DISINFECTANTS/DISINFECTION BYPRODUCT RULE

The Stage 1 Disinfectants/Disinfection Byproducts Rule (D/DBP Rule) is a federal rule that became effective in Ohio in 2001. Those consecutive community public water systems (i.e., those systems that purchase water from another public water system) which purchase water from a surface water source will be regulated by the D/DBP Rule beginning January 1, 2002. This Information Sheet is only pertinent to those consecutive community systems which do not provide additional disinfection or oxidation treatment (chlorine, sodium hypochlorite, calcium hypochlorite, chlorine dioxide, or ozone) to the purchased water.

The D/DBP Rule is summarized as follows:

Effective Monitoring Dates

- All consecutive community public water systems who purchase water from a surface water system had to begin monitoring on January 1, 2002.

Chemical Limits and Testing

- Testing requirements include total trihalomethanes (TTHM) and five haloacetic acids (HAA5), which are disinfection byproducts. The new Maximum Contaminant Levels (MCLs) for TTHM (0.080 mg/L), HAA5 (0.060 mg/L), Bromate (0.010 mg/L) and Chlorite (1.0 mg/L) and related public notification for violations will not apply to satellite water systems not adding a disinfectant or oxidant. The MCL concentrations for TTHM and HAA5 are still applicable to consecutive community public water systems, however, as a trigger to prompt additional corrective actions.

Operational and Reporting Requirements

- Monitoring requirements include TTHM and HAA5. At a minimum, a public water system is required to collect one sample per quarter at the maximum residence time location. Consecutive community water systems serving 10,000 or more persons are required to collect four samples quarterly, with one sample being collected at the location of maximum residence time, with the other three samples being collected at representative points in the distribution system. A running annual average will be computed quarterly.

Requirements After Exceeding the DBP MCL Concentrations

Consecutive community water systems not adding a disinfectant or oxidant which exceed an MCL concentration for TTHM or HAA5 are required to optimize their distribution system operations. Distribution system operations must be optimized by January 1, 2005 or within 36 months of exceeding the MCL concentration. Optimization shall be conducted according to a written plan to be submitted to Ohio EPA within six months of exceeding the MCL concentration. Optimization will be defined as follows:

- Demonstration of the minimization of distribution disinfectant levels and residence times;
- Optimal replacement of water in storage tanks with a minimum recommended daily turnover of 25%;
- Calculations or modeling to determine water age which can be used to prioritizing the installation of additional water lines, looping, or modifying flow through valve adjustments;
- Planned flushing program;
- If multiple water sources are used, varying the source or percentage of source water used based on the potential to form DBPs;

If a consecutive community system provides additional disinfection, that system becomes regulated as a surface water system serving 500 to 9,999 persons.

Public water systems serving 500 to 9,999 persons were regulated by the D/DBP Rule beginning January 1, 2004. This includes all community systems and all non-transient non-community systems which add any disinfectant or oxidant (chlorine, sodium hypochlorite, calcium hypochlorite, chlorine dioxide, or ozone) to the treated water and any transient non-community water system which provides water treated with chlorine dioxide.

Chemical Limits and Testing

- Testing requirements include total trihalomethanes (TTHM) and five haloacetic acids (HAA5), which are disinfection byproducts. The new Maximum Contaminant Level (MCL) for TTHM will be 0.080 mg/L. In addition, a new MCL of 0.060 mg/l is established for the haloacetic acids (HAA5).

- New MCLs will be established for Bromate (0.010 mg/L) and Chlorite (1.0 mg/L). Bromate monitoring will be required of systems which use ozone. Chlorite monitoring only will be required of systems which use chlorine dioxide (i.e., sodium- and calcium hypochlorite are not included).

- Maximum Residual Disinfectant Levels (MRDLs), a new term with a context similar to MCL, will be established for Total Chlorine (4.0 mg/L) and Chlorine Dioxide (0.8 mg/L).

Monitoring and Reporting

- Required monitoring includes TTHM and HAA5. The monitoring and reporting requirements for a water system requires one sample per treatment plant (Source Treatment Unit, or STU) at the maximum residence time location. Surface water systems must collect this one sample quarterly. For systems that monitor quarterly, compliance will be based on a running annual average computed quarterly. MCL exceedances will necessitate more frequent monitoring.

- Monitoring results may indicate the possible need for additional treatment to include best available technology for reduction of DBP. This may include granular activated carbon, enhanced coagulation (for surface water systems using conventional filtration), or enhanced softening (for systems using lime softening).

- A public water system is required to develop and implement a sample monitoring plan for disinfectant residual and disinfection byproducts monitoring. If serving 3,300 or more persons, this plan is required to be submitted to and approved by Ohio EPA. If you serve less than 3,300 persons, the plan must be developed and kept current for on-site inspection. Disinfectant residual monitoring compliance for total chlorine, including

chloramines, will be based upon a running annual average, computed quarterly, of the monthly average of all samples collected under this rule. Disinfectant residual monitoring is required at the same distribution point and time as total coliform monitoring. In addition, if one feeds ozone or chlorine dioxide, they are required to prepare a sample monitoring plan for bromate or chlorite, respectively.