TITLE 179 PUBLIC WATER SYSTEMS

CHAPTER 8 GROUND WATER RULE

8-001 SCOPE AND AUTHORITY: This rule applies to all public water systems that use ground water, except that it does not apply to public water systems that combine all of their ground water with surface water or with ground water under the direct influence of surface water (GWUDI) prior to treatment under 179 NAC 13. The authority is found in Neb. Rev. Stat. §§71-5301 to 71-5313.

8-002 DEFINITIONS

Consecutive System means a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direction connection or through the distribution system of one or more consecutive systems.

Department means the Division of Public Health of the Department of Health and Human Services.

EPA means the United States Environmental Protection Agency.

Ground Water System, for this chapter, means any public water system meeting the applicability statement in 179 NAC 8-001, including consecutive systems receiving finished ground water.

GWUDI means ground water under the direct influence of surface water.

Hydrogeologic Sensitivity Assessment, for this chapter, means a determination of whether ground water systems obtain water from hydrogeologically sensitive settings.

Significant deficiency means a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system found during a sanitary survey that the Department determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.

Wholesale system means a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

8-003 GENERAL REQUIREMENTS: Systems subject to 179 NAC 8 must comply with the following requirements:

1. Sanitary survey information requirements for all ground water systems as described in 179 NAC 8-004.

2. Microbial source water monitoring requirements for ground water systems that do not treat all of their ground water to at least 99.99% (4-log) treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer as described in 179 NAC 8-005.

3. Treatment technique requirements, described in 179 NAC 8-006, that apply to ground water systems that have fecally contaminated source waters, as determined by source water monitoring conducted under 179 NAC 8-005, or that have significant deficiencies that are identified by the Department. A ground water system with fecally contaminated source water or with significant deficiencies subject to the treatment technique requirements of this chapter must implement one or more of the following corrective action options:

   A. Correct all significant deficiencies;
   B. Provide an alternate source of water;
   C. Eliminate the source of contamination; or
   D. Provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer.

4. Ground water systems that provide at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in 179 NAC 8-006.02.

5. If requested by the Department, ground water systems must provide the Department with any existing information that will enable the Department to perform a hydrogeologic sensitivity assessment.

8-004 SANITARY SURVEYS FOR GROUND WATER SYSTEMS

8-004.01 Ground water systems must provide the Department, at the Department's request, any existing information that will enable to Department to conduct a sanitary survey.

8-004.02 For purposes of this chapter, a "sanitary survey," as conducted by the Department, includes but is not limited to, an onsite review of the water source(s) (identifying sources of contamination by using results of source water assessments or other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water.

8-004.03 The sanitary survey must include an evaluation of the applicable components listed below:

1. Source,
2. Treatment,
3. Distribution system,
4. Finished water storage,
5. Pumps, pump facilities, and controls,
6. Monitoring, reporting, and data verification,
7. System management and operation, and
8. Operator compliance with Department requirements.

8-005 GROUND WATER SOURCE MICROBIAL MONITORING AND ANALYTICAL METHODS

8-005.01 Triggered Source Water Monitoring

8-005.01A General Requirements: A ground water system must conduct triggered source water monitoring if the conditions identified in items 1 and 2 below exist:

1. The system does not provide at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer for each ground water source; and

2. The system is notified that a sample collected under 179 NAC 3-004.01 is total coliform-positive and the sample is not invalidated under 179 NAC 3-004.03.

8-005.01B Sampling Requirements: A ground water system must collect, within 24 hours of notification of the total coliform-positive sample, at least one ground water source sample from each ground water source in use at the time the total coliform-positive sample was collected under 179 NAC 3-004.01, except as provided in 179 NAC 8-005.01B2.

8-005.01B1 The Department may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the ground water source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Department must specify how much time the system has to collect the sample.

8-005.01B2 If approved by the Department, systems with more than one ground water source may meet the requirements of 179 NAC 8-005.01B by sampling a representative ground water source or sources. If directed by the Department, systems must submit for Department approval a triggered source water monitoring plan that identifies one or more ground water sources that are representative of each monitoring site in the system's sample siting plan under 179 NAC 3-004.01 and that the system intends to use for representative sampling under this paragraph.

