residence time site higher than at your treatment plant (if you monitor at the treatment plant)?
- Do the highest HAA5 generally occur at the same time of year and locations as high TTHM values?

If you answered “**yes**” to all of these questions, it is unlikely that you are experiencing biodegradation of HAA5. If you answered “**no**” to any of these questions, HAA5 compounds may be degrading in your system due to biological activity. It is important that you also evaluate disinfectant residual data to determine the potential for biodegradation in your distribution system.

You should **not** select high HAA5 sites in locations that regularly or in the summer months have free chlorine residuals less than 0.2 mg/L or with chloramine residuals less than 0.5 mg/L.

*If you **don't** believe that HAA5 biodegrades in your system*

High HAA5 sites will be similar to high TTHM sites. You should use the principles in Step 4 to select high HAA5 sites. Remember, high HAA5 sites **must be different** from high TTHM sites for standard monitoring.

*If you **do** believe that HAA5 biodegrades in your system*

You should consider locating HAA5 sites in areas with lower water age in the center regions of your system where you maintain high disinfectant residuals.

Step 6: Plot Sites on a Distribution System Map

A key step in selecting standard monitoring sites from candidate sites is plotting all candidate sites on a map of your distribution system. If you have not already done so, locate all Stage 1 DBPR compliance monitoring locations, near entry point sites, and candidate average residence time, high TTHM, and high HAA5 sites on your water distribution map. Consider color coding the sites by the site type.

As noted in Step 1, your map should also contain the system attributes that will be useful in identifying representative standard monitoring sites, such as:

- Layout of pipes
- Storage facilities
- Pumping stations
- Booster disinfection stations
- Pressure zone boundaries

If possible, your map should also include the location of large water users, areas of significant development, and areas with relatively few customers.

Step 7: Select Standard Monitoring Sites from Candidate Sites

You should now have identified more candidate average residence time, high TTHM, and high HAA5 sites than are required for standard monitoring. Your next step is to narrow down your candidate sites to select standard monitoring sites. This section addresses this question by providing general guidelines for (1) evaluating sites and determining if they meet expectations, and (2) narrowing down the candidate sites to standard monitoring sites. Remember that you must write a justification for each standard monitoring site and a summary of data considered (see Step 8), to be included in your IDSE standard monitoring plan. You may want to consider how you will write your justifications as you examine your candidate sites.

IMPORTANT: You should always **visually confirm** that standard monitoring sites, in combination with existing Stage 1 DBPR monitoring sites, provide geographic coverage of the distribution system. You should confirm that you are not missing key areas that may not have been sampled in the past.

Evaluate Sites. Do They Meet Expectations?

- Are candidate high TTHM sites located in the extremities of the distribution system?

- Are candidate high TTHM sites generally downstream of storage facilities and booster disinfection stations (if booster disinfection is practiced)?
- Are candidate high HAA5 sites in areas where you can regularly maintain disinfectant residual levels greater than 0.2 mg/L for chlorine and 0.5 mg/L for chloramine?
- Are there any other areas where you suspect water age is high that are not represented by a candidate high TTHM (and possibly high HAA5) site?

Narrow Down Candidate Sites to Select Standard Monitoring Sites

- **Look for geographic representation.** Select sites that are geographically diverse from the other standard monitoring sites and existing Stage 1 compliance monitoring locations. EPA recommends that you locate at least one of the high TTHM standard monitoring sites in a remote area of the distribution system. If your distribution system contains hydraulically isolated portions, you should represent as many of these as possible with at least one standard monitoring site. If you are only required to select one high TTHM site, it is strongly recommended that you locate this site far away from the treatment plant, near the last group of customers (but prior to the last fire hydrant).
- **Look for hydraulic representation.** Select standard monitoring sites in hydraulically different areas. Even if sites are geographically near each other, they may represent different pressure zones. You should also select sites that represent mixing zones if multiple sources with different water quality characteristics are used.
- **Use sites that “multi-task.”** Prioritize sites that meet the multiple siting criteria and those identified based on more than one data source. For example, a candidate high TTHM site that has low disinfectant residual, is near the edge of the distribution system and is downstream of a tank would be an excellent standard monitoring site.
- **Consider site access.** Select standard monitoring sites for which access will not be an issue. Sites should remain accessible over the long term.

Step 8: Write Justifications and a Summary of Data

Your final steps in selecting standard monitoring sites are to write a justification for each site and write the summary of data you used to justify your site selection.

You **must** write a justification for **each standard monitoring site**. Justifications should document the key site characteristics that led you to select the site for standard monitoring. They should be brief, but as specific as possible. Some characteristics you should consider including in your justifications are as follows:

- Pipe size, or range of pipe sizes in the area
- Relationship to storage facilities
- Estimated water age, if available
- Source of water (if the distribution system is served by more than one source)
- Range of disinfectant residual concentrations (if lower in the summer, provide summer values)
- For HAA5 sites, range of HPC levels, if available

Not all systems will have all data types in this list; include the information that is available to your system in your justification.

Hypothetical examples of justifications for each type of standard monitoring site are below. Additional examples of justifications are provided in Appendix B of this guidance manual and in the *IDSE Guidance Manual*.

- *High TTHM site: This site is near the end of our distribution system on a 6-inch main and down-gradient of Tank K. Chlorine residuals at this site range from 0.5 to 1.0 mg/L in the summer, compared to our system summer average of 2.0 mg/L.*
- *High HAA5 site: This site is on an 8-inch pipe in a commercial area. This site is far from our treatment plant, but it always has a detectable chlorine residual.*
- *Average residence time site: This site is in the geographic center of Pressure Zone 2 and has a chlorine residual level close to the system average (2.0 mg/L).*
- *Near entry point: This site is at the master meter where we purchase water from System Y. We are connected to System Y at another location, but this connection has the highest flow.*

In addition to justifications, you **must** provide a summary of data you relied on to justify standard monitoring location selection. You should describe the water quality data you reviewed, map features you considered, ranges of relevant water quality data, and water sources and seasonal operations if applicable, and tools you used to select your standard monitoring sites. An example summary is provided below. Additional examples of data summaries are provided in Appendix B of this guidance manual and in the *IDSE Guidance Manual*.

We used our water distribution system map to plot data and select sites. Our map shows locations of our large transmission mains, two storage tanks, and our surface water source. It also shows locations of TCR and Stage 1 monitoring sites. We analyzed disinfectant residual collected at TCR sites in 2004 and 2005. Summer disinfectant levels ranged from 2.5 mg/L at the plant to 0.3 mg/L in the distribution system, with a distribution system average of 1.1 mg/L in July and August. We calculated average TTHM and HAA5 concentrations for our Stage 1 DBPR sites for 2005 data. TTHM concentrations ranged from 0.035 mg/L through 0.085 mg/L and HAA5 concentrations ranged from 0.015 mg/L through 0.037 mg/L. We looked at tank level data to estimate average residence time inside our two tanks. We highlighted two problem areas that our

operations staff say are places where we get repeat customer complaints of stale or dirty water and low disinfectant residuals.

5.1.2 Selecting Your Peak Historical Month and Determining Standard Monitoring Schedule

Determining Peak Historical Month

The Stage 2 DBPR defines the peak historical month as the month with the highest TTHM or HAA5 levels or the warmest water temperature. It is meant to represent “worst case” conditions when DBPs are the highest. You **must** review available compliance, study, or operational data to determine the peak historical month for TTHM or HAA5 levels or warmest water temperature. You can use **Worksheet 5.1** on the next page to determine your peak historical month.

Some systems may find other data, such as total organic carbon (TOC) data and water demand data, helpful in determining the peak historical month. If you wish to consider data other than TTHM, HAA5, and temperature data for selecting your peak historical month, see Chapter 7 of the *IDSE guidance manual* for guidance.

Determining Standard Monitoring Schedule

You **must** take one round of standard monitoring samples during the peak historical month. If you serve between 500 and 9,999 people, you must also conduct sampling at equal 90-day intervals before and/or after the peak historical month. Be sure to plan your monitoring so that all sampling is complete by the deadline on your *requirements summary sheet* in Chapter 2.

The intent of the required time interval is to ensure that samples represent the quality of water over an extended period and do not over-emphasize either high or low concentrations of TTHM or HAA5 that may occur seasonally. For example, a system on quarterly monitoring could sample in the **third full week of every third month**. You should keep in mind holidays and sampling schedules for other water quality programs when determining your standard monitoring schedule.

A. Do you have more than one water source (e.g., treatment plant or consecutive system entry point) in your system? Yes No

If Yes, you should identify the source associated with the highest TTHM and HAA5 levels in your system based on your Stage 1 DBPR monitoring data. You should use data from this source for selecting your peak historical month. Continue to STEP B

If No, continue to STEP B

B. Do you have monthly or quarterly TTHM and HAA5 data? Yes No

If Yes, you should determine in which month your TTHM and HAA5 levels are the highest.

What if the highest TTHM and/or HAA5 levels occur at different times during different years? You should choose the year of data that is most representative of typical system operating and weather conditions.

What if the highest TTHM and HAA5 levels occur in different months? You should consider which contaminant is of more concern. If one contaminant clearly shows a higher overall trend and is closer to the MCL, you should choose the month in which that contaminant is highest.

Choose the month with the highest TTHM and HAA5 levels as your peak historical month. *Stop here.*



If No, continue to STEP C

C. Use temperature data to select your peak historical month

Calculate the average water temperature for each summer month to identify the month of warmest water temperature. If available, use data from several years to determine when the warmest water temperature occurs. If warmest temperature occurs in different months in different years, select the year(s) that are most typical of climatological and water quality data and water use for your region.



Remember, in your standard monitoring plan you should indicate the source used to select your peak historical month and the basis for selecting it (high TTHM, high HAA5, and/or temperature)

5.1.3 Preparing Your Standard Monitoring Plan

Every system that conducts IDSE standard monitoring **must** prepare and submit an Standard Monitoring Plan. You should submit the plan to the Information Processing and Management Center (IPMC) for review by EPA or your state. See Section 1.3 of this guidance manual for information on how to submit your plan to the IPMC.

EPA has developed a **Standard Monitoring Plan Form for Systems Serving < 10,000**, presented in this section and available electronically as part of the **IDSE Tool**. You are not required to use this form; however, if you choose not to use it, refer to Exhibit 5.1 on page 5-2 for a list of the minimum elements you must include in your standard monitoring plan.

The IDSE Tool creates a custom form for your system and provides links to technical guidance from this manual. The tool is available on EPA's website at <http://www.epa.gov/safewater/disinfection/stage2>.



