Stage 2 DBPR
IDSE System Specific Study Factsheet

What Is The Stage 2 DBPR?

The U.S. Environmental Protection Agency (EPA) published the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) on January 4, 2006. The Stage 2 DBPR builds on existing regulations by requiring water systems to meet disinfection byproduct (DBP) maximum contaminant levels (MCLs) at each monitoring site in the distribution system to better protect public health.

What Is The IDSE Provision Of The Stage 2 DBPR?

The Stage 2 DBPR includes a provision requiring all community water systems (CWS) and only nontransient noncommunity water systems (NTNCWS) serving more than 10,000 people to conduct an initial distribution system evaluation (IDSE). NTNCWS serving less than 10,000 are exempted from IDSE requirements, but will need to comply with the Stage 2 DBPR compliance monitoring requirements. The goal of the IDSE is to characterize the distribution system and identify monitoring sites where customers may be exposed to high levels of total trihalomethanes (TTHM) and haloacetic acids (HAA5). There are four ways to comply with the IDSE requirements: Standard Monitoring, System Specific Study (SSS), 40/30 Certification (40/30), and Very Small System (VSS) Waiver. SSS is an option for systems that have extensive existing DBP data or have prepared a hydraulic model that can be used to determine locations of high DBP levels in their distribution system. Systems will have to meet minimum requirements to perform either option. This factsheet provides information regarding the SSS option for both Existing Monitoring and for Hydraulic Modeling.

What is a System Specific Study (SSS)?

SSS – Existing Monitoring

An evaluation of a system's DBP levels based on existing monitoring data collected throughout the distribution system and during the peak historical month. The rule requires a minimum number of samples and specific locations in the distribution system. This IDSE option is most likely to be used by systems that have extensive operational DBP data in addition to Stage 1 DBPR compliance monitoring data. Systems may use a combination of all qualifying data (i.e., existing operational and compliance data) to determine the best locations for Stage 2 DBPR compliance monitoring.

SSS – Hydraulic Modeling

An evaluation of a system's DBP levels based on results of an Extended Period Simulation (EPS) hydraulic model using water age as a surrogate for DBP formation. This IDSE option is most likely to be used by systems that have a high level of technical expertise and already utilize modeling technologies outside of the IDSE process. The model must meet the minimum requirements presented in the rule, such as percentage of distribution system represented by the model and calibration. The model results are used in conjunction with Stage 1 DBPR compliance data and one round of monitoring during the IDSE to select the best locations for Stage 2 DBPR compliance monitoring.

SYSTEM SPECIFIC STUDY REQUIREMENTS

Systems opting to conduct an SSS will need to:

- Step 1: Prepare and submit an SSS Plan by the date specified in Table 1 (below).
- Step 2: Address additional SSS requirements.
- Step 3: Prepare and submit the IDSE Report.
- Step 4: Prepare a Stage 2 DBPR compliance monitoring plan.

If you are conducting an SSS for IDSE compliance, you will be required to prepare a study plan, possibly conduct some additional monitoring, develop an IDSE Report, and prepare a Stage 2 DBPR compliance monitoring plan. These documents must be submitted by the deadlines listed in Table 1; however, you can submit two or all three of the documents as one submission as long as the required elements of each document are included and the deadline for the earliest document is met.

Table 1: SSS Compliance Dates

If you are a system serving:	Schedule:[1]	SSS Plan Due Date:	Submit IDSE Report By:	Begin Compliance Monitoring by:
At least 100,000 people or part of a combined distribution system serving at least 100,000 people	Schedule 1	October 1, 2006	January 1, 2009	April 1, 2012
50,000 to 99,999 people or part of a combined distribution system serving 50,000 to 99,999 people	Schedule 2	April 1, 2007	July 1, 2009	October 1, 2012
10,000 to 49,999 people or part of a combined distribution system serving 10,000 to 49,999 people	Schedule 3	October 1, 2007	January 1, 2010	October 1, 2013
Less than 10,000 or part of a combined distribution system serving less than 10,000	Schedule 4	April 1, 2008	July 1, 2010	October 1, 2013 [2]

[1] Your schedule is defined by the largest system in your combined distribution system.