8-005.01B3 A ground water system serving 1,000 people or fewer may use a repeat sample collected from a ground water source to meet both the

requirements of 179 NAC 3-004.02 and the monitoring requirements of 179 NAC 8-005.01B for that ground water source only if the Department approves the use of *E. coli* as a fecal indicator for source water monitoring under 179 NAC 8-005.01. If the repeat sample collected from the ground water source is *E. coli* positive, the system must comply with 179 NAC 8-005.01C.

8-005.01C Additional Requirements: If the Department does not require corrective action under 179 NAC 8-006.01B for a fecal indicator-positive source water sample collected under 8-005.01B that is not invalidated under 179 NAC 8-005.04, the system must collect five additional source water samples from the same source within 24 hours of being notified of the fecal indicator-positive sample.

8-005.01D Consecutive and Wholesale Systems

8-005.01D1 In addition to the other requirements of 179 NAC 8-005.01 a consecutive ground water system that has a total coliform-positive sample collected under 179 NAC 3-004.01 must notify the wholesale system(s) within 24 hours of being notified of the total coliform-positive sample.

8-005.01D2 In addition to the other requirements of 179 NAC 8-005.01, a wholesale ground water system must comply with the following:

1. A wholesale ground water system that receives notice from a consecutive system it serves that a sample collected under 179 NAC 3-004.01 is total coliform-positive must, within 24 hours of being notified, collect a sample from its ground water source(s) under 179 NAC 8-005.01B and analyze it for a fecal indicator under 179 NAC 8-005.03.

2. If the sample collected under 179 NAC 8-005.01D2 item 1 is fecal indicator-positive, the wholesale ground water system must notify all consecutive systems served by that ground water source of the fecal indicator source water positive within 24 hours of being notified of the ground water source sample monitoring result and must meet the requirements of 179 NAC 8-005.01C.

8-005.01E Exceptions to the Triggered Source Water Monitoring Requirements: A ground water system is not required to comply with the source water monitoring requirements of 179 NAC 8-005.01 if either of the following conditions exists:

1. The Department determines, and documents in writing, that the total coliform-positive sample collected under 179 NAC 3-004.01 is caused by a distribution system deficiency; or

2. The total coliform-positive sample collected under 179 NAC 3-004.01 is collected at a location that meets Department criteria for distribution system conditions that will cause total coliform-positive samples.

8-005.02 Assessment Source Water Monitoring: If directed by the Department, ground water systems must conduct assessment source water monitoring that meets Department-determined requirements for such monitoring. A ground water system conducting assessment source water monitoring may use a triggered source water

sample collected under 179 NAC 8-005.01B to meet the requirements of 179 NAC 8-005.02. Department-determined assessment source water monitoring requirements may include:

1. Collection of a total of 12 ground water source samples that represent each month the system provides ground water to the public.

2. Collection of samples from each well unless the system obtains written Department approval to conduct monitoring at one or more wells within the ground water system that are representative of multiple wells used by that system and that draw water from the same hydrogeologic setting.

3. Collection of a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used,

4. Analysis of all ground water source samples using one of the analytical methods listed in 179 NAC 8-005.03B for the presence of *E. coli*, enterococci, or coliphage,

5. Collection of ground water source samples at a location prior to any treatment of the ground water source unless the Department approves a sampling location after treatment, and

6. Collection of ground water source samples at the well itself unless the system's configuration does not allow for sampling at the well itself and the Department approves an alternate sampling location that is representative of the water quality of that well.

8-005.03 Analytical methods

8-005.03A A ground water system subject to the source water monitoring requirements of 179 NAC 8-005.01 must collect a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used.

8-005.03B A ground water system must analyze all ground water source samples collected under 179 NAC 8-005.01 using one of the analytical methods listed in the following table or the equivalent as determined by EPA for the presence of *E. coli*, enterococci, or coliphage:

ANALYTICAL METHODS FOR SOURCE WATER MONITORING

Fecal indicator[1]	Methodology	Method citation	SM Online[13]	Other
E. coli	Colilert [3]	9223 B.[2,12,]	9223 B-97	
	Colisure [3]	9223 B.[2,12,]	9223 B-97	
	Colilert-18	9223 B[2,12]	9223 B-97	
	Membrane Filter Method with MI Agar	EPA Method 1604.[4]		
	m-ColiBlue24 Test [5]			
	E*Colite Test [6]			
	EC-MUG [7]	9221 F.[2]		
	NA-MUG [7]	9222G.[2]		
	Readycult®			Readycult®[14]
	Colitag			Modified Colitag ™[15]
	Chromocult®			Chromocult®[16]
Enterococci	Multiple Tube Technique	9230B.[2]	9230 B-04	
	Membrane Filter Technique	9230C[2]		
Fecal indicator[1]	**Methodology**	**Method citation**		
	Membrane Filter Technique	EPA Method 1600.[8]		
	Enterolert [9]			
Coliphage	Two-Step Enrichment Presence-Absence Procedure	EPA Method 1601.[10]		
	Single Agar Layer Procedure	EPA Method 1602.[11]		