Your deadlines for submitting your standard monitoring plan and conducting standard monitoring can be found on your requirements summary sheet in Chapter 2. If EPA or your state does not approve or request modifications to your plan, or notify you that your plan is still under review **within 12 months** after the deadline for plan submission, **you may consider the plan approved**.

The standard monitoring plan form includes the following sections:

- I. General Information
- II. IDSE Requirements
- III. Selecting Standard Monitoring Sites
- IV. Justification of Standard Monitoring Sites
- V. Peak Historical Month and Standard Monitoring Schedule
- VI. Planned Stage 1 DBPR Compliance Monitoring Schedule
- VII. Distribution System Schematic
- VIII. Attachments

Sections of the form with an asterisk (*) are required by the Stage 2 DBPR. Examples of completed standard monitoring plans using this form are provided in Appendix B of this manual and in the *IDSE Guidance Manual*. The rest of this section provides guidance on the completion of this form.

I. General Information

- I.A. PWS Information* - Important definitions for classifying your system are provided in the **definitions section** at the beginning of this guidance manual. If you have any questions on this section, contact EPA or your state.

PWSID - Enter your PWSID identification number here. This number is typically assigned by your state.

PWS Name - Enter the name of your system here.

PWS Address - Enter the primary mailing address for your water system here.

Population Served - Enter the number of people served by your PWS. Remember, this is your RETAIL population served, not including the population served by consecutive systems that purchase water from you.

System Type - Put a check mark in the appropriate box to identify whether your system is a CWS or a NTNCWS. Definitions for CWS and NTNCWS can be found in the **definitions section** at the beginning of this guidance manual.

Source Water Type - Put a check mark in the appropriate box to identify whether your system is a subpart H system or a ground water system. If you use any surface water or GWUDI as a source, mark the subpart H box. Definitions for subpart H system (including GWUDI) and ground water system can be found in the **definitions section** at the beginning of this guidance manual.

Buying/Selling Relationships - Put a check mark in the appropriate box to identify whether your system is a consecutive system, a wholesale system, or neither. If you are both a consecutive and wholesale system (e.g., you buy and sell water), check both boxes. Definitions for consecutive system and wholesale system can be found in the **definitions section** at the beginning of this guidance manual and in **Appendix A**.

I.B. Date Submitted* - Enter either the date that you are submitting the form electronically, putting it in the mailbox, or dropping it off with an express delivery service. Be sure to submit your standard monitoring plan before the deadline found on your requirements summary sheet.

I.C. PWS Operations - This section asks questions about your system to help inform EPA and state personnel during the plan review process.

Residual Disinfectant Type - Put a check mark in the appropriate box to identify the type of disinfectant you most often use **to maintain a residual in your distribution system** (not necessarily the same disinfectant used for primary disinfection at the treatment plant). If you use chloramine but switch to free chlorine for a short time, you should still check chloramine only. If you use chloramine and chlorine regularly in your system (e.g, 4 months of free chlorine and 8 months of chloramines), check both chlorine and chloramine. If you maintain your residual with a disinfectant other than chlorine or chloramines (e.g.,

chlorine dioxide), you should place a check next to the box marked “Other” and enter the type of disinfectant you use in the blank next to “Other”.

Number of Disinfected Sources - Enter the total number of sources that deliver disinfected water to your distribution system. If you connect to a single wholesale system at a number of locations in your distribution system, consider this one source. Multiple wells that are disinfected at a common treatment plant should also be considered one source. Do not count wells that are not disinfected or are disinfected by UV only.

I.D. Contact Person* - Enter the contact information of the person who is submitting the form. This should be the person who will be available to answer questions from EPA and/or state reviewers.

II. IDSE Requirements*

II.A. Number of Sites - Refer to Exhibit 5.2. Copy the numbers from the exhibit that correspond to your source type and the population served by your system. This information is also in Chapter 2 of this manual.

II.B. Schedule - Enter the schedule for your system based on the **letter** sent to you from EPA or your state. See Chapter 2 for more information on the letter.

II.C. Standard Monitoring Frequency - Locate the monitoring frequency from Exhibit 5.2 that corresponds to your source type and the population served by your system. Put a check mark in the box corresponding to that monitoring frequency. This information is also in Chapter 2 of this manual.

III. Selecting Standard Monitoring Sites

III.A. Data Evaluated - Put a check mark in each box corresponding to the data that you used to select each type of standard monitoring site. Water quality data may be compliance data or operational data.

III.B. Summary of Data* - In the space provided (or in an attached writeup), provide a summary of the data you used to justify your site selection. See Step 8 in Section 5.1.1 of this manual for guidance.

IV. **Justification of Standard Monitoring Sites*** Enter the site ID from the distribution schematic, site type (whether it is near an entry point, average residence time, high TTHM, or high HAA5), and justification. Justification for each standard monitoring site should include the system characteristics that led you to choose it as a standard monitoring site. See Step 8 in Section 5.1.1 of this manual for guidance.

V. **Peak Historical Month and Proposed Standard Monitoring Schedule**

- V.A. Peak Historical Month* - Enter the month that you determined to be your peak historical month. See Section 5.1.2 and **Worksheet 5.1** for guidelines on selecting your peak historical month.
- V.B. If Multiple Sources, Source Used for Peak Historical Month - If your system has only one source, write “N/A” here. If you have more than one source, write the name of the source you used as the basis for determining peak historical month. For example, if a system has one surface water, one ground water, and one purchased ground water source, it is likely that they relied heavily on data from the surface water source to select their peak historical month. This system would write “surface water source” in the blank provided.
- V.C. Peak Historical Month Based On* - Put a check mark in the appropriate box to identify the basis for determining your peak historical month. If your peak historical month is supported by more than one parameter (e.g., peak historical month is month of high TTHM and maximum temperature), check each box that applies. If you used data other than TTHM, HAA5, and temperature data to select your peak historical month (e.g., you used TOC data and/or water age data), describe how you used additional data here.
- V. D. Proposed Standard Monitoring Schedule* - Enter the ID for each standard monitoring site in the table (verify that these match the ID’s you enter in Section IV and on your schematic). Enter your proposed sampling schedule for the number of monitoring periods identified in Section II.C. The entry can be a specific date or week and can be in a number of different formats. For example:
- 7/9/07
 - 2nd week in Nov ‘07
 - Week of 7/9/07

Remember that at least one monitoring period must be during the peak historical month identified in Section V.A.

- VI. Planned Stage 1 DBPR Compliance Monitoring Schedule*** Enter the projected sampling schedule for the number of Stage 1 DBPR monitoring periods in which you will conduct Stage 1 DBPR monitoring during your IDSE standard monitoring. Verify that site IDs in this table match the IDs on your distribution system schematic. If you are required to monitor at more than 8 Stage 1 DBPR locations you will need to attach additional sheets. You may also want to attach your Stage 1 DBPR monitoring plan.
- VII. Distribution System Schematic*** Attach a distribution system schematic to your monitoring plan. Your schematic must include the locations of entry points, sources, storage facilities, standard monitoring sites, and Stage 1 compliance monitoring sites.

IDSE standard monitoring plans will not be considered confidential business information (CBI) and are subject to the Freedom of Information Act (FOIA). *Therefore, your distribution system schematic should not contain information that poses a security risk to your system.* EPA suggests that you consider one of the following options for submitting distribution system schematics:

- **Option 1: Distribution system schematic with no landmarks or addresses indicated.** Show locations of sources, entry points, storage facilities, standard monitoring locations, and Stage 1 compliance monitoring locations (required). Also include pressure zone boundaries and locations of pump stations. Provide map scale.
- **Option 2: City map without locations of pipes indicated.** Show locations of sources, entry points, storage facilities, standard monitoring locations, and Stage 1 compliance monitoring locations (required). Also include boundaries of the distribution system, pressure zone boundaries and locations of pump stations. Provide map scale.

Schematics should be as clear and easy to read as possible. They should typically be submitted on a scale of between 1:4,000 and 1:8,000; however, larger-scale drawings are acceptable as long as systems components can still be clearly shown. All sizes from 8½ inches x 11 inches to larger, plan-sized sheets are acceptable. If electronic versions are submitted, use one of the following file types:

- Adobe PDF file (*.pdf)
- Microsoft Word (*.doc)
- WordPerfect (*.wpd)
- Image file (*.gif, *.bmp, *.jpg, *.jpeg)

VIII. Attachments Put a check mark in each of the boxes corresponding to any attachments that you have included in your report.

A distribution system schematic is required. Refer to Section VII for details.

If you submit your standard monitoring plan electronically, you also have the option to submit attachments in hard copy. Include a note in your electronic standard monitoring plan explaining that attachments are being submitted in hard copy, and mail the hard copy to the IPMC mailing address in your Requirements Summary Sheet. The IPMC will match the hard copy submission with your electronic submission when it is received.

Enter the total number of pages in your monitoring plan (including attachments) in the blank at the bottom of this section. This will allow EPA or your state to ensure that all pages were received.

Standard Monitoring Plan Form for Systems Serving < 10,000

I. GENERAL INFORMATION

A. PWS Information*

B. Date Submitted* _____

PWSID: _____

PWS Name: _____

PWS Address: _____

City: _____ State: _____ Zip: _____

Population Served: _____

System Type:	Source Water Type:	Buying / Selling Relationships:
<input type="checkbox"/> CWS	<input type="checkbox"/> Subpart H	<input type="checkbox"/> Consecutive System
<input type="checkbox"/> NTNCWS	<input type="checkbox"/> Ground	<input type="checkbox"/> Wholesale System
		<input type="checkbox"/> Neither

C. PWS Operations

Residual Disinfectant Type: Chlorine Chloramines Other: _____

Number of Disinfected Sources: ___ Surface ___ GWUDI ___ Ground ___ Purchased

D. Contact Person*

Name: _____

Title: _____

Phone #: _____ Fax #: _____

E-mail: _____

II. IDSE REQUIREMENTS*

A. Number of Sites	B. Schedule	C. Standard Monitoring Frequency
Total: _____ Near Entry Point: _____ Avg Residence Time: _____ High TTHM: _____ High HAA5: _____	<input type="checkbox"/> Schedule 1 <input type="checkbox"/> Schedule 2 <input type="checkbox"/> Schedule 3 <input type="checkbox"/> Schedule 4	<input type="checkbox"/> During peak historical month (1 monitoring period) <input type="checkbox"/> Every 90 days (4 monitoring periods) <input type="checkbox"/> Every 60 days (6 monitoring periods)

Standard Monitoring Plan Form for Systems Serving < 10,000

III. SELECTING STANDARD MONITORING SITES

A. Data Evaluated Put a “✓” in each box corresponding to the data that you used to select each type of standard monitoring site. Check all that apply.

