

## PART Env-Dw 717 GROUNDWATER MONITORING AND TREATMENT

Statutory Authority: RSA 485:3-2, V

*Readopt Env-Dw 717.01 and Env-Dw 717.02, eff. 11-21-09 (doc. #9600), to read as follows:*Env-Dw 717.01 Purpose and Scope.

(a) The purpose of these rules is to implement 40 CFR 141.400 - 405, known as the “Federal Ground Water Rule” or Subpart S of 40 CFR 141, by establishing procedures and standards for the protection of public health from groundwater contamination through source monitoring, treatment, and treatment monitoring.

(b) As specified in 40 CFR 141.400(a), the requirements of this part constitute National Primary Drinking Water Regulations.

Env-Dw 717.02 Applicability. This part shall apply to any groundwater system as defined in Env-Dw 717.03.

*Readopt with amendment Env-Dw 717.03 through Env-Dw 717.15, eff. 11-21-09 (doc. #9600), to read as follows:*Env-Dw 717.03 Definitions.

(a) “4-log treatment” means the process of achieving at least 99.99 percent, or 4-log, treatment of viruses, using inactivation, removal, or a combination of 4-log virus inactivation and removal before or at the first customer.

(b) “Approved sampling location” means the point in the system at which water samples are taken prior to treatment, that has been approved by the department pursuant to ~~Env Ws 300 or successor rules in subtitle-Env-Dw 708.~~

~~(c) “Community water system (CWS)” means “community water system” as defined in RSA 485:1-a, I, namely “a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.”~~ *{now in Env-Dw 103}*

~~(d) “Compliance monitoring” means the requirements for sampling and analysis established in Env-Dw 717.13 through Env-Dw 717.17 for groundwater systems that treat groundwater to at least 4-log treatment.~~

~~(e) “Confluent growth” means “confluent growth” as defined in 40 CFR 141.2, namely “a continuous bacterial growth covering the entire filtration area of a membrane filter, or portion thereof, in which bacterial colonies are not discrete.”~~ *as reprinted in Appendix B.*

~~(f) “Consecutive system” means “consecutive system” as defined in 40 CFR 141.2, namely “a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.”~~ *as reprinted in Appendix B.*

~~(g) “Contaminant” means “contaminant” as defined in RSA 485:1-a, II, namely “any physical, chemical, biological or radiological substance or matter in water.”~~ *{now in Env-Dw 103}*

~~(h) “Filtration” means “filtration” as defined in Env Ws 302.29 or successor rules in Env Dw 100.~~ *{now in Env-Dw 103}*

~~(i) “Finished water” means “finished water” as defined in 40 CFR 141.2, namely “water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as treatment necessary to maintain water quality in the~~

distribution system (e.g., booster disinfection, addition of corrosion control chemicals).”

*{now in Env-Dw 103}*

(j*f*) “Groundwater system” means:

- (1) Any ~~community~~***public*** water system (~~CWS~~***PWS***) ~~or non-transient non-community water system (NTNC)~~ using groundwater as the sole source of water supply;
- (2) Any ~~CWS or NTNC~~***PWS*** that uses a mixture of surface water and groundwater, unless all groundwater is combined with surface water or with groundwater under the direct influence of surface water and is treated as specified in ~~Env Ws 380 or successor rules in subtitle Env-Dw 716~~; and
- (3) Consecutive ~~CWS or NTNC~~***PWS*** that receive water from a groundwater system as described in (1) or (2), above.

