

New rules, new regulations, new technologies

Today, phrases like "Disinfection Byproducts" and "Enhanced Surface Water Treatment" are synonymous with drinking water rules and regulations. The EPA is in the process of developing the final versions of the "Stage 2 Disinfectants and Disinfection Byproducts Rule" and the "Long Term 2 Enhanced Surface Water Treatment Rule." The final proposed rules are expected out in late 2004 or early 2005.

The purpose of the new disinfection byproducts rule is to reduce disease occurrence of exposure to disinfection byproducts (trihalomethanes and haloacetic acids), to provide more equitable health protection and to take a risk targeting approach.

The impact of this rule is that it applies to all community water systems that disinfect with any method other than ultra-violet light. Ultra-violet light is excluded because it does not produce

the byproducts, but UV light cannot be used as the sole method of disinfection, in that it does not provide any residual protection in the water distribution system. The final impact of this is to achieve more equitable protection; it applies to all water systems in Kansas that are required to disinfect.

Peaks and excursions

The risk targeting approach is accomplished by requiring all systems to perform an IDSE (Initial Distribution System



Evaluation) to determine specific locations at where the highest disinfection byproduct concentrations are found. Systems that have already been monitoring for DBPs (Disinfection Byproducts) will have a good idea where these sites are located. Systems doing the monitoring for the first time will have to determine these

Gary Kincy, City of Manhattan water plant supervisor, explains the city's current use of 150 lb. chlorine cylinders with a multi-tank manifold system.

experience short term peaks or "significant excursions" from the standards at any point in their distribution systems.

The standards or MCLs will remain the same: 80 ppb (parts

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sites, usually areas where the water has a long resident time and low daily usage. In addition, compliance with the MCLs (maximum contaminant level) will now have to be met for all sample locations. The proposed rule establishes LRAA (locational running annual averages). Systems will also be required to determine if they

per billion parts by weight or micrograms per liter) for total trihalomethanes and 60 ppb for haloacetic acids. In the past, compliance required that systems needed to meet an annual running average of all the sites monitored; now the standards must be met at each individual sampling site. The purpose of the proposed ESWT (Enhanced

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Training Director*



Surface Water Treatment) rule is to reduce disease occurrence from exposure to cryptosporidium and other pathogenic microorganisms in drinking water and to ensure protection against microbes in

The City of Manhattan operates two-stage lime softening of their ground water. Pictured are the primary and secondary clarifiers. They city has two trains of treatment.



In anticipation of upcoming regulation changes, the city is installing new chemical feed equipment in order to disinfect with chloramines. Gary Kincy and one of the installers discuss the progress of the project.

Removing precursors

The two rules are "tied" together in that compliance with one rule may cause a violation of another. Anytime a system changes its water treatment techniques or strategies there may be an

impact on another area. Enhanced coagulation and sedimentation may be required to comply with the ESWTR and may also be the key in complying with the DBPR. In order to form DBPs a halogen (chlorine, bromine,

the finished drinking water as systems comply with the above discussed disinfection byproducts rule.

This rule applies to all surface water systems and all groundwater systems under the direct influence of surface water. It also classifies systems based on projected risk and may require systems to perform additional monitoring in order to assess risks. The proposed rule also has requirements for performing disinfection profiling to ensure protection has been provided to drinking water consumers as systems modify or alter their disinfection practices as they comply with the byproducts rule. Systems will not be allowed to sacrifice microbiological quality just to comply with the standards for trihalomethanes and haloacetic acids.

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iodine, etc.) comes into contact with organic precursors (usually organic acids formed from the breakdown of vegetation). While complying with the physical removal requirements for cryptosporidium and other microbes, a system may do a better job of removing organic precursors and therefore reduce the amount of DBPs that would be formed when a halogenic disinfectant such as chlorine is applied to ensure deactivation of pathogens.

Some of the new or alternate treatment techniques, technologies and strategies that may be employed to achieve or maintain compliance with these new rules are: source water protection, enhanced coagulation, optimizing coagulant use, use of alternative

Gary Kincy checks the City of Manhattan's new carbon dioxide unit that will allow them to recarbonate and better stabilize the finished, lime-softened water.

coagulants, use of alternative clarification, optimizing sedimentation, enhanced filtration, use of filter membrane technology, improving filter performance and use of alternative disinfectants or

modifying application of current disinfectants.

Any of these changes or modifications must be approached carefully and cautiously, in that the health of the water consuming public is at stake. Systems must work closely with KDHE staff before changes are made. KRWA will continue to provide on-site assistance as well as training and support services to assist water systems as they face these upcoming challenges. Be on the lookout for upcoming training sessions and future magazine articles on these and related subjects and please call the KRWA office if we can be of any assistance or service.



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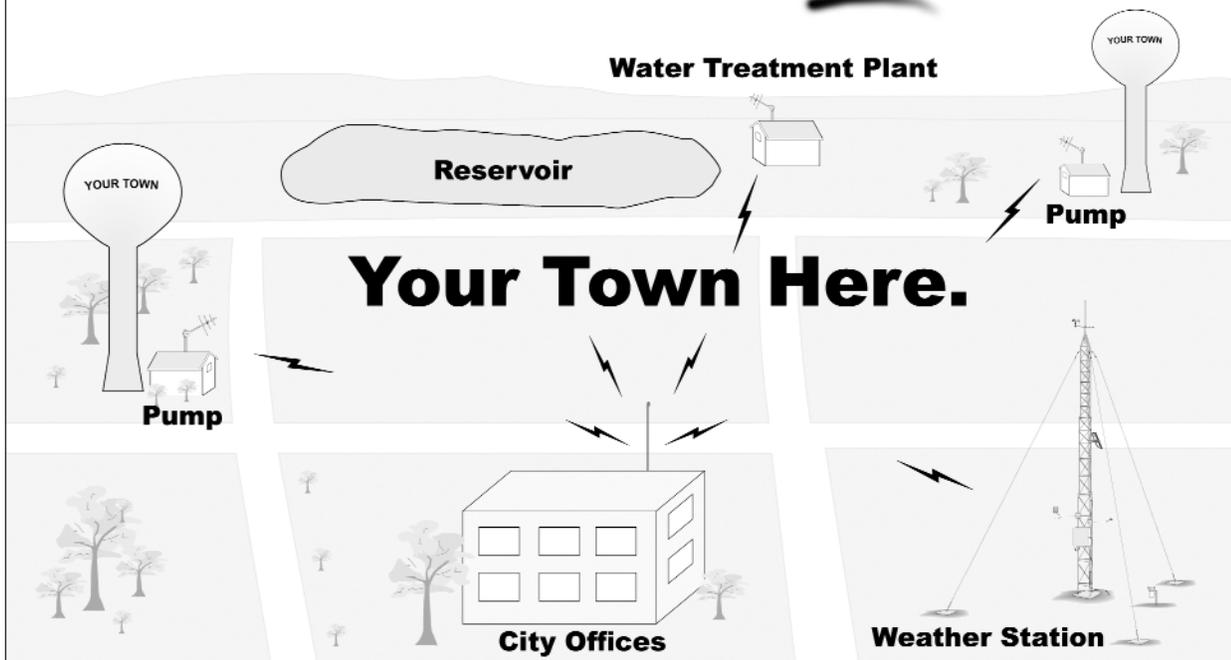
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