STAGE 2 DISINFECTANTS AND DISINFECTION BYPRODUCTS RULE FACT SHEET

What is the Stage 2 DBP?

The Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBP) is intended to reduce potential cancer and reproductive and developmental health risks from disinfection byproducts (DBPs) in drinking water, which form when disinfectants are used to control microbial pathogens. Over 260 million individuals are exposed to DBPs.

This final rule strengthens public health protection for customers of systems that deliver disinfected water by requiring such systems to meet maximum contaminant levels as an average at each compliance monitoring location (instead of as a system-wide average as in previous rules) for two groups of DBPs, trihalomethanes (TTHM) and five haloacetic acids (HAA5). The rule targets systems with the greatest risk and builds incrementally on existing rules. This regulation will reduce DBP exposure and related potential health risks and provide more equitable public health protection. The Stage 2 DBPR is being released simultaneously with the Long Term 2 Enhanced Surface Water Treatment Rule to address concerns about risk tradeoffs between pathogens and DBPs.

Who does this rule apply to?

The Stage 2 DBP rule applies to community and nontransient noncommunity water systems that add and/or deliver water that is treated with a primary or residual disinfectant other than ultraviolet light. (NOTE: This will also include consecutive public water systems)

What is a Consecutive System?

A Consecutive System is a PWS that receives some or all of its finished water from one or more wholesale systems.

What is a Wholesale System?

A Wholesale System is a PWS that treats source water as necessary and then delivers the finished water to another public water system. Delivery may be through a direct connection or through the distribution system of another consecutive system.

What is a Combined Distribution System?

A Combined Distribution System (CDS) is the interconnected distribution system consisting of the distribution systems of the wholesale system and of the consecutive systems that receive finished water from that wholesale system. Connecticut has defined the Combined Distribution

Systems based on source and interconnection information for each water system. A listing of the identified Combined Distribution Systems in Connecticut has been made available.

What are the requirements of the final rule?

Under the Stage 2 DBP rule, systems will conduct an evaluation of their distribution systems, known as an Initial Distribution System Evaluation (IDSE), to identify the locations with high disinfection byproduct concentrations. These locations will then be used by the systems as the sampling sites for Stage 2 DBP rule compliance monitoring.

Compliance with the maximum contaminant levels for two groups of disinfection byproducts (TTHM and HAA5) will be calculated for each identified monitoring location in the distribution system. This approach, referred to as the locational running annual average (LRAA), differs from current requirements, which determine compliance by calculating the running annual average of samples from all monitoring locations across the distribution system.

The Stage 2 DBP rule also requires each system to determine if they have exceeded an operational evaluation level, which is identified using their compliance monitoring results. The operational evaluation level provides an early warning of possible future MCL violations, which allows the system to take proactive steps to remain in compliance. A system that exceeds an operational evaluation level is required to review their operational practices and submit a report to their state that identifies actions that may be taken to mitigate future high DBP levels, particularly those that may jeopardize their compliance with the DBP MCLs.

What is the IDSE and how does it work?

An IDSE is performed to determine locations with representative high TTHM and HAA5 concentrations throughout your distribution system. IDSEs are used in conjunction with, but separate from, routine Stage 1 DBPR compliance monitoring, to identify and select Stage 2 DBPR routine compliance monitoring locations.

There are four IDSE options:

Standard Monitoring (SM);
System Specific Study (SSS) (based on monitoring and modeling requirements);
40/30 Certification; or
Very Small System (VSS) Waiver

IDSE scheduling is based on water system classification and population served or the *population of the largest system in the combined distribution system (CDS)* as indicated in the following table:

IDSE Schedule

Sch.	Systems Serving:	Submit 40/30 Certification, SM, SSS Plan, or receive VSS Waiver by:	Complete SM or SSS By:	Submit IDSE Report (only SM or SSS) by:
1	≥ 100,000	Oct. 1, 2006	Sept. 30, 2008	Jan. 1, 2009
2	50,000–99,999	Apr. 1, 2007	Mar. 31, 2009	July 1, 2009
3	10,000–49,999	Oct. 1, 2007	Sept. 30, 2009	Jan. 1, 2010
4	< 10,000 (CWS)	Apr. 1, 2008	Mar. 31, 2010	July 1, 2010
Schedule for systems in a combined distribution system is based on that of the largest system in the combined distribution system.				