(k) ~~“Groundwater under the direct influence of surface water” means “groundwater under the direct influence of surface water” as defined in 40 CFR 141.2, namely, “any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large diameter pathogens such as giardia lamblia or cryptosporidium, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.”~~ *{now in Env-Dw 103}*

(l) ~~“Maximum contaminant level (MCL)” means “maximum contaminant level” as defined in RSA 485:1 a, VII, namely “the maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a public water system, except in the case of turbidity where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from the definition.”~~ *{now in Env-Dw 103}*

(m) ~~“Maximum residual disinfectant level (MRDL)” means “maximum residual disinfectant level” as defined in Env Ws 302.41 or successor rules in Env-Dw 100.~~ *{now in Env-Dw 103}*

(n*g*) ~~“Membrane filtration” means “membrane filtration” as defined in 40 CFR 141.2, namely “a pressure or vacuum driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.”~~ *as reprinted in Appendix B.*

(o) ~~“Non-transient non-community water system (NTNC)” means “non-transient non-community water system” as defined in RSA 485:1 a, XI, namely “a system which is not a community water system and which serves the same 25 people, or more, over 6 months per year.”~~ *{now in Env-Dw 103}*

(p*h*) ~~“Provider system” means a “wholesale system” as defined in 40 CFR 141.2, namely “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.”~~ *as reprinted in Appendix B.*

(q) ~~“Public water system” means “public water system” as defined in RSA 485:1 a, XV.~~

*{now in Env-Dw 103}*

(r) ~~“Sanitary survey” means an onsite review of the water sources(s), facilities, equipment, operation, maintenance, and monitoring of a public water system to evaluate the adequacy of the system, including its sources and operations, to ensure the distribution of safe drinking water.~~ *{now in Env-Dw 103}*

(s) ~~“Significant deficiency” means defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that cause, or have the potential to~~

~~cause, the introduction of fecal or microbial contamination into the water delivered to consumers.~~

*{now in Env-Dw 103}*

~~(t) “Surface water” means “surface water” as defined in Env Ws 302.77 or successor rules in Env Dw 100.~~

*{now in Env-Dw 103}*

~~(u) “Too numerous to count” means “too numerous to count” as defined in Env Ws 302.80 or successor rules in Env Dw 100. **40 CFR 141.2, as reprinted in Appendix B.**~~

(vj) “Triggered monitoring” means the sampling requirements specified in Env-Dw 717.11 for groundwater systems that do not process groundwater to achieve 4-log treatment.

(wk) “Treatment plant” means, for the purposes of this part, the location at which a disinfectant is added to groundwater.

(xl) “Valid sample” means a sample that is not invalidated under Env-Dw 717.06.

~~(y) “Virus” means “virus” as defined in Env Ws 302.86 or successor rules in Env Dw 100.~~

*{now in Env-Dw 103}*

#### Env-Dw 717.04 Compliance Dates; Monitoring Requirements.

(a) Subject to (b), below, by December 1, 2009, the ~~owner~~***O/O*** of a groundwater system where chlorine is added for disinfection or other water treatment purposes, or where the water is disinfected using ultraviolet radiation, ozonation, or any other chemical or non-chemical technique, shall:

(1) Demonstrate that:

- a. The disinfection process being used meets 4-log treatment, as demonstrated in accordance with Env-Dw 717.13(a) and (b); or
- b. Investigative monitoring has been conducted as specified in Env-Dw 717.09(b) and shows that the source water is free from fecal contamination; or

(2) Affirm in writing to the department that the ~~owner~~***O/O*** will undertake monitoring as specified in Env-Dw 717.09(c)(2).

(b) The ~~owner~~***O/O*** of a groundwater system that provides disinfection shall not be required to conduct investigative monitoring under (a)(1)b. or (a)(2), above, if:

(1) The disinfection process was installed after January 1, 2006; and

(2) The ~~owner~~***O/O*** demonstrates that all bacteria sampling required under ~~Env Ws 325 or successor rules in~~ Env-Dw 709 has been free of any coliform for at least 3 years prior to the date of installation of the disinfection process.

(c) If the ~~owner~~***O/O*** of a groundwater system is a political subdivision that does not vote to fund investigative monitoring, the department shall not require investigative monitoring to be done unless the state pays the costs of such monitoring.

