

NR 809, NR 810 and NR 811

NR 809

The changes to NR 809 include restructuring and reformatting of the code and the addition of three federal rules: the groundwater rule (GWR), the Stage 2 disinfection by-product rule (Stage 2 DBPR), and the long term 2 (LT2) enhanced surface water treatment rule.

The restructuring of NR 809 is being done to limit the code to the compliance monitoring requirements of the Safe Drinking Water Act (SDWA) with other non-monitoring requirements being moved to the new code, NR 810. The reformatting of this code is being done to make it easier to use and find applicable sections.

EPA requires states with primary enforcement of the SDWA to adopt new provisions of the federal rule. The following are summaries of the three rules being added to NR 809.

The Ground Water Rule has four major components:

1. Sanitary surveys (inspections) of ground water systems will include a more comprehensive evaluation of the construction, maintenance and operation of the system and the identification and scheduled correction of any significant system deficiencies.
2. *Triggered source water monitoring* for groundwater systems that have a total coliform-positive routine distribution system sample with confirmation source water monitoring for *E. coli*.
3. Corrective actions for any water system with a significant deficiency that is not able to be corrected or with confirmed source water *E. coli* contamination. The water system must implement one or more of the following actions:
 - ◆ eliminate the source of contamination,
 - ◆ provide an alternate source of water, or
 - ◆ provide treatment which reliably achieves 99.99 percent (4-log) inactivation or removal of viruses.
4. Compliance monitoring to ensure that any treatment technology installed to treat drinking water reliably achieves at least 99.99 percent (4-log) inactivation or removal of viruses.

Sanitary surveys for community water systems are now being done on a three year rotating basis. Triggered source water monitoring will begin on December 1, 2009 for all groundwater systems. Corrective actions that can not be done in a short period of time will be put on a compliance schedule with details determined in meetings with the

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DNR. Using treatment to deal with source water that is contaminated with *E. coli* will continue to be used on a very limited basis.

The Stage 2 Disinfection Byproducts Rule (DBPR) implementation is split into two parts. The first part is being implemented by the EPA and requires systems to either qualify for a waiver from the requirements or to 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 DBPR compliance monitoring.

Compliance with the maximum contaminant levels for two groups of disinfection byproducts (TTHM and HAA5) will be calculated for each 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 system.

The Stage 2 DBPR 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 the DNR that identifies actions that may be taken to mitigate future high DBP levels, particularly those that may jeopardize their compliance with the DBP MCLs.

As part of the Stage 2 DBPR, consecutive systems purchasing water from a system that disinfects will be covered under the rules. Also, consecutive systems, purchasing water from a system that disinfects, are required to begin testing and reporting disinfectant residuals with their monthly microbial samples on April 1, 2009

The LT2ESWTR is also split into 2 parts where the EPA is implementing most of the first part. Surface water systems are monitoring their water sources to determine treatment requirements. This monitoring includes an initial two years of monthly sampling for *Cryptosporidium*. To reduce monitoring costs, small filtered water systems will first monitor for *E. coli*-bacterium which is less expensive to analyze than *Cryptosporidium*-and will monitor for

Cryptosporidium only if their E. coli results exceed specified concentration levels.

Filtered water systems will be classified in one of four treatment categories (bins) based on their monitoring results. The majority of systems will be classified in the lowest treatment bin, which carries no additional treatment requirements. In the second part, the DNR will work with systems classified in higher treatment bins to provide 90 to 99.7 percent (1.0 to 2.5- logs) of additional treatment for *Cryptosporidium*. Systems will select from a wide range of treatment and management strategies in the "microbial toolbox" to meet their additional treatment requirements.

Systems will conduct a second round of monitoring six years after completing the initial round to determine if source water conditions have changed significantly.

If you have any questions related to Code NR 809, please contact **Carol McCurry**, NR 809 Rules Coordinator at 608-267-2449 or Carol.McCurry@Wisconsin.gov. ♦

NR 810

NR 810 is a new code chapter titled "Requirements for the Operation and Maintenance of Public Water Systems." Many of the sections are existing requirement moved from NR 809 and NR 811. Some new sections have been added. Some of the requirements will apply to all public water systems including non-community systems.