Is my system eligible for a Very Small System (VSS) Waiver?

To qualify for a Very Small System (VSS) waiver, a system must serve a population of fewer than 500 people and must have taken TTHM and HAA5 samples. Waivers are effective immediately and systems do not need to apply for a VSS waiver.

The waiver is only for additional IDSE activities. Systems are still required to complete a monitoring plan and identify appropriate monitoring locations to comply with the Stage 2 DBPR requirements. **EPA or the state may deny the VSS waiver for any reason, even if system meets all eligibility criteria.**

Is my system eligible to submit a 40/30 Certification?

To be eligible to submit a 40/30 Certification, a system must have taken all TTHM and HAA5 samples for Stage 1 DBPR compliance within 8 consecutive calendar quarters in the eligibility period. The eligibility period for systems on Schedules 1 and 2 begins no earlier than January 2004 and no earlier than January 2005 for systems on Schedule 3 and 4. Every individual sample must be less than or equal to 0.040 mg/L for TTHM and 0.030 mg/L for HAA5 to qualify for 40/30 Certification. In addition, the system cannot have had any TTHM or HAA5 monitoring violations during the eligibility period.

The waiver is only for additional IDSE activities. Systems are still required to complete a monitoring plan and identify appropriate monitoring locations to comply with the Stage 2 DBPR requirements. **EPA or the state may deny the 40/30 certification for any reason, even if system meets all eligibility criteria.**

What is Standard Monitoring?

The purpose of Standard Monitoring is to collect disinfectant byproduct (DBP) data in addition to Stage 1 DBPR data in order to select Stage 2 DBPR compliance monitoring locations. The Stage 2 DBPR provides a set process for Standard Monitoring based on population served and source water type. The process includes the types of sites to be monitored and the number of samples to be taken at each type of site. The system must determine where the monitoring sites should be located based on available information. The IDSE Standard Monitoring schedule is shown in the table below.

IDSE Standard Monitoring Schedule

Sch.	Systems Serving	Submit Plan	Complete Monitoring	Submit IDSE Report
1	≥ 100,000	10/1/2006	9/30/2008	1/1/2009
2	50,000 –99,999	4/1/2007	3/31/2009	7/1/2009
3	10,000 –49,999	10/1/2007	9/30/2009	1/1/2010
4	< 10,000 (CWS)	4/1/2008	3/31/2010	7/1/2010

The Standard Monitoring Plan must include all elements required in 40 CFR 141.601(a)(1) through (a)(4). These elements are:

- A schematic of the distribution system that includes distribution system entry points and their sources and storage facilities, with notes indicating locations and dates of all projected Standard Monitoring and all projected subpart L (Stage 1 DBPR) compliance monitoring
- The population served by the system
- Source water type (i.e., Subpart H or ground water system)
- Justification for the selection of each Standard Monitoring location, including a summary of all data used to justify the selection of the monitoring locations

The system must retain a copy of the Standard Monitoring Plan, including any EPA or state modifications, for as long as the system is required to retain its IDSE report (i.e., 10 years after the date that the system submitted the report).

Systems must collect a dual sample at each Standard Monitoring location. A dual sample consists of two separate samples collected at a sample site at the same time. One sample is then analyzed for TTHM and the other sample is analyzed for HAA5. Depending on population served and source water type, systems will have to monitor one, four, or six times a year at each

location identified in their Standard Monitoring Plan. All samples must be collected at one of four locations, depending on system size and type:

- Locations of high TTHM concentrations
- Locations of high HAA5 concentrations
- Locations of average residence time in the distribution system
- Locations near the entry point to the distribution system

All samples must be collected at locations other than existing Stage 1 DBPR monitoring locations.