[2] Systems not conducting *Cryptosporidium* monitoring under 40 CFR 141.701(a)(4) must begin Stage 2 DBPR compliance monitoring by this date. Systems conducting *Cryptosporidium* monitoring under 40 CFR 141.701(a)(4) or 141.701(a)(6) must begin Stage 2 DBPR compliance monitoring by October 1, 2014.

STEP 1: PREPARE & SUBMIT SYSTEM SPECIFIC STUDY PLAN

THE REQUIRED ELEMENTS OF AN SSS PLAN INCLUDE:

- Population served by your system.
- System Type: Subpart H (surface water or ground water under the direct influence of surface water) or Ground Water.
- Distribution System Schematic showing:
  - Entry Points
  - Sources
  - Locations and dates of all planned or completed SSS monitoring
  - Locations and dates of planned Stage 1 DBPR compliance samples

Specific requirements for each type of SSS are listed on the next page. If you meet the requirements for the IDSE Report, you may submit the SSS Plan and IDSE Report together.

HOW TO SUBMIT AN SSS PLAN:

Submit Electronically:

- Go To: www.epa.gov/safewater/disinfection/tools and access the IDSE Tool, Plan/Report Entry.
- Create an electronic SSS Plan using the template provided in the IDSE Tool.
- Attach schematic and additional information.
- Submit by the Due Date presented in Table 1 (above).
- Keep the confirmation number and copy of your plan for your files.

Submit By Mail:

- Create an SSS Plan. A template can be found in the IDSE Guidance Manual.
- Attach schematic and additional information.
- Mail submission to the IPMC:
  US EPA-IPMC
  PO Box 98
  Dayton, OH 45401-0098

STEP 2: ADDRESS ADDITIONAL SYSTEM SPECIFIC STUDY REQUIREMENTS

THE SPECIFIC ELEMENTS REQUIRED FOR AN EXISTING MONITORING SYSTEM SPECIFIC STUDY PLAN:

- Previously collected monitoring results: Data must be no more than 5 years old as of the due date of submission and must have been analyzed by approved methods.
- Certification that:
  - All compliance and operational data taken during the SSS period are included.
  - Distribution system and treatment have not significantly changed since the period of SSS data.
  - Samples are representative of the entire distribution system.
- Locations and frequency of sampling must meet the requirements of Table 2 and each site must be sampled at least once during peak historical month (i.e., high TTHM, high HAA5, or high water temperature) for each 12 months of qualifying data. If additional data is needed to meet minimum requirements, the SSS monitoring plan must include the locations and dates for proposed SSS monitoring.

Table 2: Monitoring Requirements for Existing Monitoring SSS

Source Water Type	Population Size Category	Total per monitoring period	Minimum Number of Samples	
			TTHM	HAA5
Subpart H	<500	3	3	3
	500-3,300	3	9	9
	3,301-9,999	6	36	36
	10,000-49,999	12	72	72
	50,000-249,999	24	144	144
	250,000-999,999	36	216	216
	1,000,000-4,999,999	48	288	288
	$5,000,000	60	360	360
Ground	<500	3	3	3
	500-9,999	3	9	9
	10,000-99,999	12	48	48
	100,000-499,999	18	72	72
	$500,000	24	96	96

THE SPECIFIC ELEMENTS REQUIRED FOR A HYDRAULIC MODELING SYSTEM SPECIFIC STUDY PLAN:

- Model must be an Extended Period Simulation (EPS) model and must simulate 24-hour variation in demand and show a consistently repeating 24-hour pattern of residence time.
- Tabular or spreadsheet data demonstrating that the model includes:
  - 75 percent of pipe volume and 50 percent of pipe length.
  - All pressure zones.
  - All 12-inch diameter and larger pipes.
  - All 8-inch and larger pipes that connect pressure zones, influence zones from different sources, storage facilities, major demand areas, pumps, and control valves, or are known or expected to be significant conveyors of water.
  - All 6-inch and larger pipes that connect remote areas of a distribution system to the main portion of the system.
  - All storage facilities with standard operations represented.
  - All active pump stations with controls and all active control valves.
- Description of calibration activities undertaken including (if calibration is complete):
  - A graph of predicted tank levels vs. measured tank levels for the storage facility with the highest residence time in each pressure zone.
  - A time series graph of the residence time at the longest residence time storage facility in the distribution system showing the predictions for the entire simulation period.
- Model output showing preliminary 24-hr average residence time predictions throughout the system.
- Timing and number of samples representative of distribution system for at least one monitoring period of TTHM and HAA5 monitoring at no less than the number of locations required under standard monitoring during the peak historical month. These samples must be taken at locations other than existing Stage 1 DBPR compliance monitoring locations.
- A description of how all requirements will be completed within 12 months of plan submission.

