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Environmental
Protection
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INITIAL DISTRIBUTION SYSTEM EVALUATION GUIDANCE MANUAL

FOR THE FINAL STAGE 2 DISINFECTANTS AND DISINFECTION BYPRODUCTS RULE

CHAPTER 1

<http://www.epa.gov/safewater/disinfection/stage2/compliance.html>

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1.0 Introduction

This chapter covers:

- 1.1 Getting Started (*Read this Section First*)
- 1.2 Overview of IDSE Options
- 1.3 IDSE Schedule
- 1.4 Early Implementation Process
- 1.5 Changes to IDSE Requirements Since the Proposed Stage 2 DBPR

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 Guidance Manual** to help 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?

You are subject to the IDSE requirements of the Stage 2 DBPR if you meet the following criteria:

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

AND

- You are a community water system (CWS) of any size, or you are a non-transient non-community water system (NTNCWS) that serves $\geq 10,000$ people.

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 a System Specific Study (SSS) using existing monitoring results or a distribution system hydraulic model
- Conduct Standard Monitoring

The four options are described briefly in Section 1.2 of this chapter, with further details provided in the remainder of this guidance manual.

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. This manual is comprehensive and includes IDSE requirements and technical guidance for all system sizes and types and all IDSE options, designed for easy access to specific modules. The second manual, entitled the *Initial Distribution System Evaluation Guide for Systems Serving < 10,000 People*, is targeted to smaller systems and focuses on information they are most likely to use. It provides examples to help smaller systems as they proceed with satisfying IDSE requirements. It does not, however, discuss the IDSE SSS options.

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 1.4 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](#)

The *IDSE Guidance Manual*, the *IDSE Guide for Systems Serving < 10,000 People*, 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**. While Chapters 1 and 2 contain information for all systems, Chapters 3, 4, 5, 6 and 7 each contain comprehensive requirements for a specific IDSE option. Appendices are organized similarly. The first three appendices include general information for all systems. Appendix D addresses consecutive and wholesale system issues. Appendices E through H provide examples for specific IDSE options. Exhibit 1.2 shows which chapters and appendices you should use for the different IDSE options.

EPA recommends that once you have read the introductory materials in Chapter 1, you use the **flowchart in Chapter 2** to determine the best IDSE option for your system. Then you can go to the chapter and appendices addressing your IDSE option and skip the rest of the manual. If you are accessing this guidance manual electronically, you can download only those chapters and appendices that you need to build a custom manual for your system.

Remember that **the IDSE Tool does these steps for you**. The IDSE Tool Wizard asks questions about your system and, based on your answers, extracts the appropriate requirements summary sheet and guidance manual material.



Chapter 2 contains **requirements summary sheets** for each IDSE option and compliance schedule. These sheets contain compliance deadlines for IDSE submissions and other important information. EPA recommends that you make a copy of your requirements summary sheets (or if you are accessing the manual electronically, print them out) and keep them handy throughout the IDSE process.