Data Type	Type of Site			
	Near Entry Pt.	Avg. Residence Time	High TTHM	High HAA5
System Configuration				
Pipe layout, locations of storage facilities				
Locations of sources and consecutive system entry points				
Pressure zones				
Information on population density				
Locations of large customers				
Water Quality and Operational Data				
Disinfectant residual data				
Stage 1 DBP data				
Other DBP data				
Microbiological monitoring data (e.g., HPC)				
Tank level data, pump run times				
Customer billing records				

B. Summary of Data* Provide a summary of data you relied on to justify standard monitoring site selection (*attach additional sheets if needed*)

Standard Monitoring Plan Form for Systems Serving < 10,000

IV. JUSTIFICATION OF STANDARD MONITORING SITES*

Standard Monitoring Site ID (from map) ¹	Site Type	Justification
	<input type="checkbox"/> Near Entry Pt <input type="checkbox"/> Avg. Res. Time <input type="checkbox"/> High TTHM <input type="checkbox"/> High HAA5	
	<input type="checkbox"/> Near Entry Pt <input type="checkbox"/> Avg. Res. Time <input type="checkbox"/> High TTHM <input type="checkbox"/> High HAA5	
	<input type="checkbox"/> Near Entry Pt <input type="checkbox"/> Avg. Res. Time <input type="checkbox"/> High TTHM <input type="checkbox"/> High HAA5	
	<input type="checkbox"/> Near Entry Pt <input type="checkbox"/> Avg. Res. Time <input type="checkbox"/> High TTHM <input type="checkbox"/> High HAA5	

¹ Verify that site IDs match IDs in Section IV and on your distribution system schematic (See Section VII of this form).

V. PEAK HISTORICAL MONTH AND STANDARD MONITORING SCHEDULE

A. Peak Historical Month* _____

B. If Multiple Sources, Source Used to Determine Peak Historical Month (write "N/A" if only one source in your system)

C. Peak Historical Month Based On* (check all that apply)

- High TTHM Warmest water temperature
 High HAA5

If you used other information to select your peak historical month, explain here (attach additional sheets if needed)

Standard Monitoring Plan Form for Systems Serving < 10,000

V. PEAK HISTORICAL MONTH AND STANDARD MONITORING SCHEDULE (Continued)

D. Proposed Standard Monitoring Schedule*

Standard Monitoring Site ID (from map) ¹	Projected Sampling Date (date or week) ²			
	Period 1	Period 2	Period 3	Period 4

¹ Verify that site IDs match IDs in Section IV and on your distribution system schematic (See Section VII of this form).

² period = monitoring period. Complete for the number of periods from Section II.C. Can list exact date or week (e.g., week of 7/9/07)

VI. PLANNED STAGE 1 DBPR COMPLIANCE MONITORING SCHEDULE*

Stage 1 DBPR Monitoring Site ID (from map) ¹	Projected Sampling Date (date or week) ²			
	Period 1	Period 2	Period 3	Period 4

¹ Verify that site IDs match IDs on your distribution system schematic (See Section VII of this form).

² period = monitoring period. Complete for the number of periods in which you must conduct Stage 1 DBPR monitoring during IDSE monitoring. Can list exact date or week (e.g., week of 7/9/07)

Standard Monitoring Plan Form for Systems Serving < 10,000

Page 5 of 5

VII. DISTRIBUTION SYSTEM SCHEMATIC*

ATTACH a schematic of your distribution system.

Distribution system schematics are not confidential and should not contain information that poses a **security risk** to your system. EPA recommends that you use one of two options:

Option 1: Distribution system schematic with no landmarks or addresses indicated. Show locations of sources, entry points, storage facilities, standard monitoring locations, and Stage 1 compliance monitoring locations (required). Also include pressure zone boundaries and locations of pump stations. Provide map scale.

Option 2: City map without locations of pipes indicated. Show locations of sources, entry points, storage facilities, standard monitoring locations, and Stage 1 compliance monitoring locations (required). Also include boundaries of the distribution system, pressure zone boundaries and locations of pump stations. Provide map scale.

VIII. ATTACHMENTS

- Distribution System Schematic* (Section VII).
- Additional sheets for the summary of data or site justifications (Sections III and IV).
- Additional copies of Page 3 for justification of Standard Monitoring Sites (Section IV).
- Additional sheets for explaining how you used data other than TTHM, HAA5, and temperature data to select your peak historical month (Section V).
- Additional sheets for planned Stage 1 DBPR compliance monitoring schedule (Section VI).

Total Number of Pages in Your Plan _____

Note: Fields with an asterisk (*) are required by the Stage 2 DBPR

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5.2 Conducting Standard Monitoring

Conducting standard monitoring is an integral part of the IDSE. The results of standard monitoring, along with the results of Stage 1 DBPR compliance monitoring, **must** be used to select the best sites for Stage 2 DBPR compliance monitoring and **must** be documented in your IDSE report. This section presents sampling requirements and tips for sample collection for conducting standard monitoring.

Remember, you must submit your standard monitoring plan before you begin standard monitoring. If EPA or your state does not approve or request modifications to your plan, or notify you that your plan is still under review **within 12 months** after the deadline for plan submission, **you may consider the plan approved**. You must conduct standard monitoring according to the approved monitoring plan.

REMINDER: you must continue to collect samples and comply with the Stage 1 DBPR during the IDSE. Results from standard monitoring should **not** be used for making Stage 1 compliance determinations.

Your Requirements

You **must** conduct standard monitoring according to the schedule and at each of the monitoring locations listed in your standard monitoring plan. ***If you deviate from the approved plan for any reason*** (e.g., a site was not accessible on the planned week and you needed to sample during the next week), you must include an explanation for the deviation in your IDSE report.

During each sampling event, you must collect a **dual sample set** (i.e., two samples) at each location. One sample must be analyzed for TTHM and the other must be analyzed for HAA5. Two samples are required because the analytical methods used for the two groups of contaminants require different sample preservation methods. You must use EPA-approved methods for analysis of your TTHM and HAA5 samples. More information on EPA-approved methods can be found in Appendix C of the *IDSE Guidance Manual*

Tips for Sample Collection

As you conduct standard monitoring, you should keep in mind the following tips:

- **Use appropriate sample bottles.** You should use sample bottles that already contain the appropriate dechlorinating agent and preservative for sample collection. You should contact your lab for a recommended sampling and preservation protocol. A typical sampling protocol can be found in Appendix C of the *IDSE Guidance Manual*.
- **Flush your sample tap.** If you collect samples from a tap, you should open the cold water tap and allow the line to flush until the water temperature has stabilized (usually about 3-5 minutes). If you collect a sample at a hydrant or blow-off, the flushing time only needs to be long enough to purge the connecting line to the main.

The purpose of this step is to ensure the sample does not represent stagnant water that has been sitting for a long time in the water line between the street and the faucet. The sample should represent the water flowing through the distribution system at the chosen sampling point.

- **Collect cold water samples.** If you collect indoor samples you should collect them from a cold water line.
- **Collect additional water quality data.** You may wish to collect additional water quality data, such as disinfectant residual and temperature data, at the time of DBP sample collection. This information can be helpful as you interpret standard monitoring results (e.g., unusually low residual at a location could mean unusually high residence time).
- **Re-sample if a sample is lost or broken.** If a sample bottle is lost or broken after sample collection, you should re-sample as soon as possible after the loss occurs. Only the lost sample needs to be recollected, not the entire sample set that was collected together. Make sure to note the loss of sample and resample date as a deviation in your IDSE report.

If you need to change an IDSE standard monitoring sampling location for reasons beyond your control, or if you miss a required sampling period entirely, you should contact EPA or your state so they can approve your re-sampling strategy.

5.3 Selecting Stage 2 DBPR Compliance Monitoring Sites and Preparing the IDSE Report

Every system that conducts standard monitoring **must** use results from Stage 1 DBPR compliance monitoring and standard monitoring to select Stage 2 DBPR compliance monitoring sites. You **must** include your monitoring results and recommended Stage 2 compliance monitoring sites in an IDSE Report. You should submit your IDSE report to the Information Processing and Management Center (IPMC) for review by EPA or your state. See Section 1.3 of this guidance manual for information on how to submit your plan to the IPMC.

This section presents the required protocol for selecting Stage 2 DBPR compliance monitoring sites and provides guidance for preparing an IDSE report.

EPA has developed a **Form** for the **IDSE Report for Standard Monitoring for Systems Serving < 10,000**, presented in Section 5.3.3 and available electronically as part of the **IDSE Tool**. You are not required to use this form; however, if you choose not to use it, refer to Exhibit 5.6 for a list of the minimum elements you must include in your IDSE report. Examples of completed reports can be found in Appendix B of this guide and in the *IDSE Guidance Manual*. The IDSE Tool is available on EPA's website at <http://www.epa.gov/safewater/disinfection/stage2>.



IDSE Tool

Exhibit 5.6 Required Elements of Your IDSE Report for Standard Monitoring

- Explanation of any deviations from approved standard monitoring plan
- TTHM and HAA5 analytical results from Stage 1 DBPR monitoring and IDSE standard monitoring
- Recommendations and justification of Stage 2 DBPR monitoring sites and sampling dates
- If changed from the approved standard monitoring plan:
 - Distribution system schematic
 - Population served by the system
 - System type (subpart H or ground water)

5.3.1 Selecting Stage 2 DBPR Compliance Monitoring Locations

All systems serving < 10,000 people must select one highest TTHM and one highest HAA5 site for Stage 2 DBPR compliance monitoring. Some small systems may be able to use one location as both their highest TTHM and highest HAA5 site if their highest concentrations occur at the same location and during the same month. See page 2 of the *Standard Monitoring Requirements - Attachment* sheet in Chapter 2 for more information.

The required procedure for selecting Stage 2 compliance monitoring locations is laid out in the Stage 2 rule and summarized below.

Step 1: Calculate TTHM and HAA5 LRAA for each site

You should begin the Stage 2 site selection process by calculating the locational running annual average (LRAA) for each standard monitoring site and Stage 1 DBPR compliance monitoring site. Note that because the duration for IDSE standard monitoring is one year, the LRAA for each standard monitoring site is equivalent to the average of all TTHM or HAA5 data collected at the location (either one or four points depending on your IDSE standard monitoring frequency). The LRAA for each Stage 1 DBPR compliance monitoring site should be the LRAA for the year that you conducted standard monitoring (either one or four data points depending on your Stage 1 compliance monitoring frequency). You should consider using a spreadsheet to store your data and calculate your LRAAs.