- ♦ All community systems will be required to operate within the design parameters of NR 811 and their specific plan approval requirements.
- ♦ Mandatory disinfection
 - All municipal systems will be required to provide continuous disinfection within 12 months of the effective date of the rule.
 - All new other-than-municipal (OTM) systems will be required to provide equipment for continuous disinfection.
- ♦ All community systems must operate to maintain a normal operating pressure between 35 and 100 psi.
- ♦ System maintenance
 - Valve exercising - required every 2 to 5 years
 - Hydrant exercising - required every 2 years
 - Flushing dead-end mains - establish regular schedule to maintain water quality
 - Well pump - recommend remove and inspect every 10 years
 - Filter & softener vessels - require interior inspection every 5 years
 - Emergency power - required to exercise generators and engines monthly

- Master meter testing and calibration - required every 2 years
- ♦ Water storage facility inspections
 - Interior inspection required every 5 years or DNR approved schedule
 - Acceptable methods - drain down (required every 10 years), float down, diver, robotic
- ♦ Cross connection control program
 - Clarifies protection to the last flowing tap
 - Frequency of surveys of premises
 - Residential - 10 years or same as meter replacement
 - Commercial, industrial & public authority - 2 years
 - Alternate schedule may be approved
- ♦ Local well regulation - updated language
- ♦ Temporary water service - new requirements
- ♦ Water loss and unaccounted water - refers to PSC requirements
- ♦ Unattended water treatment plant operation - new requirements
- ♦ Emergency well operation - Extended Well Abandonment Agreement required for wells that are not routinely used
- ♦ Water system security - requirements for security measures and emergency operations plan
- ♦ Operations manuals - required for all systems with treatment
- ♦ Surface Water Treatment Rule requirements moved from NR 809
- ♦ Apply to all surface water sources and groundwater under the direct influence of surface water
 - 3-log giardia, 4-log virus and 3-log cryptosporidium removal
 - Filtration requirements
 - Disinfection requirements
 - Disinfection profiling requirements
 - Monitoring and reporting requirements
- ♦ Enhanced Surface Water Treatment Rule (new)
 - Sampling requirements in NR 809
 - Treatment requirements for cryptosporidium
 - Bin classifications
 - Bin treatment requirements
 - Required schedules
 - Microbial toolbox options - includes membranes, ozone & UV
- ♦ Complete CT tables are included
 - Giardia, viruses, cryptosporidium
 - Free chlorine, chlorine dioxide, chloramines, ozone, UV

If you have any questions related to Code NR 810, please contact **Larry Landsness**, NR 810 Rule Coordinator at 608-267-7647 or Larry.Landsness@Wisconsin.gov. ♦

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NR 811

A summary of the proposed major revisions and additions to the Design Requirements for Community Water Systems, Chapter NR 811, Wis. Adm. Code is as follows:

- ◆ The number of definitions was expanded.
- ◆ The operation and maintenance requirements were removed from NR 811. A new Operation and Maintenance code, Chapter NR 810, has been drafted.
- ◆ Submission of plans:
 - Requirements for plan submittal for buildings were added.
 - Requirements were added that well sites meet Chapter NR 820 (Groundwater Quality Protection) criteria.
 - A recommendation was added that an energy efficiency analysis be included.
- ◆ Wells:
 - Outer casings will have to be pulled out unless grouted in place.
 - Sanitary sewers will be able to be constructed within 50 feet of a community class public well without a variance, provided that within 200 feet of the well the sewer is constructed of water main class pipe and is pressure tested.
 - DNR worked with Department of Commerce (DCOM) to establish updated Underground Storage Tank (UST) and Aboveground (AST) well setback distances of 300', 600' and 1,200' depending on the level of groundwater protection provided by the tank installation.
 - Wellhead Protection Plan requirements were clarified so that requirements will be clearer and the plans more consistent.
 - Well development and rehabilitation requirements were expanded to reflect current practices.
 - A table was inserted for allowable neat cement-bentonite grout mixtures.
 - The requirements for observation, monitoring, and test wells were clarified.
 - The well abandonment requirements were updated, streamlined and made similar to the NR 812 private well abandonment requirements.
 - Additional disinfection requirements were added for short cased wells.
- ◆ Surface water source development: The requirements for siting surface water intakes were enhanced.
- ◆ Pumping stations and other water treatment plant buildings:
 - The locations and ways that building floor drain piping can discharge were clarified including the use of trench drains and holding tanks.
 - Requirements for multipurpose buildings were added.
- Auxiliary power requirements were updated especially in regard to the use of portable engine-generator sets.
- ◆ Pumping equipment and appurtenances:
 - Clarification has been added for how vertical turbine and submersible pump installations must terminate at the well head.
 - Requirements were added for variable frequency drive units.
 - Requirements were added to allow the installation of pitless units.
 - The requirements for the installation of pump discharge piping and appurtenances were updated and clarified.
- ◆ Chemical addition:
 - The requirements for providing separate chemical feed systems were clarified.
 - The list of chemical feed pump types that can be installed was updated to include digital and peristaltic.
 - The requirements for the locations and manner in which chemical feed taps are installed were clarified.
 - The requirements for anti-siphon devices and protection were updated.
 - The requirements for chemical storage were updated to reflect current practices and issues.
- ◆ Treatment:
 - Requirements were added that all municipal water systems and all other-than-municipal (OTM) community water systems constructed or modified after the effective date of the revised code will need to be provided with the equipment and appurtenances necessary to continuously disinfect the water. Chapter NR 810 currently has a requirement that all municipal water systems will need to practice continuous water disinfection within twelve months of the effective date of NR 810.
 - Requirements for "CT" (the concentration of disinfectant multiplied by the contact time) to provide required bacteria, virus, and cyst inactivation were added.
 - Treatment requirements for groundwater under the direct influence of surface water were added.
 - Requirements for pilot testing were added.
 - Requirements for arsenic removal treatment were added.
 - Requirements for calcium hypochlorite tablet chlorinators were added.
 - Requirements for membrane filtration were added.
 - Requirements for ultraviolet light disinfection were added.
 - The other treatment sections were updated.
- ◆ Hydro-pneumatic tanks: The requirements were updated and clarified.

- ◆ Storage facilities:
 - The requirements were updated.
 - Requirements were added for installing a waterproofing membrane over all reservoir roofs that will be exposed to the atmosphere or buried under ground cover.
- ◆ Distribution systems:
 - Requirements were added for water mains passing through contaminated soil or groundwater. The requirements are the same as the ones previously being used on a case-by-case basis.
 - Requirements to allow the use of fusible DR18 PVC pipe were added.
 - Language was added preventing the installation of service laterals on hydrant leads.
 - Requirements were added for flushing hydrants and for sampling hydrants/faucets.
 - The requirements for air-relief facilities and valve/meter chambers were expanded/clarified.
 - The water main installation requirements were updated and requirements were added for installing tracer wires for non-metallic pipe and for pipe bursting.
- The sewer separation requirements were clarified so that installation areas where the normal sewer separation requirements cannot be met can be handled in a more straight-forward manner.
- Other minor revisions and updates were made to the requirements.
- ◆ Booster pumping stations: The booster pumping station requirements were clarified.
- ◆ Waste disposal:
 - The requirements were updated.
 - Requirements were added for disposal of reject wastewater from reverse osmosis WTPs.
 - Requirements for wastewater and sludge radionuclide content compliance were added.
 - Requirements for surface water treatment plant wastewater disposal were added.
 - Requirements for recycling filter backwash wastewater were added.
- ◆ Aquifer storage and recovery: No revisions were made to these existing requirements.

If you have any questions about Code NR 811, please contact **Norman Hahn**, Rules Coordinator for NR 811 at 608-267-7661 or Norman.Hahnjr@Wisconsin.gov. ◆