

EXECUTIVE SUMMARY

Safe Drinking Water

Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR)

The federal Stage 2 DBPR was promulgated on January 4, 2006. Unless otherwise specified, the Stage 2 DBPR provisions apply beginning January 4, 2008. The Stage 2 DBPR augments the Stage 1 DBPR and is intended to reduce disease incidence associated with the disinfection byproducts (DBPs) that are formed when public water supply systems add disinfectants.

The Stage 2 DBPR is designed to reduce the level of exposure from DBPs without undermining the control of microbial pathogens. The Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) was finalized and implemented simultaneously with the Stage 2 DBPR to ensure that drinking water is microbiologically safe at the limits set for DBPs.

The Stage 2 DBPR also contains a risk-targeting approach to better identify monitoring sites where customers are exposed to high levels of DBPs. This rule will reduce DBP exposure and provide more equitable health protection, and will result in lower cancer and reproductive and developmental risks.

Who does the rule apply to?

- The Stage 2 DBPR applies to community water systems (CWSs) and nontransient noncommunity water systems (NTNCWSs) that:
 - Add a primary or residual disinfectant other than ultra violet (UV) or
 - Deliver water that has been treated with a disinfectant other than UV.

Key provisions

The risk-targeting components of the Stage 2 DBPR focus the greatest amount of change where the greatest amount of risk may exist. The provisions of Stage 2 DBPR focus on:

- Identifying the higher risk monitoring locations through the Initial Distribution System Evaluation (IDSE).
- Reducing exposure and lowering DBP peaks in distribution systems by using a new method to determine MCL compliance [locational running annual average (LRAA)].
- Defining operational evaluation levels. The operational evaluation level is an LRAA threshold, meant to help systems identify if they are in danger of exceeding the MCL in the following monitoring quarter. The process is useful in that it alerts the system to the potential of an MCL violation if DBP levels remain at their current level and encourages them to consider what operational changes may be necessary to reduce DBP levels.

Impacts of the Stage 2 DBPR in Pennsylvania

- The Stage 2 DBPR is expected to apply to all community water systems (almost 2,042) and nontransient noncommunity water systems (almost 600) serving about 10.5 million people, that use a chemical disinfectant or oxidant for treatment or deliver water that has been treated with a chemical disinfectant or oxidant.

Public health concerns addressed

- The public health benefits of disinfection are significant and well-recognized. However, these very disinfection practices pose health risks of their own. Although disinfectants such as chlorine, hypochlorite, and chlorine dioxide are effective in controlling many harmful microorganisms, they react with organic and inorganic matter in the water to form disinfection byproducts (DBPs), which pose health risks at certain levels.
- Epidemiological studies have supported a potential association between bladder cancer and DBPs and possibly with colon and rectal cancers.
- Current reproductive and developmental health effects data do not support a conclusion at this time as to whether exposure to chlorinated drinking water or DBP's causes adverse developmental or reproductive health effects, but do support a potential health concern.
- The combined health data indicate a need for public health protection beyond that provided by the Stage 1DBPR.

Benefits of Stage 2 DBPR

- Improve public health by increasing level of protection from exposure to DBP's through providing more consistent, equitable protection from DBPs across the entire distribution systems and the reduction of DBP peaks.
- Reduction in health risks associated with disinfection practices, such as bladder cancer and kidney damage.
- Non-quantified benefits include potential benefits from reduced reproductive and developmental risks, reduced risks of cancers other than bladder cancer and improved water quality.
- Non-health related benefits include avoiding costs associated with cancer treatment.