For systems collecting quarterly data:

$$\text{LRAA} = (\text{Q1} + \text{Q2} + \text{Q3} + \text{Q4}) / 4$$

For systems collecting annual data (once / year):

$$\text{LRAA} = \text{result for warmest temperature month}$$

Step 2: Select Stage 2 sites based on LRAA's

Next, select your Stage 2 DBPR compliance monitoring sites based on your LRAA results:

- Select the site with the highest TTHM LRAA as your Highest TTHM site.
- Select the site with the highest HAA5 LRAA as your Highest HAA5 site.

If the highest HAA5 LRAA occurs at the same location and during the same month as the highest TTHM LRAA, you may be able to use the same site to represent both your Highest TTHM and Highest HAA5 site if you meet other criteria. See page 2 of the ***Standard Monitoring Requirements - Attachment*** sheet in Chapter 2 for more information.

Do I always need to follow the protocol for selecting Stage 2 DBPR compliance monitoring sites?

No, as long as you ***justify your site selection***. Although sites should generally be selected using highest LRAAs, it is possible that slight differences between two LRAAs might not be as important as other factors for selecting sites. Other reasons that can be used to a site that is not the highest LRAA include:

- The site provides more complete geographic coverage of the entire distribution system
- The site allows you to maintain a historical record
- Sampling at that site provides the opportunity to collect other water quality or operational data (e.g., chloramine systems may want to collect nitrate or nitrite data at that site)

It is possible that EPA or your state may not concur with your justification and may require you to select different Stage 2 compliance monitoring sites.

5.3.2 Determining Your Stage 2 DBPR Compliance Monitoring Schedule

The first step in determining your Stage 2 DBPR compliance monitoring schedule is to select your peak historical month. You should use the peak historical month selected in your IDSE standard monitoring plan unless new data suggest another month. Refer to Section 5.1.2 for more information on determining peak historical month.

You **must** conduct Stage 2 DBPR compliance monitoring during the peak historical month. If you are a subpart H system that serves more than 499 people, you must also conduct Stage 2 compliance sampling at 90 day intervals before and/or after the peak historical month.

The intent of the required time interval is to ensure that samples are representative of the quality of water over an extended period and do not over-emphasize either high or low concentrations of TTHM or HAA5 that might occur seasonally. For example, a system on quarterly monitoring could sample in the **third full week of every third month**. It is not necessary to sample all sites on the same day.

5.3.3 Preparing the IDSE Report for Standard Monitoring

Every system that conducts IDSE standard monitoring **must** prepare and submit an IDSE Report for Standard Monitoring. You should submit the report to the Information Processing and Management Center (IPMC) for review by EPA or your state. See Section 1.3 of this guidance manual for information on how to submit your report to the IPMC.

EPA has developed a **Form for the IDSE Report for Standard Monitoring For Systems Serving < 10,000**, presented in this section and available electronically as part of the **IDSE Tool**. You are not required to use this form; however, if you choose not to use it, refer to Exhibit 5.6 for a list of the minimum elements you must include in your IDSE report.

The IDSE Tool creates a custom form for your system and provides links to technical guidance from this manual. The tool is available on EPA's website at <http://www.epa.gov/safewater/disinfection/stage2>.



Before you begin Stage 2 DBPR compliance monitoring, you will also be required to prepare a Stage 2 DBPR compliance monitoring plan. In addition, if you are a subpart H system serving > 3,300 people, you must submit a copy of your Stage 2 compliance monitoring plan to the state. If you include **compliance calculation procedures** in your IDSE report, the report can meet the requirement of the plan, and you do not have to prepare or submit a separate plan. As a guide for specifying your compliance calculation procedures, refer to the Stage 1 DBPR, 141.133(b), and your Stage 1 compliance monitoring plan. Check with your state, as they may have different requirements under the Stage 2 DBPR. If you are a consecutive or wholesale system, your state may choose to use its special primacy authority to modify your Stage 2 compliance monitoring requirements. In this case, you should check with the state to see if they are going to use this authority. You should develop your IDSE report for the total number of required Stage 2 compliance locations for your system.

The IDSE report for standard monitoring form includes the following sections:

- I. General Information
- II. Stage 2 DBPR Requirements
- III. Monitoring Results
- IV. Justification of Stage 2 DBPR Compliance Monitoring Sites
- V. Peak Historical Month and Stage 2 DBPR Compliance Monitoring Schedule
- VI. Distribution System Schematic
- VII. Attachments

Sections of the form with an asterisk (*) are required by the Stage 2 DBPR. Examples of completed IDSE reports are in Appendix B of this manual and in the *IDSE Guidance Manual*. The rest of this section provides guidance on the completion of this form.

I. General Information

- I.A. PWS Information* - If nothing has changed since you completed your standard monitoring plan form, copy information from your plan into this section. If your system characteristics have changed, see Section 5.1.3 of this manual for guidance on completing this section.
- I.B. Date Submitted* - Enter either the date that you are submitting the form electronically, putting it in the mailbox, or dropping it off with an express delivery service. Be sure to submit your IDSE report before the deadline found on your requirements summary sheet.
- I.C. PWS Operations - This section asks questions about your system to help inform EPA and state personnel during the plan review process. If nothing has changed since you completed your standard monitoring plan form, copy information from your plan into this section. If your system characteristics have changed, see Section 5.1.3 of this manual for guidance on completing this section.
- I.D. Contact Person* - Enter the contact information of the person who is submitting the report. This should be the person who will be available to answer questions from EPA and/or state reviewers.

II. Stage 2 DBPR Requirements*

- II.A. Number of Compliance Monitoring Sites - If you serve fewer than 10,000 people, you need one highest TTHM and one highest HAA5 site.
- II.B. Schedule - This should be the same schedule you entered for your standard monitoring plan. See Section 5.1.3 of this manual for guidance.
- II.C. Compliance Monitoring Frequency - If you are a subpart H system serving < 500 people or a ground water system serving <10,000 people, you must monitor once per year during the peak historical month. If you are a subpart H system that serves between 499 and 10,000 people, you must conduct Stage 2 compliance monitoring at 90 day intervals before and/or after the peak historical month.

III. Monitoring Results*

- III.A. Did you deviate in any way from your approved standard monitoring plan? - Put a check mark in the appropriate box to identify whether your system collected any standard monitoring samples on different dates or at different locations than indicated in your approved standard monitoring plan.

If you sampled on a different date or during a different week than scheduled in the approved monitoring plan, you should write an explanation in the space provided (or in attached sheets). You should include the standard monitoring site ID, the scheduled sampling date or week from your monitoring plan, and the actual

sampling date. You must also explain why you sampled on a different day or week than planned. An example explanation is shown below.

According to our standard monitoring plan, we were to collect samples at standard monitoring sites 2 and 4 on January 14, 2009. However, a major snowstorm created hazardous road conditions and limited our access to sample locations. Therefore, we conducted our sampling at all sites on January 18, 2009 after the roads were cleared.

III.B. Where were your TTHM and HAA5 samples analyzed? - Put a check mark in the appropriate box to identify whether your system analyzed TTHM and HAA5 samples in an in-house laboratory or sent the samples to a certified laboratory for analysis.

If you analyzed your TTHM and HAA5 samples in an in-house laboratory, check the appropriate box to identify whether your laboratory is certified. If you sent your TTHM and HAA5 samples to a certified laboratory, enter the name of the laboratory in the blank. If you used more than one laboratory (e.g., if you used different laboratories for standard monitoring samples and Stage 1 DBPR compliance samples), list both laboratories, or check “in-house” and list the name of the laboratory if applicable.

III.C What method was used to analyze your TTHM and HAA5 samples? Put a check mark in the appropriate box to indicate the analytical method used to measure the TTHM and HAA5 concentrations of your standard monitoring and Stage 1 DBPR compliance samples. If more than one method was used (e.g., if you used different laboratories for standard monitoring samples and Stage 1 DBPR compliance samples), check more than one method. If you do not know what method was used, contact your laboratory.

III.D. Standard Monitoring and Stage 1 Compliance Monitoring Results - TTHM - Enter your TTHM results for each standard monitoring site and each Stage 1 DBPR compliance monitoring site for each monitoring period in which you collected data (as laid out in your standard monitoring plan). For each sample result, enter the date on which sampling was conducted.

III.E. Standard Monitoring and Stage 1 Compliance Monitoring Results - HAA5 - Enter your HAA5 results for each standard monitoring site and each Stage 1 compliance monitoring site for each monitoring period in which you collected data (as laid out in your standard monitoring plan). For each sample result, enter the date on which sampling was conducted.

IV. **Justification of Stage 2 DBPR Compliance Monitoring Sites***

Enter the site ID from the distribution schematic and the site type (whether it is highest TTHM or highest HAA5). For example:

This site had the highest TTHM LRAA

An example of how you might justify a site that was **not** selected using the protocol is below:

Among the three remaining high TTHM sites, standard monitoring Site 1 has the highest TTHM LRAA. However, Stage 1 DBPR Site 2 has only a slightly lower TTHM LRAA than standard monitoring Site 1. Therefore, we choose Stage 1 DBPR Site 2 over standard monitoring Site 1 to maintain the historical DBP record.

V. Peak Historical Month and Stage 2 DBPR Compliance Monitoring Dates

- V.A. Peak Historical Month* - Enter the month that you determined to be your peak historical month.
- V.B. Is Your Peak Historical Month the Same as in Your IDSE Standard Monitoring Plan? - Put a check mark in the appropriate box to identify whether your system used the same peak historical month as in your standard monitoring plan. If your standard monitoring results prompted you to change your peak historical month, explain how you selected a new peak historical month.
- V.C. Proposed Stage 2 DBPR Compliance Monitoring Schedule* - Enter the ID for each Stage 2 DBPR compliance monitoring site in the table (these should match the ID's you enter in Section IV and on your schematic). Enter your proposed sampling schedule for the number of monitoring periods identified in Section II.C. The entry can be a specific date or week and can be in a number of different formats. For example:
- 7/9/07
 - 2nd week in Nov '07
 - Week of 7/9/07

Remember that at least one monitoring period must be during the peak historical month identified in Section V.A.

VI. Distribution System Schematic* - A distribution system schematic is required *only if it has changed from your approved IDSE standard monitoring plan*. If it has changed, attach the revised distribution system schematic. See Section 5.1.3 of this manual for guidance.

VII. Attachments - Put a check mark in each of the boxes corresponding to any attachments that you have included in your report.

A distribution system schematic is required *only if it has changed since you submitted your IDSE standard monitoring plan*. Refer to Section VI for details.