Analyses must be conducted in accordance with the documents listed below. Copies of the documents may be obtained from the sources listed below. These methods are incorporated herein by reference and are available for viewing at the Division of Public Health of the Department of Health and Human Services, 301 Centennial Mall South, Lincoln, NE 68509. Copies may be obtained from the addresses listed below.

1 The time from sample collection to initiation of analysis may not exceed 30 hours. The ground water system is encouraged but is not required to hold samples below 10ºC during transit.

2 Methods are described in *Standard Methods for the Examination of Water and Wastewater* th edition (1998) and copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, NW., Washington, DC 20005-2605.

3 Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092.

4. EPA Method 1604: Total Coliforms and *Escherichia coli* in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium); September 2002, EPA 821-R-02-024. Method is available at http://www.epa.gov/nerlcwww/1604sp02.pdf or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

5 A description of the m-ColiBlue24 Test, "Total Coliforms and *E. coli* Membrane Filtration Method with m-ColiBlue24® Broth," Method No. 10029 Revision 2, August 17, 1999, is available from Hach Company, 100 Dayton Ave., Ames, IA 50010 or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

6 A description of the E*Colite Test, "Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Drinking Water, January 9, 1998, is available from Charm Sciences, Inc., 659 Andover St., Lawrence, MA 01843-1032 or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

7 EC-MUG (Method 9221F) or NA-MUG (Method 9222G) can be used for *E. coli* testing step as described in 179 NAC 3-004.06E item 1 or 2 after use of Standard Methods 9221 B, 9221 D., 9222 B, or 9222 C.

8. EPA Method 1600: Enterococci in Water by Membrane Filtration Using Membrane-Enterococcus Indoxyl-β-D-Glucoside Agar (mEI) EPA 821-R-02-022 (September 2002) is an approved variation of Standard Method 9230C. The method is available at http://www.epa.gov/nerlcwww/1600sp02.pdf or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460. The holding time and temperature for ground water samples are specified in footnote 1 above, rather than as specified in Section 8 of EPA Method 1600.

9 Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, Maine 04092. Preparation and use of the medium is set forth in the article "Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters," by Budnick, G.E., Howard, R.T., and Mayo, D.R., 1996, Applied and Environmental Microbiology, 62:3881-3884.

10 EPA Method 1601: Male-specific (F+) and Somatic Coliphage in Water by Two-step Enrichment Procedure; April 2001, EPA 821-R-01-030. Method is available at http://www.epa.gov/nerlcwww/1601ap01.pdf or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

11 EPA Method 1602: Male-specific (F+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure; April 2001, EPA 821-R-01-029. Method is available at http://www.epa.gov/nerlcwww.1602ap01.pdf or from EPA's Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

12 Methods are described in *Standard Methods for the Examination of Water and Wastewater* 21st edition (2005) and copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, NW., Washington, DC 20005-2605.

13 Standard Methods Online are available at http://www.standardmethods.org.

14 Readycult® Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," January, 2007. Version 1.1 Available from EMD Chemicals (affiliate of Merck KGaA, Darmstadt, Germany), 480 S. Democrat Road, Gibbstown, NJ 08027-1297.

15 Modified Colitag™ Method. "Modified Colitag™ Test Method for the Simultaneous Detection of *E. coli* and other Total Coliforms in Water (ATP D05-0035)," ATP D05-0035)," August 28, 2009. Available at http://www.nemi.gov or from CPI International, 5580 Skylane Boulevard, Santa Rosa, CA 95403.

16 Chromocult® Method, "Chromocult® Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," November 2000. Version 1.0. EMD Chemicals (affiliate of Merck KGaA, Darmstadt, Germany), 480 S. Democrat Road, Gibbstown, NJ 08027-1297.