The most important part of the Standard Monitoring Plan will be the selection of appropriate monitoring locations. To select required monitoring locations, systems will rely on past data and other tools as well as professional judgment and general knowledge of their system.
Tools and data sources on which systems can rely to help select their monitoring sites include distribution system maps, water quality data, and operating data. Keep in mind that for tools and/or data to be useful, it must be representative of the system's current configuration and operation. Data should be less than 10 years old.

What is a System Specific Study?

Systems can meet IDSE requirements using existing monitoring results or a distribution system hydraulic model if their data or model meets 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.

What other 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 *Initial Distribution System Evaluation Guide* 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 which is available on-line at http://www.epa.gov/safewater/disinfection/stage2 and on CD by request. 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 that can used to determine IDSE 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 and state review.

What are the Compliance Monitoring Requirements under this Rule?

The Stage 2 DBPR bases compliance on calculating a locational running annual average (LRAA) where compliance with the rule requires maintaining the annual average at each compliance sampling location in the distribution system at or below 0.080 mg/L and 0.060 mg/L for TTHM and HAA5, respectively. This is opposed to the RAA MCL calculation under the Stage 1 DBPR that averaged observed values across distribution system compliance sampling locations. Monitoring for the LRAA will occur at compliance sampling locations identified through the IDSE at specific frequencies that are much more specifically defined than in previous DBP regulations.

If a water system is required to conduct quarterly monitoring, it must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters). If a system is required to conduct monitoring at a frequency that is less than quarterly, it must make compliance calculations beginning with the first compliance sample taken after the compliance date.

What are the Operational Evaluation Levels?

The final Stage 2 DBPR includes the concept of "operational evaluation levels." Operational evaluation levels trigger a system to evaluate system operational practices and identify opportunities to reduce DBP concentrations in the distribution system in order to reduce the potential the system will exceed the MCL. The Stage 2 DBP operational evaluation levels are identified using the system's Stage 2 DBPR compliance monitoring results.

Operational Evaluation Levels
(calculated at each monitoring location)

IF (Q1 + Q2 +2Q3)/4 > MCL, then the system must conduct an operational evaluation

where
Q3 = current quarter measurement
Q2 = previous quarter measurement
Q1 =quarter before previous quarter measurement
MCL=Stage 2 MCL for TTHM (0.080 mg/l) **or** Stage 2 MCL for HAA5 (0.060 mg/L)

The operational evaluation includes an examination of system treatment and distribution operational practices, including changes in sources or source water quality, storage tank operations, and excess storage capacity, which may contribute to high TTHM and HAA5 formation. Systems must also identify what steps could be considered to minimize future operational evaluation level exceedences.

Are there any special reporting requirements?

EPA has established the Information Processing and Management Center (IPMC) as a centralized location for Stage 2 IDSE Submissions. The IPMC will receive, sort, scan, and perform data entry for Stage 2 IDSE submissions into the Data Collection and Tracking System (DCTS). The following summarizes the reporting options available:

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: US EPA-IPMC P O Box 98 Dayton, OH 45401	E-mail electronic submissions as attachments to: stage2mdbp@epa.gov

How the EPA and the State of Connecticut intend to implement this Rule?

Given that certain aspects of this Rule are in effect prior to the time the State can adopt the Rule into its regulations, the State and EPA agreed to partner in the implementation of the rule during this period. The partnership agreement assigns to the State the following functions, while EPA will handle and oversee the remaining aspects:

1) Review and approve or disapprove the Standard Monitoring plans and reports for the IDSE.
2) Review and approve or disapprove the System Specific Study plans and reports for the IDSE.
3) Determine and notify systems that will be required to submit TTHM and HAA5 data with their 40/30 certification. Review and track 40/30 certifications and notify systems whether their 40/30 certification is approved or they have to complete an IDSE.
4) Determine whether systems serving less than 500 people have qualifying TTHM/HAA5 data for the Very Small System (VSS) Waiver, and notify systems that do not qualify.
5) Perform along with EPA all data management and compliance tracking using the LT2/Stage 2 data collection system.

Who is my State Contact on this Rule?

In the State of Connecticut, Christopher Roy is the coordinator of this Rule and he can be reached at 860-509-7333.

Disclaimer: We credit EPA and AWWA for most of the information on this fact sheet

Revised: September 8, 2006