(d) The ~~owner~~***O/O*** of a groundwater system where the water is disinfected who fails to make the demonstration required by (a)(1), above, who is not exempt from investigative monitoring under (b), above, shall undertake monitoring in accordance with Env-Dw 717.09(c)(2).

(e) After December 1, 2009, the ~~owner~~***O/O*** of a groundwater system where 4-log treatment is provided shall conduct compliance monitoring in accordance with Env-Dw 717.13 through Env-Dw 717.17.

(f) After December 1, 2009, the ~~owner~~***O/O*** of a groundwater system where 4-log treatment is not provided shall conduct triggered monitoring as described in Env-Dw 717.11.

Env-Dw 717.05 Sample Collection and Analytical Requirements.

(a) ***Chlorine or other disinfectants shall not be added to the source within one week prior to sampling.***

~~(ab)~~ ***The location at which s***Source water samples ~~shall be~~***are*** collected ***shall be:***

(1) ~~P~~***p***rior to any treatment ~~at the sampling location;~~

(2) ***Before or at the first customer for each groundwater source; and***

(3) ***Approved by the department pursuant to Env-Dw 708.***

~~(bc)~~ Each sample taken for analysis shall contain at least 100 milliliters (ml) of water.

~~(ed)~~ Groundwater source samples shall be analyzed ~~using one of the methods listed~~***as specified*** in ***Env-Dw 707 and*** 40 CFR 141.402(c)(2)~~that provides quantification of E. coli and total coliform bacteria;~~ by a laboratory that is accredited for the test in accordance with Env-C 300.

Env-Dw 717.06 Invalidation of Source Water Samples.

(a) A positive sample that is invalidated under this section shall not be used to meet the monitoring requirements established in this part.

(b) The department shall invalidate a positive sample only if the laboratory establishes, in writing, that improper sample analysis caused the positive result.

(c) A laboratory shall invalidate a positive sample if the sample:

(1) Produces turbid culture in the absence of gas production using an analytical method where gas formation is examined, such as the multiple-tube fermentation technique; or

(2) Exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter.

***(d) A laboratory shall invalidate a negative sample if the sample contains chlorine or other disinfectant.***

~~(de)~~ If a ~~positive~~ sample is invalidated under (b), (c), or ~~(ed)~~, above, the system ~~owner~~***O/O*** shall collect another source water sample within 24 hours of being notified of the invalidation ~~and have it analyzed for E. coli and total coliform~~***as specified in Env-Dw 717.05.***

~~(ef)~~ The system ~~owner~~***O/O*** shall continue to resample within 24 hours and have the samples analyzed until a valid result is obtained.

~~(fg)~~ The department shall extend the 24-hour limit for resampling if the owner has a logistical problem in collecting the sample ~~O/O may request an extension of the 24-hour time limit in accordance with Env-Dw717.12 if the O/O is unable to collect samples~~ due to circumstances ~~which are~~ beyond the ~~owner's~~***O/O's*** control.

Env-Dw 717.07 New Sources of Groundwater.

(a) Subject to (b), below, the ~~owner~~***O/O*** of a groundwater system who places a new groundwater source in service after November 30, 2009, shall conduct 6 consecutive months of groundwater source sampling for E. coli, with at least one sample being taken prior to providing water to the public, to demonstrate that 4-log treatment is not required.

(b) In lieu of (a), above, the ~~owner-O/O~~ shall:

(1) Demonstrate, during the new source approval process specified in Env-Dw 301 or Env-Dw 302 and in accordance with Env-Dw 717.13(a) and (b), that the proposed disinfection option meets the requirements for 4-log treatment; and

(2) Meet the compliance monitoring requirements of Env-Dw 717.13 through Env-Dw 717.17, as applicable, within 30 days of placing the source in service.