If you submit your IDSE report electronically, you also have the option to submit attachments in hard copy. Include a note in your electronic IDSE report explaining that attachments are being submitted in hard copy, and mail the hard copy to the IPMC mailing address in your Requirements Summary Sheet. The IPMC will match the hard copy submission with your electronic submission when it is received.

If you are a subpart H system serving >3,300 people, you must submit a copy of your Stage 2 compliance monitoring plan to the state. If you include **compliance calculation procedures** in your IDSE report, the report can meet the requirement of the plan, and you do not have to prepare or submit a separate plan. As a guide for specifying your compliance calculation procedures, refer to the Stage 1 DBPR, 141.133(b), and your Stage 1 compliance monitoring plan. Check with your state, as they may have different requirements under the Stage 2 DBPR.

Enter the total number of pages in your IDSE report (including attachments) in the blank at the bottom of this section. This will allow EPA or your state to ensure that all pages were received.

This page intentionally left blank.

IDSE Report for Standard Monitoring for Systems Serving < 10,000

I. GENERAL INFORMATION

A. PWS Information*

B. Date Submitted* _____

PWSID: _____

PWS Name: _____

PWS Address: _____

City: _____ State: _____ Zip: _____

Population Served _____

System Type:	Source Water Type:	Buying / Selling Relationships:
<input type="checkbox"/> CWS	<input type="checkbox"/> Subpart H	<input type="checkbox"/> Consecutive System
<input type="checkbox"/> NTNCWS	<input type="checkbox"/> Ground	<input type="checkbox"/> Wholesale System
		<input type="checkbox"/> Neither

C. PWS Operations

Residual Disinfectant Type: Chlorine Chloramines Other: _____

Number of Disinfected Sources: ___ Surface ___ GWUDI ___ Ground ___ Purchased

D. Contact Person*

Name: _____

Title: _____

Phone #: _____ Fax #: _____

E-mail: _____

II. STAGE 2 DBPR REQUIREMENTS*

A. Number of Compliance Monitoring Sites

B. Schedule

C. Compliance Monitoring Frequency

Highest TTHM: 1

Highest HAA5: 1

Total: 2

Schedule 1

Schedule 2

Schedule 3

Schedule 4

During peak historical month (1 monitoring period)

Every 90 days (4 monitoring periods)

III. MONITORING RESULTS*

A. Did you deviate in any way from your approved standard monitoring plan? Yes No

If YES, explain (attach additional pages if necessary):

B. Where were your TTHM and HAA5 samples analyzed?

In-House

Is your in-house laboratory certified? Yes No

Certified Laboratory

Name of certified laboratory: _____

C. What method(s) was used to analyze your TTHM and HAA5 samples?

- | TTHM | HAA5 |
|------------------------------------|------------------------------------|
| <input type="checkbox"/> EPA 502.2 | <input type="checkbox"/> EPA 552.1 |
| <input type="checkbox"/> EPA 524.2 | <input type="checkbox"/> EPA 552.2 |
| <input type="checkbox"/> EPA 551.1 | <input type="checkbox"/> EPA 552.3 |
| | <input type="checkbox"/> SM 6251 B |

IDSE Report for Standard Monitoring for Systems Serving < 10,000

III. MONITORING RESULTS (Continued)*

D. Standard Monitoring and Stage 1 Compliance Monitoring Results - TTHM

Site ID ¹	Data Type	TTHM (mg/L)				LRAA
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					

¹ Verify that site IDs for IDSE standard monitoring sites match the site IDs in your Standard Monitoring Plan.

Attach additional sheets as needed.

IDSE Report for Standard Monitoring for Systems Serving < 10,000

III. MONITORING RESULTS (Continued)*

E. Standard Monitoring and Stage 1 Compliance Monitoring Results - HAA5

Site ID ¹	Data Type	HAA5 (mg/L)				LRAA
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					
	Sample Date					
	Sample Result					

¹ Verify that site IDs for IDSE standard monitoring sites match the site IDs in your Standard Monitoring Plan.

Attach additional sheets as needed.

IV. JUSTIFICATION OF STAGE 2 DBPR COMPLIANCE MONITORING SITES*

Stage 2 Compliance Monitoring Site ID	Site Type	Justification
	<input type="checkbox"/> Highest TTHM <input type="checkbox"/> Highest HAA5	
	<input type="checkbox"/> Highest TTHM <input type="checkbox"/> Highest HAA5	

V. PEAK HISTORICAL MONTH AND PROPOSED STAGE 2 COMPLIANCE MONITORING SCHEDULE

A. Peak Historical Month* _____

B. Is Your Peak Historical Month the Same as in Your Standard Monitoring Plan?

Yes No

If no, explain how you selected your new peak historical month (attach additional sheets if needed):

C. Proposed Stage 2 DBPR Compliance Monitoring Schedule*

Stage 2 Compliance Monitoring Site ID	Projected Sampling Date (date or week) ¹			
	Period 1	Period 2	Period 3	Period 4

¹ period = monitoring period. Complete for the number of monitoring periods from Section II.C.

VI. DISTRIBUTION SYSTEM SCHEMATIC*

ATTACH a schematic of your distribution system if it has changed since you submitted your Standard Monitoring Plan.

VII. ATTACHMENTS

- Additional sheets for explaining how and why you deviated from your standard monitoring plan (Section III).
- Additional sheets for Standard Monitoring and Stage 1 DBPR monitoring results (Section III).
- Additional sheets for explaining how you selected the peak historical month (Section V).
- Distribution system schematic* (Section VI). **REQUIRED if it has changed from your approved IDSE standard monitoring plan.**
- Compliance calculation procedures (for Stage 2 Compliance Monitoring Plan)

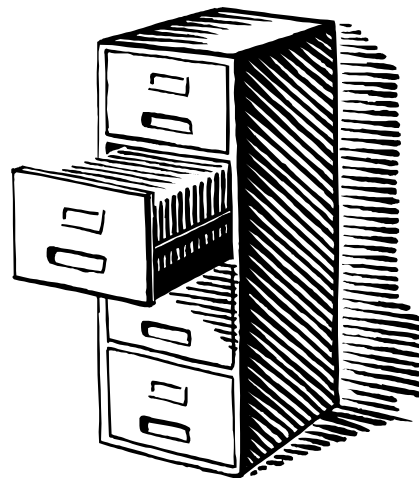
Total Number of Pages in Your Report: _____

Note: Fields with an asterisk (*) are required by the Stage 2 DBPR

5.4 Recordkeeping

The IDSE standard monitoring report must be kept on file for **10 years** after the date it is submitted. If EPA or your state modifies the recommendations made in your report or approves alternative Stage 2 DBPR compliance monitoring locations, you must also keep a copy of EPA or your state's notification on file for 10 years after the date of the notification. You must make your IDSE report and any notification available for review by your state or the public.

The standard monitoring plan, including any modifications by EPA or your state, must also be kept on file for as long as you are required to retain your IDSE standard monitoring report. You must make the plan and any modifications available for review by your state or the public.



5.5 Next Steps: Preparing the Stage 2 DBPR Compliance Monitoring Plan

As the final step before you can begin compliance monitoring for the Stage 2 DBPR, you must develop and implement a **Stage 2 DBPR monitoring plan** by the deadline provided in your requirements summary sheet. The plan will be similar to your Stage 1 DBPR monitoring plan in that it will identify how you intend to sample for compliance with Stage 2. You must keep your plan on file for state and public review. If you are a Subpart H system serving > 3,300 people, you **must** submit your plan to EPA or your state prior to when you are required to start monitoring.

Exhibit 5.7 contains the minimum requirements for what must be included in your Stage 2 DBPR compliance monitoring plan. Because compliance monitoring plans are not addressed as part of the IDSE provisions of the Stage 2 DBPR, ***EPA has not included detailed guidance for developing Stage 2 compliance monitoring plans in this guidance manual.*** EPA plans to develop other manuals and training that address the compliance monitoring provisions of the Stage 2 DBPR.

See EPA's website <http://www.epa.gov/safewater/disinfection/stage2> for a up-to-date inventory of Stage 2 DBPR guidance manuals and training materials, or call the Safe Drinking Water Hotline at 1-800-426-4791.

Exhibit 5.7 Required Contents of Stage 2 DBPR Compliance Monitoring Plans

All Systems	Additional Requirements for Consecutive and Wholesale Systems ¹
<ul style="list-style-type: none"> • Monitoring locations • Monitoring dates • Compliance calculation procedures 	<ul style="list-style-type: none"> • If your state has used its special primacy authority to modify your monitoring requirements, you must include monitoring plans for other systems in your combined distribution system

1. See Appendix A of this manual for guidance specifically for consecutive and wholesale systems

Appendix A

Consecutive and Wholesale System Issues

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A.1 Introduction

If your system is part of a combined distribution system, your compliance schedule for the IDSE is based on the population served by the largest system in your combined distribution system. It is important that all systems in a combined distribution system conduct an IDSE at the same time so that all systems in that combined distribution system know their relative DBP concentrations and can make the necessary treatment and/or operational changes before Stage 2 compliance begins.

The following questions and answers are provided to help you determine if you are in a combined distribution system and what this means with respect to your IDSE schedule.

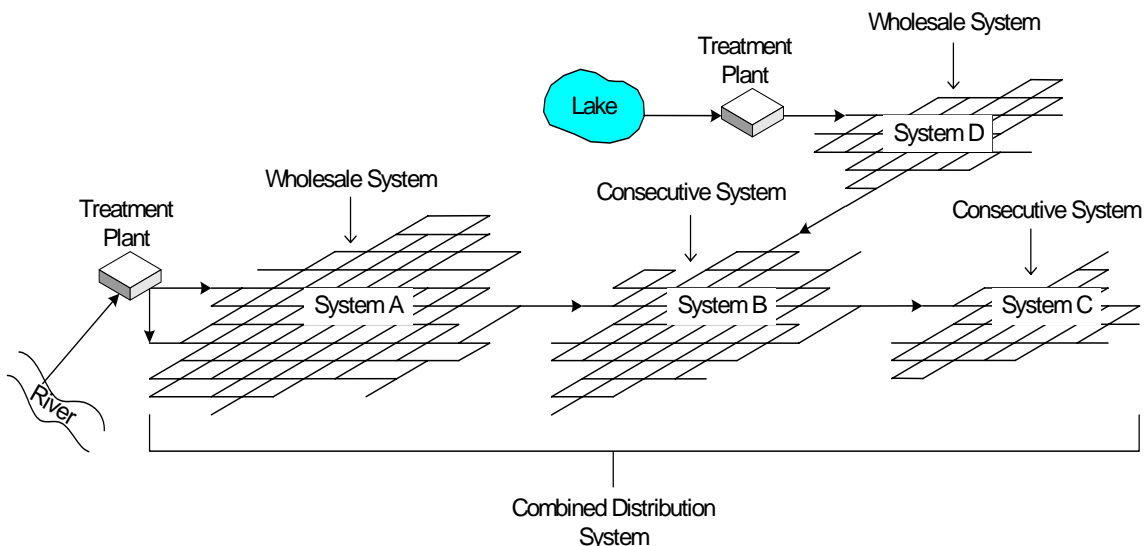
What is a combined distribution system?