Exhibit 1.2a IDSE Guidance Manual Chapters and Appendices

Chapters

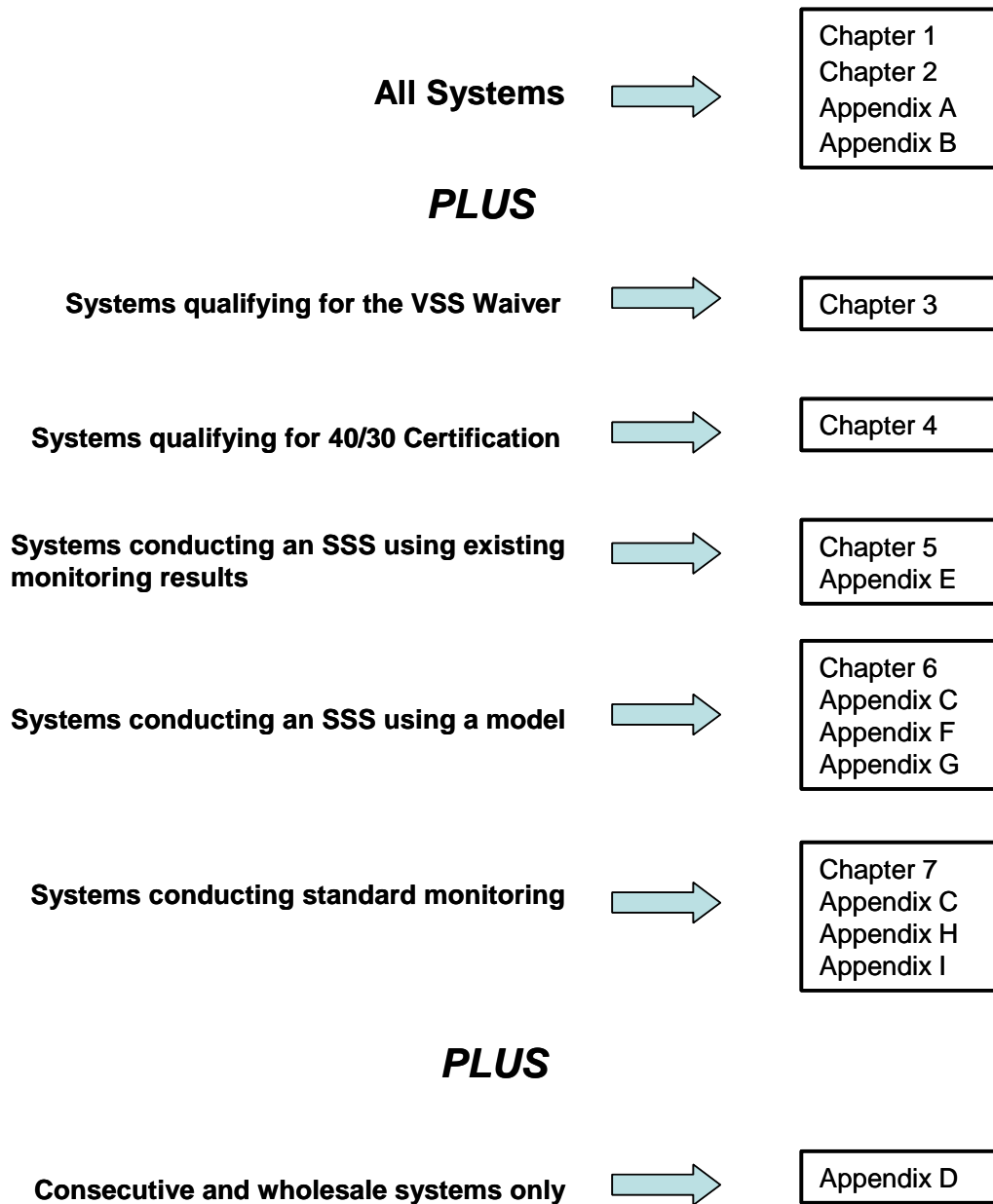
- 1 Introduction
- 2 Determining Your IDSE Schedule and Option
- 3* Very Small System Waiver
- 4* 40/30 Certification
- 5* System Specific Study Using Existing Monitoring Results
- 6* System Specific Study Using a Distribution System Hydraulic Model
- 7* Standard Monitoring

Appendices

- A Factors Affecting DBP Formation
- B Stage 2 DBPR and LT2ESWTR Compliance Schedule
- C TTHM and HAA5 Sampling Protocol
- D Consecutive and Wholesale System Issues
- E Example System Specific Study using Existing Monitoring Results for a Surface Water System Serving 40,000 People
- F Example System Specific Study Using a Hydraulic Model for a Surface Water System Serving 55,000 People
- G Complex Modeling Analysis Example for a System with Multiple Sources
- H Example IDSE Standard Monitoring Plan and Report for a Surface Water System Serving 160,000 People
- I Example IDSE Standard Monitoring Plan and Report for a Ground Water System Serving 200,000 People

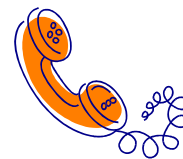
* You need **one** of these Chapters for the IDSE

Exhibit 1.2b Building a Custom IDSE Guidance Manual for Your System



1.1.6 Whom do I call with questions?

Because compliance activities begin soon after the Stage 2 DBPR is finalized, EPA and states will be working together to implement the IDSE. In some cases, EPA will be your main point of contact during the first phases of the IDSE. In other cases, your state will be your main point of contact.



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. Refer to Section 1.4 of this chapter for more information on how the IDSE will be implemented.

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. The four options are described briefly below, with further details provided in the remainder of this guidance manual.

- **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.
- **System Specific Study (SSS).** Systems can meet IDSE requirements using existing monitoring results or a distribution system hydraulic model if their data or model meet certain minimum criteria. Systems conducting an SSS must prepare an SSS plan and IDSE report. Existing monitoring requirements were developed to be equivalent to standard monitoring.
- **Standard Monitoring.** Any system can choose to conduct standard monitoring, even if they receive a VSS, qualify for the 40/30 certification, or have enough data to conduct an SSS. 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.

1.3 IDSE Schedule

IDSE activities begin soon after the Stage 2 DBPR is finalized. Appendix B provides the overall schedule for the Stage 2 DBPR and Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) to show how the IDSE fits into the overall compliance schedule for both rules. Exhibit 1.3 shows a more detailed schedule for IDSE activities only. Note that the schedule is staggered by system size, and that the schedule for **consecutive and wholesale systems** is based on the population served by the largest system in the combined distribution system. Guidance for determining your schedule is in Chapter 2.

1.4 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.* Chapters 5, 6, and 7 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 1.4 on page 1-10 for ways in which you can submit IDSE materials to the IPMC. EPA and/or your state will review your IDSE plan and report. If they have concerns regarding your submission, they will work with you to resolve those issues during the one year review period.