8-005.04 Invalidation of a fecal indicator-positive ground water source sample

8-005.04A A ground water system may obtain Department invalidation of a fecal indicator-positive ground water source sample collected under 179 NAC 8-005.01 only under the following conditions:

1. The system provides the Department with written notice from the laboratory that improper sample analysis occurred; or
2. The Department determines and documents in writing that there is substantial evidence that a fecal indicator-positive ground water source sample is not related to source water quality.

8-005.04B If the Department invalidates a fecal indicator-positive ground water source sample, the ground water system must collect another source water sample under 179 NAC 8-005.01 within 24 hours of being notified by the Department of its invalidation decision and have it analyzed for the same fecal indicator using the analytical methods in 179 NAC 8-005.03. The Department may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Department must specify how much time the system has to collect the sample.

8-005.05 Sampling Location

8-005.05A Any ground water source sample required under 179 NAC 8-005.01 must be collected at a location prior to any treatment of the ground water source unless the Department approves a sampling location after treatment.

8-005.05B If the system's configuration does not allow for sampling at the well itself, the system may collect a sample at a Department-approved location to meet the requirements of 179 NAC 8-005.01 if the sample is representative of the water quality of that well.

8-005.06 New Sources: If directed by the Department, a ground water system that places a new ground water source into service must conduct assessment source water monitoring under 179 NAC 8-005.02. If directed by the Department, the system must begin monitoring before the ground water source is used to provide water to the public.

8-005.07 Public Notification: A ground water system with a ground water source sample collected under 179 NAC 8-005.01 or 8-005.02 that is fecal indicator-positive and that is not invalidated under 179 NAC 8-005.04, including consecutive systems served by the ground water source, must conduct public notification under 179 NAC 4-004.

8-005.08 Monitoring Violations: Failure to meet the requirements of 179 NAC 8-005.01 through 8-005.06 is a monitoring violation and requires the ground water system to provide public notification under 179 NAC 4-006.

8-006 TREATMENT TECHNIQUE REQUIREMENTS FOR GROUND WATER SYSTEMS

8-006.01 Ground Water Systems with Significant Deficiencies or Source Water Fecal Contamination

8-006.01A The treatment technique requirements of 179 NAC 8-006 must be met by ground water systems when the Department identifies a significant deficiency or when a ground water source sample collected under 179 NAC 8-005.01C is fecal indicator-positive.

8-006.01B If directed by the Department, a ground water system with a ground water source sample collected under 179 NAC 8-005.01B, 8-005.01D, or 8-005.02 that is fecal indicator-positive must comply with the treatment technique requirements of 179 NAC 8-006.

8-006.01C When the Department identifies a significant deficiency at a surface water or ground water under the direct influence of surface water public water system that uses both ground water and surface water or ground water under the direct influence of surface water, the system must comply with provisions of this paragraph except in cases where the Department determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or ground water under the direct influence of surface water.

8-006.01D Unless the Department directs the ground water system to implement a specific corrective action, the ground water system must consult with the Department regarding the appropriate corrective action within 30 days of receiving written notice from the Department of a significant deficiency, written notice from a laboratory that a ground water source sample collected under 179 NAC 8-005.01C was found to be fecal indicator-positive, or direction from the Department that a fecal indicator-positive sample collected under 179 NAC 8-005.01B, 8-005.01D, or 8-005.02 requires corrective action. For the purposes of this chapter, significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the Department determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.

8-006.01E Within 120 days (or earlier if directed by the Department) of receiving written notification from the Department of a significant deficiency, written notice from a laboratory that a ground water source sample collected under 179 NAC 8-005.01C was found to be fecal indicator-positive, or direction from the Department that a fecal indicator-positive sample collected under 179 NAC 8-005.01B, 8-005.01D, or 8-005.02 requires corrective action, the ground water system must either:

1. Have completed corrective action in accordance with applicable Department plan review processes or other Department guidance or direction, if any, including Department-specified interim measures; or

2. Be in compliance with a Department-approved corrective action plan and schedule subject to the following conditions:

a. Any subsequent modifications to a Department-approved corrective action plan and schedule must also be approved by the Department.

b. If the Department specifies interim measures for protection of the public health pending Department approval of the corrective action plan and schedule or pending completion of the corrective action plan, the system must comply with these interim measures as well as with any schedule specified by the Department.

8-006.01F Corrective Action Alternatives: Ground water systems that meet the conditions of 179 NAC 8-006.01A or 8-006.01B must implement one or more of the following corrective action alternatives:

1. Correct all significant deficiencies;
2. Provide an alternate source of water;
3. Eliminate the source of contamination; or
4. Provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of a 4-log virus inactivation and removal) before or at the first customer for the ground water source.