Peak Historical Month:

Is the month with the highest TTHM or the highest HAA5 levels or the warmest water temperature. It is meant to represent the "worst case" scenario for DBP formation.

STEP 3: PREPARE AND SUBMIT IDSE REPORT

The primary purpose of the IDSE Report is to provide EPA or the state with the system's recommendations for where and at what frequency Stage 2 DBPR compliance monitoring will be conducted.

The required elements of the IDSE Report are:

- Recommendations for Stage 2 DBPR monitoring sites and dates.
- Basis (analytical results and modeling) and justification for selection of recommended Stage 2 DBPR monitoring sites.
- TTHM and HAA5 analytical results in a tabular or spreadsheet format from all Stage 1 DBPR and SSS monitoring conducted during the period of the SSS.
- An explanation of any deviation from the approved SSS plan.

- If any of the following changed from your study plan:

    - Population served.
    - System type (subpart H or ground).
    - Distribution system schematic.

In addition, if you are conducting a Hydraulic Modeling SSS you must provide your **final calibration** information (if not already provided with the IDSE plan) and a **24-hr time series graph of residence time for all Stage 2 DBPR monitoring sites selected**. If you include the bold items above in your plan, you will not have to prepare a separate IDSE Report.

IDSE Report can be submitted the same way as the SSS Plan, as described under Step 1 of this factsheet.

STEP 4: PREPARE STAGE 2 DBPR COMPLIANCE MONITORING PLAN

The required elements of the Stage 2 DBPR compliance monitoring plan are the compliance monitoring locations and dates and compliance calculation procedures. If you decide to include the compliance calculation procedures in your IDSE Report, you will not have to prepare a separate Stage 2 DBPR compliance monitoring plan. However, if you did not include the information required for the Stage 2 DBPR compliance monitoring plan as part of your IDSE Report, your next step will be to prepare this plan before beginning Stage 2 DBPR compliance monitoring. If you are a Subpart H system serving more than 3,300 people, you must submit a copy of the monitoring plan to your state before Stage 2 DBPR compliance monitoring begins. Also, systems should check with their states in case there are state requirements, in addition to the Federal requirements, that need to be included in the IDSE Report.

ADDITIONAL GUIDANCE MATERIALS

The following guidance materials address the IDSE requirements for the Stage 2 DBPR:

- *Initial Distribution System Evaluation Guidance Manual for the Final Stage 2 Disinfectants and Disinfection Byproducts Rule* (EPA 815-B-06-002) - This manual is a comprehensive technical guidance document for all system sizes and types and all IDSE options.

- *IDSE Tool* – Is a web-based tool that walks the user through the IDSE process. A Wizard determines IDSE requirements and selects the best IDSE option for your system. The tool creates Custom Forms your system (based on population served and system type) can submit electronically to EPA's Information Processing and Management Center for EPA/state review. (Available on-line at www.epa.gov/safewater/disinfection/tools.)

For additional guidance on the Stage 2 DBPR, you may refer to the following existing and future EPA materials:

- Stage 2 DBPR Quick Reference Guides (Schedules 1 – 4).

- Simultaneous Compliance Guidance Manuals for the Stage 2 Rules (draft version anticipated mid-2006).

- Stage 2 Disinfectant and Disinfection Byproducts Rule: Small Entity Compliance Guide – One of the Simple Tools for Effective Performance (STEP) Guide Series (draft version anticipated late 2006).

- Consecutive System Guidance Manual for the Final Stage 2 Disinfectants and Disinfection Byproducts Rule (draft version anticipated late 2006).

- Operational Evaluation Guidance Manual for the Final Stage 2 Disinfectants and Disinfection Byproducts Rule (draft version anticipated late 2006).

Materials can be downloaded from www.epa.gov/safewater/disinfection/stage2, as they become available.

For additional information, please contact the Safe Drinking Water Hotline at 1-800-426-4791, send an email to stage2mdbp@epa.gov, or visit www.epa.gov/safewater/disinfection/stage2.