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 1.4 Options for Submitting IDSE Material to EPA and States Through the IPMC¹

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: <i>stage2mdbp@epa.gov</i>

Notes:

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)

1.5 Changes to IDSE Requirements Since the Proposed Stage 2 DBPR

Several changes have been made to the IDSE requirements since the publication of the proposed Stage 2 DBPR on August 18, 2003. Many of these changes are in response to public comment received on the proposed rule and are intended to facilitate implementation. These changes, which are discussed in more detail below, include:

- Change from plant-based to population-based monitoring for all systems
- Change in definition of consecutive systems
- Staggered IDSE schedule
- Changes to VSS waivers
- Change in 40/30 requirements
- Clarification to the IDSE SSS option
- Elimination of Stage 2A

Change from plant-based to population-based monitoring for all systems

The Stage 2 DBPR proposal included population-based monitoring requirements for consecutive systems that purchase all of their water. For all other systems, plant-based

monitoring requirements were proposed. The plant-based approach, consistent with Stage 1 DBPR compliance monitoring requirements, is grounded in the assumption that larger systems have more treatment plants and thus greater system complexity. While this is generally true, the plant-based approach created disproportionately burdensome monitoring requirements for some systems where the number of plants did not correlate with system size, such as larger systems with only a few very large plants or smaller systems with many disinfecting wells. Moreover, a plant-based approach can complicate monitoring of purchased water systems, particularly complex ones with multiple connections.

For these reasons, EPA has developed population-based compliance monitoring requirements for all systems for the final Stage 2 DBPR. EPA believes that the new population-based approach makes monitoring requirements simpler and more equitable for systems of the same size and type.

Change in definition of consecutive system

For the Stage 2 DBPR proposal, the definition for consecutive systems specified the minimum length of time (60 days) a system must receive water from a wholesale system to be considered a consecutive system. EPA received public comments on this definition. Several commenters expressed concerns with including a time period of water delivery that defined whether a system was a consecutive system or wholesale system. This change was also made due to the change to population based monitoring because it is no longer necessary to define consecutive system entry points as it was under plant based monitoring. EPA has dropped this requirement from the final rule and has provided some flexibility for states to determine which systems are part of a combined distribution system (without presenting a time criterion).

Staggered IDSE schedule

EPA has modified the proposed compliance schedule to stagger deadlines for CWSs and NTNCWSs serving 10,000 to 99,999 people to allow for a more evenly distributed workload and greater opportunity for EPA and state involvement. The final compliance schedule includes a formal review period for EPA and/or state review of IDSE plans and 40/30 certifications as well as IDSE reports. The staggered schedule also provides time for analytical laboratories to build up capacity as necessary to accommodate the sample analysis needs of systems. The new IDSE plan and IDSE report submission dates are shown in Exhibit 1.3. It is important to note that, as in the proposal, smaller systems may have to comply on an earlier schedule than indicated for their individual system size if they are part of a combined distribution system that includes a large system. This is discussed further in Chapter 2.

Changes to VSS waivers

The final rule grants a waiver from the IDSE requirements to community water systems serving fewer than 500 people that have taken TTHM and HAA5 samples. This provision was changed from the proposal to reflect that most small systems have sampling locations that are representative of both high TTHM and high HAA5 because they have small and simple

distributions systems. In addition, many very small systems are ground water systems which typically have stable DBP levels (ground water systems tend to have lower DBP levels than surface water systems). EPA recognizes, however, that there may be some small systems with extended or complex distribution systems that should be studied further to determine new sampling locations. For this reason, EPA or a state can contact a very small system and require them to conduct an IDSE.

Change in 40/30 requirements

The reporting requirements for the 40/30 certification option have been reduced from the requirements in the proposed Stage 2 DBPR. In the proposal, systems qualifying for the 40/30 certification were required to submit all qualifying data and provide recommendations for Stage 2 compliance monitoring locations. The final rule requires systems to submit a certification that their data meets all the requirements of the 40/30 certification and to include their Stage 2 compliance monitoring recommendations in their Stage 2 compliance monitoring plan. These changes were made to reduce the reporting burden on systems that qualify for the 40/30 certification and to maintain consistency with monitoring plan requirements under the Stage 1 DBPR. This approach also gives systems more time to select appropriate monitoring sites for Stage 2 compliance monitoring. EPA or the state may request systems to submit the data, a distribution system schematic, and/or recommendations for Stage 2 compliance monitoring as part of the 40/30 certification.

Clarification to the IDSE SSS option

The final rule includes more specific requirements than the proposal regarding how systems can use distribution system hydraulic models and existing monitoring results for the IDSE SSS. This change was made to help systems better understand expectations under this provision and lessen the chances of an SSS plan not being approved. The new modeling requirements reflect that distribution system hydraulic models can appropriately identify monitoring locations by predicting water age in distribution systems if they meet certain minimum requirements. Existing monitoring results requirements are equivalent to Standard Monitoring requirements, except they apply to data already collected.

Elimination of Stage 2A

The Stage 2 DBPR proposal included a phased-in approach to calculating compliance with MCLs using a Locational Running Annual Average (LRAA), referred to as Stage 2A and Stage 2B which coincided with the IDSE period. EPA received public comments that found this confusing, and this provision is no longer in the final rule. What was referred to in the proposal as Stage 2B compliance monitoring is now referred to as Stage 2 Compliance Monitoring.