The Stage 2 DBPR rule defines combined distribution system, wholesale system, and consecutive system as follows:

- *A combined distribution system* is the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.
- *A wholesale system* is a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.
- *A consecutive system* is a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

In Example A.1, where system C buys water from system B who buys water from systems A and D, all four systems are considered to be in the same combined distribution system. Even if systems A and D never exchange water, they are still considered to be part of the same combined system.

Example A.1 Example of a Combined Distribution System



If you receive water from a wholesale system only on an emergency basis or receive only a small percentage and small volume of water from a wholesale system, your state may have excluded you from the combined distribution system. If you deliver water to a consecutive system only on an emergency basis or deliver only a small percentage and small volume of water to a consecutive system, your state may also have excluded you from the combined distribution system. You should receive a letter from EPA or your state that tells you the schedule that was determined for your system by your state. See Section 2.2 for more information.

How do I know if I am a subpart H or a ground water system?

If you treat or deliver surface water or ground water under the direct influence of surface water (GWUDI) as any part of your supply, you are considered a subpart H system. If you treat or deliver only ground water, you are considered a ground water system. If you treat or deliver a combination of the two, you are considered a subpart H system. If you do not treat your own water and you do not know whether you receive surface water, GWUDI, or ground water, you should consult with your state to determine what your IDSE and Stage 2 compliance monitoring requirements are.

If I'm in a combined distribution system, which of my IDSE requirements are based on the population of the largest system in my combined distribution system?

If you are part of a combined distribution system, only your **compliance schedule** is based on the population of the largest system in your combined distribution system. Other requirements are based on your retail population and source water type. The largest system may be a wholesale system or a consecutive system.

If I'm in a combined distribution system, which of my IDSE requirements are based on my individual system's population?

If you are in a combined distribution system, the number of samples that you must collect and the frequency at which you must monitor for both the IDSE and Stage 2 DBPR monitoring are based on your individual system's population.

If I'm in a combined distribution system, when do I submit my 40/30 Certification?

If you are part of a combined distribution system and want to submit a 40/30 certification, submit your request based on the schedule of the largest system in your combined distribution system using the information in the table below.

Population Served by the Largest System in the Combined Distribution System	40/30 Certification Deadline
Systems serving \geq 100,000 people	October 1, 2006
Systems serving 50,000-99,999 people	April 1, 2007
Systems serving 10,000-49,999 people	October 1, 2007
Systems serving $<$ 10,000 people	April 1, 2008

How does my standard monitoring schedule change if I'm in a combined distribution system?

If you are part of a combined distribution system and plan to conduct standard monitoring or an SSS, your schedule for conducting activities associated with these IDSE options is based on the population of the largest system within your combined distribution system. You can use the table below to help identify the appropriate schedule for your system for submitting your monitoring plan, performing IDSE monitoring, and submitting your report.

Population Served by the Largest System in the Combined Distribution System	You Must Submit Your Standard Monitoring Plan to the State By ¹	You Should Complete Any Monitoring By	You Must Complete Your IDSE Report By ²
\geq 100,000 people	October 1, 2006	September 30, 2008	January 1, 2009
50,000-99,999 people	April 1, 2007	March 31, 2009	July 1, 2009
10,000-49,999 people	October 1, 2007	September 30, 2009	January 1, 2010
$<$ 10,000 people	April 1, 2008	March 31, 2010	July 1, 2010

¹ If the state does not approve or modify your plan within 12 months after the date identified in this column, you may consider the plan that you submitted as approved and must implement that plan so that you complete standard monitoring no later than the date identified in the third column.

² If the state does not approve or modify your report within three months after the date identified in this column (six months after the date identified in this column if you must comply on the schedule of systems serving 10,000 to 49,999), you may consider the report that you submitted as approved and must implement the recommended Stage 2 compliance monitoring.

What else should I do if I'm in a combined distribution system?

It is very important that you start communicating with the other systems within your combined distribution system to share data and information. You should copy other systems within your combined distribution system on correspondence you submit to the EPA or your state as part of the IDSE process. If you are unsure of what other systems are within your combined distribution system and how to contact these systems, your state drinking water program may be able to provide contact information.

Can my combined distribution system be considered one system for the purposes of the IDSE?

No, each individual system must conduct its own IDSE. The schedule for your IDSE must be based on the population of the largest system in the combined distribution system. The rest of your IDSE requirements are based on your individual system's population. You cannot conduct one IDSE for the entire combined distribution system.

Can my combined distribution system be considered one system for the purposes of Stage 2 compliance monitoring?

If your state chooses to use its authority to treat your combined distribution system as one system for Stage 2 DBPR compliance monitoring, the minimum number of Stage 2 DBPR monitoring sites and monitoring frequency for the combined distribution system will be based on the total population and nature of the interconnection of the combined distribution system. Each consecutive or wholesale system must have at least one Stage 2 compliance monitoring location. Remember this will only happen if the state allows this option. Consequently, you should develop your IDSE report for the total number of required Stage 2 compliance locations for your system unless you hear otherwise from your state.

A.2 Communication Between Wholesale and Consecutive Systems

As discussed in Section A.1, the Stage 2 DBPR requires consecutive and wholesale systems to conduct an IDSE at the same time as the largest system in the combined distribution system. Note that in some cases, this may not be the wholesale provider. This section discusses recommended approaches for communication between consecutive and wholesale systems when completing an IDSE.

Consecutive systems are encouraged to contact their wholesale provider as soon as is reasonably possible after promulgation of the Stage 2 DBPR to determine what plans, if any, the wholesale system has already made regarding the IDSE. Keep in mind that, while it is recommended, it is not the responsibility of the wholesale system to contact the consecutive system regarding the IDSE. Consecutive systems are encouraged to reach out to the wholesale systems to make the initial contact regarding the IDSE. When a consecutive system receives water from another consecutive system, communication should involve all three parties, i.e., both consecutive systems and the wholesale system. At a minimum, you should discuss the following questions during this initial contact:

1. When are our (both the wholesale and consecutive system) IDSE plans due?
2. When are our IDSE reports due?
3. What type of IDSE does the wholesale system intend to complete (Standard Monitoring Program or System Specific Study)? Note: Systems are not required to choose the same IDSE option
4. At what stage in IDSE planning is the wholesale system?
5. During what month(s) does the wholesale system intend to conduct DBP monitoring?
6. Does the wholesale system have water quality data (e.g., temperature, DBP data, source water quality data, operational data, which wholesale sources serve which consecutive systems and when) that might help the consecutive system prepare their IDSE plan?
7. Would the wholesale system be willing to exchange copies of draft IDSE plans with the consecutive system?

Consecutive systems can consider but are not required to select the same peak historical month as the wholesale system. The peak historical month for a consecutive system that has another source(s) may actually be in a different month than the month selected by the wholesale system. If a consecutive system that has no other sources and that has limited data from which to make a decision, they could reasonably assume that its peak historical month is the same as the month selected by the wholesale system.

Consecutive systems should attempt to coordinate their IDSE monitoring with that of the wholesale system. Coordinating IDSE monitoring schedules will allow the two (or more) systems to better utilize data from the IDSE monitoring period to formulate a Stage 2 DBPR compliance strategy, if necessary. Additionally, there may be some benefit in trying to better understand how DBP formation occurs throughout the combined distribution system, especially if DBP levels are relatively high.

Where it is not possible to coordinate IDSE monitoring, consecutive systems are still encouraged to work with their wholesale system to coordinate their proposed Stage 2 DBPR compliance monitoring schedules that must be included in the final IDSE report. Draft and final copies of the IDSE plans for the consecutive system and the wholesale system should be shared between the systems. Where a consecutive system receives water through another consecutive system, all three (or more) systems should share their IDSE plans. This information can be used to verify that water quality and water age throughout the combined distribution system is represented through the monitoring plans. For example, if you have multiple entry points from the same wholesaler, they may have a storage tank prior to one entry point to your system but no storage tank prior to another entry point. In this case, you would want to select the site after the tank that is more likely to have high water age as a monitoring location for your standard monitoring plan.

As IDSE monitoring progresses, consecutive and wholesale systems are encouraged to share monitoring results. When such an approach is utilized, results can be compared for consistency and to help identify potential compliance issues related to the Stage 2 DBPR.

A copy of each system's IDSE report should be shared with the other system(s). It is not necessary for multiple consecutive systems within a combined distribution system to share their

reports, unless one of those systems provides water to another consecutive system, but it is recommended that the wholesaler provide a copy of its report to each consecutive system, and each consecutive system provide a copy of its report to the wholesale system. This will help consecutive systems to determine which compliance strategies, if necessary, are feasible for them. It will also help the wholesale system to understand DBP formation in the finished water.

Upon completion of the IDSE, it is recommended that consecutive and wholesale systems work together to discuss their Stage 2 DBPR compliance monitoring schedules for the IDSE report. As with IDSE monitoring, there may be some benefit in coordinating Stage 2 monitoring. Consecutive systems may want to contract with their wholesale system, or contract together with the same laboratory to coordinate Stage 2 compliance monitoring. If consecutive and wholesale systems have the same peak historical month, they may wish to take their samples at approximately the same time during the peak month. Observing DBP formation throughout the combined distribution system using Stage 2 compliance monitoring data can help to identify possible solutions to compliance-related issues.

More information on communication between consecutive and wholesale systems can be found in EPA's *Stage 2 DBPR Consecutive Systems Guidance Manual*.

A.3 Understanding DBP Formation in Combined Distribution Systems

The IDSE will help consecutive and wholesale systems to better understand DBP formation in their systems. Since the Stage 1 DBPR did not explicitly address consecutive systems, the IDSE may provide the first opportunity for some consecutive systems to acquire comprehensive information about DBP levels in their distribution system. As discussed above, consecutive and wholesale systems should consider coordinating their IDSE sampling schedules to facilitate a better understanding of DBP formation across the combined distribution system. Wholesale and consecutive systems should also consider exchanging any existing monitoring data, particularly any DBP data collected by the wholesale system in the consecutive system. This data may be helpful to both systems in understanding DBP formation in the combined distribution system and may help the consecutive system in choosing monitoring locations for the IDSE.