8-006.01G Special Notice to the Public of Significant Deficiencies or Source Water Fecal Contamination

8-006.01G1 In addition to the applicable public notification requirements of 179 NAC 4-004, a community ground water system that receives notice from the Department of a significant deficiency or notification of a fecal indicator-positive ground water source sample that is not invalidated by the Department under 179 NAC 8-005.04 must inform the public served by the water system under 179 NAC 14-004.08A item 6 of the fecal indicator-positive source sample or of any significant deficiency that has not been corrected. The system must continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the ground water source is determined by the Department to be corrected under 179 NAC 8-006.01E.

8-006.01G2 In addition to the applicable public notification requirements of 179 NAC 4-004, a non-community ground water system that receives notice from the Department of a significant deficiency must inform the public served by the water system in a manner approved by the Department of any significant deficiency that has not been corrected within 12 months of being notified by the Department, or earlier if directed by the Department. The system must continue to inform the public annually until the significant deficiency is corrected. The information must include:

1. The nature of the significant deficiency and the date the significant deficiency was identified by the Department.

2. The Department-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and

3. For systems that have a population with 5% or more non-English speaking consumers, information in the appropriate language(s) regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

8-006.01G3 If directed by the Department, a non-community water system with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction under 179 NAC 8-006.01G2.

8-006.02 Compliance Monitoring

8-006.02A Existing Ground Water Sources: A ground water system that is not required to meet the source water monitoring requirements of this chapter for any ground water source because it provides at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer must conduct compliance monitoring as required under 179 NAC 8-006.02C. If the system discontinues 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer for a ground water source, it must conduct ground water source monitoring as required under 179 NAC 8-005.

8-006.02B New Ground Water Sources: A ground water system that places a ground water source in service after [the effective date of these regulations], that is not required to meet the source water monitoring requirements of this chapter because the system provides at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source must comply with the following requirements:

1. The system must notify the Department in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source. Notification to the Department must include engineering, operational, or other information that the Department requests to evaluate the submission.

2. The system must conduct compliance monitoring as required under 179 NAC 8-006.02C within 30 days of placing the source in service.

3. The system must conduct ground water source monitoring under 179 NAC 8-005 if the system subsequently discontinues 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source.

8-006.02C Monitoring Requirements: A ground water system subject to the requirements of 179 NAC 8-006.01, 8-006.02A, or 8-006.02B must monitor the

effectiveness and reliability of treatment for that ground water source before or at the first customer as follows:

1. Chemical Disinfection

a. Ground water systems serving greater than 3,300 people: A ground water system that serves greater than 3,300 people must continuously monitor the residual disinfectant concentration using analytical methods specified in 179 NAC 13-007.01B at a location approved by the Department and must record the lowest residual disinfectant concentration each day that water from the ground water source is served to the public. The ground water system must maintain the Department-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. If there is a failure in the continuous monitoring equipment, the ground water system must conduct grab sampling every four hours until the continuous monitoring equipment is returned to service. The system must resume continuous residual disinfectant monitoring within 14 days.

b. Ground water systems serving 3,300 or fewer people: A ground water system that serves 3,300 or fewer people must monitor the residual disinfectant concentration using analytical methods specified in 179 NAC 13-007.01B at a location approved by the Department and record the residual disinfection concentration each day that water from the ground water source is served to the public. The ground water system must maintain the Department-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. The ground water system must take a daily grab sample during the hour of peak flow or at another time specified by the Department. If any daily grab sample measurement falls below the Department-determined residual disinfectant concentration, the ground water system must take follow-up samples every four hours until the residual disinfectant concentration is restored to the Department-determined level. Alternatively, a ground water system that serves 3,300 or fewer people may monitor continuously and meet the requirements of 179 NAC 8-006.02C item 1.a.

2. Membrane Filtration: A ground water system that uses membrane filtration to meet the requirements of this chapter must monitor the membrane filtration process in accordance with all Department-specified monitoring requirements and must operate the membrane filtration in accordance with all Department-specified compliance requirements. A ground water system that uses membrane filtration is in compliance with the requirement to achieve at least 4-log removal of viruses when:

a. The membrane has an absolute molecular weight cut-off (MWCO), or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4-log removal of viruses;

b. The membrane process is operated in accordance with Department-specified compliance requirements; and

c. The integrity of the membrane is intact.