DBP formation typically increases with water age. Wholesale and consecutive systems can make a relative estimate of water age by looking at the extent of their wholesale and consecutive distribution systems, and the distribution of customers. DBP sampling at the entry point as part of the IDSE can help consecutive systems understand whether DBP formation is occurring primarily in the wholesale system or the consecutive system. This can help systems to focus control strategies on the wholesale system, the consecutive system, or a combination of the two. Information on reducing DBP levels in consecutive systems and discussing compliance strategies with wholesale systems can be found in EPA's *Stage 2 DBPR Consecutive Systems Guidance Manual*.

Appendix B

Example IDSE Standard Monitoring Plan and Report for a Surface Water System Serving 6,000 People

This appendix provides an example IDSE standard monitoring plan and report for a surface water system serving 6,000 people and choosing to complete standard monitoring. For this example, the state did not require any modifications to the study plan.

Chapter 5 discusses the standard monitoring plan, conducting standard monitoring, selection of Stage 2 DBPR sites, and preparing the standard monitoring report. The application of the basic guidance on standard monitoring location selection and Stage 2 DBPR compliance monitoring location selection is shown in this example.

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Standard Monitoring Plan Form for Systems Serving < 10,000

I. GENERAL INFORMATION

A. PWS Information*

B. Date Submitted* March 17, 2008

PWSID: US1111111

PWS Name: Elm City

PWS Address: 1234 Main Street

City: Elm City State: US Zip: 99999

Population Served: 6,000

System Type:	Source Water Type:	Buying / Selling Relationships:
<input checked="" type="checkbox"/> CWS	<input checked="" type="checkbox"/> Subpart H	<input type="checkbox"/> Consecutive System
<input type="checkbox"/> NTNCWS	<input type="checkbox"/> Ground	<input type="checkbox"/> Wholesale System
		<input checked="" type="checkbox"/> Neither

C. PWS Operations

Residual Disinfectant Type: Chlorine Chloramines Other: _____

Number of Disinfected Sources: 1 Surface GWUDI Ground Purchased

D. Contact Person*

Name: Mr. Ronald Doe, P.E.

Title: Water System Superintendent

Phone #: 123-555-0000 Fax #: 123-555-0001

E-mail: Rdoe@ci.elmcity.us

II. IDSE REQUIREMENTS*

A. Number of Sites	B. Schedule	C. Standard Monitoring Frequency
Total: <u>4</u>		
Near Entry Point: <u>0</u>	<input type="checkbox"/> Schedule 1	<input type="checkbox"/> During peak historical month (1 monitoring period)
Avg Residence Time: <u>1</u>	<input type="checkbox"/> Schedule 2	
High TTHM: <u>2</u>	<input type="checkbox"/> Schedule 3	<input checked="" type="checkbox"/> Every 90 days (4 monitoring periods)
High HAA5: <u>1</u>	<input checked="" type="checkbox"/> Schedule 4	<input type="checkbox"/> Every 60 days (6 monitoring periods)

Standard Monitoring Plan Form for Systems Serving < 10,000

III. SELECTING STANDARD MONITORING SITES

A. Data Evaluated Put a “✓” in each box corresponding to the data that you used to select each type of standard monitoring site. Check all that apply.

Data Type	Type of Site			
	Near Entry Pt.	Avg. Residence Time	High TTHM	High HAA5
System Configuration				
Pipe layout, locations of storage facilities		✓	✓	✓
Locations of sources and consecutive system entry points				
Pressure zones				
Information on population density			✓	✓
Locations of large customers				
Water Quality and Operational Data				
Disinfectant residual data		✓	✓	✓
Stage 1 DBP data			✓	✓
Other DBP data				
Microbiological monitoring data (e.g., HPC)				
Tank level data, pump run times			✓	✓
Customer billing records				✓

B. Summary of Data* Provide a summary of data you relied on to justify standard monitoring site selection (*attach additional sheets if needed*)

We used residual data from Total Coliform sites collected from 2003 through 2005 and our current system map to select sites. We evaluated chlorine residual data from June and July (range from 0.2 - 2.3 mg/L), and calculated our system average (0.9-1.1 mg/L). Sites with residuals close to this were considered for average residence time sites. Residual data along with information on storage tanks, booster stations, and operator notes were used to locate areas of high residence time for high TTHM and HAA5 sites. We do not have HPC data to identify potential biological activity, so we evaluated residual data, coliform data, and customer complaint records. We plotted all of our candidate sites on our map to ensure that they are geographically and hydraulically diverse.

Standard Monitoring Plan Form for Systems Serving < 10,000

IV. JUSTIFICATION OF STANDARD MONITORING SITES*

Standard Monitoring Site ID (from map) ¹	Site Type	Justification
Standard Monitoring #1	<input type="checkbox"/> Near Entry Pt <input checked="" type="checkbox"/> Avg. Res. Time <input type="checkbox"/> High TTHM <input type="checkbox"/> High HAA5	See attached.
Standard Monitoring #2	<input type="checkbox"/> Near Entry Pt <input type="checkbox"/> Avg. Res. Time <input checked="" type="checkbox"/> High TTHM <input type="checkbox"/> High HAA5	See attached.
Standard Monitoring #3	<input type="checkbox"/> Near Entry Pt <input type="checkbox"/> Avg. Res. Time <input checked="" type="checkbox"/> High TTHM <input type="checkbox"/> High HAA5	See attached.
Standard Monitoring #4	<input type="checkbox"/> Near Entry Pt <input type="checkbox"/> Avg. Res. Time <input type="checkbox"/> High TTHM <input checked="" type="checkbox"/> High HAA5	See attached.

¹ Verify that site IDs match IDs in Section IV and on your distribution system schematic (See Section VII of this form).

V. PEAK HISTORICAL MONTH AND STANDARD MONITORING SCHEDULE

A. Peak Historical Month* July

B. If Multiple Sources, Source Used to Determine Peak Historical Month (write "N/A" if only one source in your system):

N/A

C. Peak Historical Month Based On* (check all that apply)

- High TTHM Warmest water temperature
- High HAA5

If you used other information to select your peak historical month, explain here (attach additional sheets if needed)

Standard Monitoring Plan Form for Systems Serving < 10,000

V. PEAK HISTORICAL MONTH AND STANDARD MONITORING SCHEDULE (Continued)

D. Proposed Standard Monitoring Schedule*

Standard Monitoring Site ID (from map) ¹	Projected Sampling Date (date or week) ²			
	period 1	period 2	period 3	period 4
SM #1	4/16/09	7/15/09	10/14/09	1/12/10
SM #2	4/16/09	7/15/09	10/14/09	1/12/10
SM #3	4/16/09	7/15/09	10/14/09	1/12/10
SM #4	4/16/09	7/15/09	10/14/09	1/12/10

¹ Verify that site IDs match IDs in Section IV and on your distribution system schematic (See Section VII of this form).

² period = monitoring period. Complete for the number of periods from Section II.C. Can list exact date or week (e.g., week of 7/9/07)

VI. PLANNED STAGE 1 DBPR COMPLIANCE MONITORING SCHEDULE*

Stage 1 DBPR Monitoring Site ID (from map) ¹	Projected Sampling Date (date or week) ²			
	period 1	period 2	period 3	period 4
<u>Stage 1 #1(S1-1)</u>	4/15/09	7/14/09	10/13/09	1/11/10

¹ Verify that site IDs should IDs on your distribution system schematic (See Section VII of this form).

² period = monitoring period. Complete for the number of periods in which you must conduct Stage 1 DBPR monitoring during IDSE monitoring. Can list exact date or week (e.g., week of 7/9/07)

Standard Monitoring Plan Form for Systems Serving < 10,000

Page 5 of 5

VII. DISTRIBUTION SYSTEM SCHEMATIC*

ATTACH a schematic of your distribution system.

Distribution system schematics are not confidential and should not contain information that poses a **security risk** to your system. EPA recommends that you use one of two options:

Option 1: Distribution system schematic with no landmarks or addresses indicated. Show locations of sources, entry points, storage facilities, standard monitoring locations, and Stage 1 compliance monitoring locations (required). Also include pressure zone boundaries and locations of pump stations. Provide map scale.

Option 2: City map without locations of pipes indicated. Show locations of sources, entry points, storage facilities, standard monitoring locations, and Stage 1 compliance monitoring locations (required). Also include boundaries of the distribution system, pressure zone boundaries and locations of pump stations. Provide map scale.

VIII. ATTACHMENTS

- Distribution System Schematic* (Section VII).
- Additional sheets for the summary of data or site justifications (Sections III and IV).
- Additional copies of Page 3 for justification of Standard Monitoring Sites (Section IV).
- Additional sheets for explaining how you used data other than TTHM, HAA5, and temperature data to select your peak historical month (Section V).
- Additional sheets for planned Stage 1 DBPR compliance monitoring schedule (Section VI).

Total Number of Pages in Your Plan _____7_____

Note: Fields with an asterisk (*) are required by the Stage 2 DBPR

Standard Monitoring #1

Represents average residence time of water in the southern section of the system. Based on chlorine monitoring results at TCR sample locations, we identified sample sites where chlorine levels were close to the average chlorine residual for the entire distribution system. Monthly average chlorine residuals at Standard Monitoring #1 range from 0.8 mg/L to 1.2 mg/L, and the monthly average residual for the whole distribution system ranges from 0.9 mg/L to 1.1 mg/L. There are no storage facilities between the treatment plant and this location.

Standard Monitoring #2

Represents high TTHM levels. This sampling location is believed to receive water from the D'Evon Storage tank (a 4 MG tank located in the northeastern region of the distribution system) during high demand periods and is at the entrance to a small subdivision cul-de-sac. The chlorine residuals at this location are generally very low, indicating this may be a hydraulic dead end. The sample location is near the first house on the cul-de-sac (which has 12 homes total).

Standard Monitoring #3

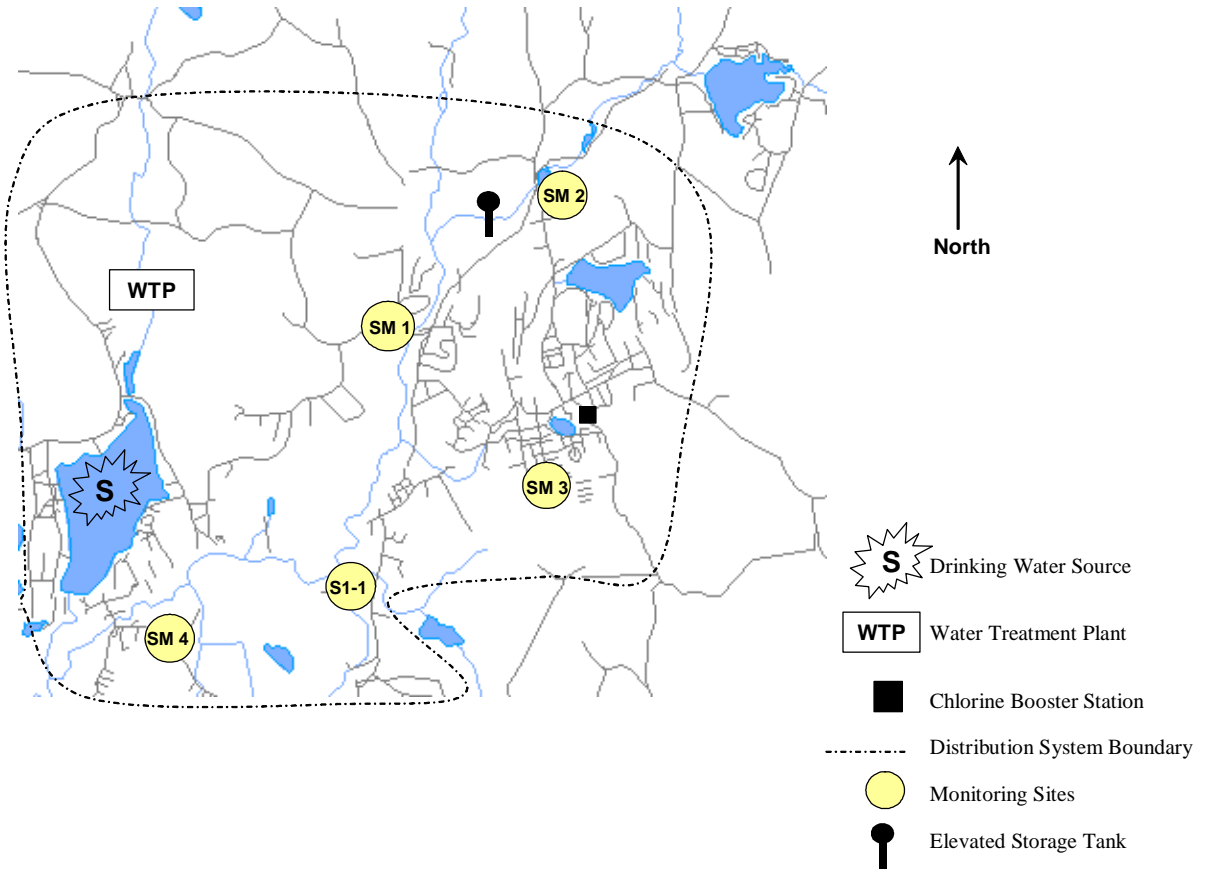
Represents high TTHM levels in the southeastern part of the system. This sample location is located in a zone of the distribution system that has been recently developed. This connection is located downstream from a chlorine booster station. Chlorine residuals are normally in the 0.5 to 0.9 mg/L range.

Standard Monitoring #4

Represents high HAA5 levels. Sample location is in an area approaching the perimeter of the distribution system. Chlorine residual at this location ranges between 0.5 and 0.8 mg/L, and the low number of TCR positives and small amount of customer complaints led us to believe there is little biological activity in the area. This location is in the southwestern section of the system.

Distribution System Map

Attachment # 2



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IDSE Report for Standard Monitoring for Systems Serving < 10,000

I. GENERAL INFORMATION

A. PWS Information*

B. Date Submitted* June 19, 2010

PWSID: US1111111

PWS Name: Elm City

PWS Address: 1234 Main Street

City: Elm City State: US Zip: 99999

Population Served 6,000

System Type:	Source Water Type:	Buying / Selling Relationships:
<input checked="" type="checkbox"/> CWS	<input checked="" type="checkbox"/> Subpart H	<input type="checkbox"/> Consecutive System
<input type="checkbox"/> NTNCWS	<input type="checkbox"/> Ground	<input type="checkbox"/> Wholesale System
		<input checked="" type="checkbox"/> Neither

C. PWS Operations

Residual Disinfectant Type: Chlorine Chloramines Other: _____

Number of Disinfected Sources: _1_ Surface ___ GWUDI ___ Ground ___ Purchased

D. Contact Person*

Name: Mr. Ronald Doe, P.E.

Title: Water Superintendent

Phone #: (123) 555-0000 Fax #: (123) 555-0001

E-mail: Rdoe@ci.elmcity.us

II. STAGE 2 DBPR REQUIREMENTS*

A. Number of Compliance Monitoring Sites	B. Schedule	C. Compliance Monitoring Frequency
Highest TTHM: <u>1</u>	<input type="checkbox"/> Schedule 1	<input type="checkbox"/> During peak historical month (1 monitoring period)
Highest HAA5: <u>1</u>	<input type="checkbox"/> Schedule 2	
Total: <u>2</u>	<input type="checkbox"/> Schedule 3	<input checked="" type="checkbox"/> Every 90 days (4 monitoring periods)
	<input checked="" type="checkbox"/> Schedule 4	

III. MONITORING RESULTS*

A. Did you deviate in any way from your approved standard monitoring plan? Yes No

If YES, explain (attach additional pages if necessary):

This IDSE Monitoring Plan indicated samples should be taken on
January 12, 2010. A Snowstorm on that date caused hazardous road
conditions and prevented sampling. Samples were taken on January
18, 2010 once the roads were cleared.

B. Where were your TTHM and HAA5 samples analyzed?

In-House

Is your in-house laboratory certified? Yes No

Certified Laboratory

Name of certified laboratory: Acme Laboratory Services

C. What method(s) was used to analyze your TTHM and HAA5 samples?

- | TTHM | HAA5 |
|---|---|
| <input type="checkbox"/> EPA 502.2 | <input type="checkbox"/> EPA 552.1 |
| <input type="checkbox"/> EPA 524.2 | <input type="checkbox"/> EPA 552.2 |
| <input checked="" type="checkbox"/> EPA 551.1 | <input checked="" type="checkbox"/> EPA 552.3 |
| | <input type="checkbox"/> SM 6251 B |

IDSE Report for Standard Monitoring for Systems Serving < 10,000

III. MONITORING RESULTS (Continued)*

D. Standard Monitoring and Stage 1 Compliance Monitoring Results - TTHM

Site ID ¹	Data Type	TTHM (mg/L)				LRAA
		4/09	7/09	10/09	1/10	
Standard Monitoring #1	Sample Date	4/09	7/09	10/09	1/10	
	Sample Result	0.042	0.060	0.054	0.039	0.049
Standard Monitoring #2	Sample Date	4/09	7/09	10/09	1/10	
	Sample Result	0.061	0.067	0.069	0.059	0.064
Standard Monitoring #3	Sample Date	4/09	7/09	10/09	1/10	
	Sample Result	0.050	0.061	0.056	0.045	0.053
Standard Monitoring #4	Sample Date	4/09	7/09	10/09	1/10	
	Sample Result	0.042	0.057	0.046	0.035	0.045
Stage 1 #1	Sample Date	4/09	7/09	10/09	1/10	
	Sample Result	0.064	0.068	0.083	0.074	0.072

¹ Verify that site IDs for IDSE standard monitoring sites match the site IDs in your Standard Monitoring Plan.

Attach additional sheets as needed.

IDSE Report for Standard Monitoring for Systems Serving < 10,000

III. MONITORING RESULTS (Continued)*

E. Standard Monitoring and Stage 1 Compliance Monitoring Results - HAA5

Site ID ¹	Data Type	HAA5 (mg/L)				LRAA
Standard Monitoring #1	Sample Date	4/09	7/09	10/09	1/10	
	Sample Result	0.031	0.043	0.033	0.025	0.033
Standard Monitoring #2	Sample Date	4/09	7/09	10/09	1/10	
	Sample Result	0.039	0.045	0.041	0.028	0.038
Standard Monitoring #3	Sample Date	4/09	7/09	10/09	1/10	
	Sample Result	0.043	0.035	0.043	0.031	0.038
Standard Monitoring #4	Sample Date	4/09	7/09	10/09	1/10	
	Sample Result	0.055	0.074	0.054	0.049	0.058
Stage 1 #1	Sample Date	4/09	7/09	10/09	1/10	
	Sample Result	0.021	0.025	0.026	0.028	0.025

¹ Verify that site IDs for standard monitoring sites match the site IDs in your Standard Monitoring Plan.

Attach additional sheets as needed.

IV. JUSTIFICATION OF STAGE 2 DBPR COMPLIANCE MONITORING SITES*

Stage 2 Compliance Monitoring Site ID	Site Type	Justification
Stage 1 # 1	<input checked="" type="checkbox"/> Highest TTHM <input type="checkbox"/> Highest HAA5	Stage 1 DBPR location #1 had the highest TTHM LRAA among all the sites. Therefore, this location was chosen as the first Stage 2 DBPR compliance monitoring location.
SM # 4	<input type="checkbox"/> Highest TTHM <input checked="" type="checkbox"/> Highest HAA5	Standard Monitoring #4 site had the highest HAA5 LRAA among all of the sites.

V. PEAK HISTORICAL MONTH AND PROPOSED STAGE 2 COMPLIANCE MONITORING SCHEDULE

A. Peak Historical Month* July

B. Is Your Peak Historical Month the Same as in Your Standard Monitoring Plan?

Yes No

If no, explain how you selected your new peak historical month (*attach additional sheets if needed*):

C. Proposed Stage 2 DBPR Compliance Monitoring Schedule*

Stage 2 Compliance Monitoring Site ID	Projected Sampling Date (date or week) ¹			
	period 1	period 2	period 3	period 4
Stage 1 # 1	10/9/13	1/9/14	4/9/14	7/8/14
SM # 4	10/9/13	1/9/14	4/9/14	7/8/14

¹ period = monitoring period. Complete for the number of monitoring periods from Section II.C.

VI. DISTRIBUTION SYSTEM SCHEMATIC*

ATTACH a schematic of your distribution system if it has changed since you submitted your Standard Monitoring Plan.

VII. ATTACHMENTS

- Additional sheets for explaining how and why you deviated from your standard monitoring plan (Section III).
- Additional sheets for Standard Monitoring and Stage 1 DBPR monitoring results (Section III).
- Additional sheets for explaining how you selected the peak historical month (Section V).
- Distribution system schematic* (Section VI). **REQUIRED if it has changed from your approved IDSE standard monitoring plan.**
- Compliance calculation procedures (for Stage 2 Compliance Monitoring Plan).

Total Number of Pages in Your Report: 6

Note: Fields with an asterisk (*) are required by the Stage 2 DBPR