3. Alternative Treatment: A ground water system that uses a Department-approved alternative treatment to meet the requirements of this chapter by providing at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer must:

a. Monitor the alternative treatment in accordance with all Department – specified monitoring requirements; and

b. Operate the alternative treatment in accordance with all compliance requirements that the Department determines to be necessary to achieve at least 4-log treatment of viruses.

8-006.03 Discontinuing Treatment: A ground water system may discontinue 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer for a ground water source if the Department determines and documents in writing that 4-log treatment of viruses is no longer necessary for that ground water source. A system that discontinues 4-log treatment of viruses is subject to the source water monitoring and analytical methods requirements of 179 NAC 8-005.

8-006.04 Failure to meet the monitoring requirements of 179 NAC 8-006.02 is a monitoring violation and requires the ground water system to provide public notification under 179 NAC 4-006.

8-007 TREATMENT TECHNIQUE VIOLATIONS FOR GROUND WATER SYSTEMS

8-007.01 A ground water system with a significant deficiency is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the Department) of receiving written notice from the Department of the significant deficiency, the system:

1. Does not complete corrective action in accordance with any applicable Department plan review processes or other Department guidance and direction, including Department specified interim actions and measures, or

2. Is not in compliance with a Department-approved corrective action plan and schedule.

8-007.02 Unless the Department invalidates a fecal indicator-positive ground water source sample under 179 NAC 8-005.04, a ground water system is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the Department) of meeting the conditions of 179 NAC 8-006.01A or 8-006.01B, the system:

1. Does not complete corrective action in accordance with any applicable Department plan review processes or other Department guidance and direction, including Department-specified interim measures, or

2. Is not in compliance with a Department-approved corrective action plan and schedule.

8-007.03 A ground water system subject to the requirements of 179 NAC 8-006.02C that fails to maintain at least 4-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log virus inactivation and removal) before or at the first customer for a ground water source is in violation of the treatment technique requirement if the failure is not corrected within four hours of determining the system is not maintaining at least 4-log treatment of viruses before or at the first customer.

8-007.04 Ground water systems must give public notification under 179 NAC 4-005 for the treatment technique violations specified in 179 NAC 8-007.01 through 8-007.03.

8-008 REPORTING AND RECORDKEEPING FOR GROUND WATER SYSTEMS

8-008.01 Reporting: In addition to the requirements of 179 NAC 5-004, a ground water system regulated under this chapter must provide the following information to the Department:

1. A ground water system conducting compliance monitoring under 179 NAC 8-006.02 must notify the Department any time the system fails to meet any Department-specified requirements including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four hours. The ground water system must notify the Department as soon as possible, but in no case later than the end of the next business day.

2. After completing any corrective action under 179 NAC 8-006.01, a ground water system must notify the Department within 30 days of completion of the corrective action.

3. If a ground water system subject to the requirements of 179 NAC 8-005.01 does not conduct source water monitoring under 179 NAC 8-005.01E item 2, the system must provide documentation to the Department within 30 days of the total coliform positive sample that it met the Department criteria.

8-008.02 Recordkeeping: In addition to the requirements of 179 NAC 5-005, a ground water system regulated under this chapter must maintain the following information in its records:

1. Documentation of corrective actions. Documentation must be kept for a period of not less than ten years.
2. Documentation of notice to the public as required under 179 NAC 8-006.01G. Documentation must be kept for a period of not less than three years.
3. Records of decisions under 179 NAC 8-005.01E item 2 and records of invalidation of fecal indicator-positive ground water source samples under 179 NAC 8-005.04. Documentation must be kept for a period of not less than five years.
4. For consecutive systems, documentation of notification to the wholesale system(s) of total-coliform positive samples that are not invalidated under 179 NAC 3-004.03. Documentation must be kept for a period of not less than five years.

5. For systems, including wholesale systems, that are required to perform compliance monitoring under 179 NAC 8-006.02:

   a. Records of the Department-specified minimum disinfectant residual. Documentation must be kept for a period of not less than ten years.

   b. Records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the Department-prescribed minimum residual disinfectant concentration for a period of more than four hours. Documentation must be kept for a period of not less than five years.

   c. Records of Department-specified compliance requirements for membrane filtration and of parameters specified by the Department for Department-approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four hours. Documentation must be kept for a period of not less than five years.