(c) The ~~owner-O/O~~ of a new groundwater source not providing 4-log treatment who is notified that any of the source water samples collected pursuant to (a), above, are E. coli positive shall:

(1) Undertake corrective action as specified in Env-Dw 717.21(e); and

(2) Be subject to boil order notice and public notification criteria described in ~~Env-Ws 325.11 or successor rules in~~ Env-Dw 709.4419.

(d) The ~~owner-O/O~~ of a new groundwater source not providing 4-log treatment who is notified that the results from samples collected in accordance to (a), above, demonstrate that the source is free from fecal contamination shall continue to be subject to the triggered monitoring requirements described in Env-Dw 717.11.

Env-Dw 717.08 New Disinfection of Groundwater Sources after December 1, 2009.

(a) The ~~owner-O/O~~ of a groundwater system who installs a new treatment process specifically for purposes of disinfection shall meet 4-log treatment unless the ~~owner-O/O~~ demonstrates, by conducting the 6 months of sampling described in Env-Dw 717.07(a), that the groundwater is free from fecal contamination.

(b) The ~~owner-O/O~~ of a groundwater system who installs new treatment that includes disinfection shall meet 4-log treatment unless the system:

(1) Has not had any acute violations of the microbiological MCL within the past 3 years; and

(2) Has no outstanding significant deficiencies.

(c) If the department determines that 4-log treatment is not required pursuant to (a) or (b), above, the ~~owner-O/O~~ shall be subject to the triggered monitoring requirements of Env-Dw 717.11.

Env-Dw 717.09 Investigative Monitoring to Prove Source is Not Contaminated.

(a) Investigative monitoring to prove a source is not contaminated shall be as specified in (b) through (e), below.

(b) Subject to (c), below, the ~~owner-O/O~~ of a groundwater system shall:

(1) Collect 6 source water samples prior to December 1, 2009, one each in March through August, and have the samples analyzed for E. coli in accordance with Env-Dw 717.05; or

(2) Collect 6 samples spaced at regular intervals, at least one week apart, within the system's normal operating season if the system does not operate in each of the months March through August, and have the samples analyzed for E. coli in accordance with Env-Dw 717.05.

(c) If 6 samples are not collected prior to December 1, 2009, the ~~owner-O/O~~ of the groundwater system shall:

(1) Demonstrate that 4-log treatment is being met as specified in Env-Dw 717.13(a) and (b) and be subject to compliance monitoring as specified in Env-Dw 717.13; or

- (2) Collect one source water sample in each of 12 months beginning in January 2010 and have the samples analyzed for E. coli in accordance with Env-Dw 717.05, except that systems that do not operate throughout the year shall collect 12 source water samples spaced at regular intervals, at least one week apart, within the system's normal operating season.
- (d) Subject to (e), below, if any of the samples taken pursuant to (b) or (c)(2), above, are E. coli positive, the ~~owner-O/O~~ of the groundwater system shall take corrective action as specified in Env-Dw 717.21(e), and either:
- (1) Institute a boil order in accordance with ~~Env-Ws 325.11 or successor rules in~~ Env-Dw 709.1419 and provide notice in accordance with the public notice requirements in Env-Dw 717.23; or
  - (2) Terminate use of the contaminated source and provide water from an alternate source.
- (e) If a sample taken pursuant to (b) or (c)(2), above, is invalidated under Env-Dw 717.06, the ~~owner-O/O~~ shall take another sample in:
- (1) The same month, if notified of the invalidation in sufficient time to do so;
  - (2) The month following the months specified in (b)(1), above, if the samples are taken pursuant to (b)(1), above; or
  - (3) The week following the last regularly-scheduled sample, if the samples are taken pursuant to (b)(2) or (c)(2), above.
- (f) If the department determines, through a sanitary survey or review of land use activities surrounding the source, that conditions have changed such that a greater risk of fecal contamination exists than was originally present, the department shall direct the system ~~owner-O/O~~, in writing, to undertake investigative monitoring to determine whether the source has been negatively impacted.

Env-Dw 717.10 Investigative Monitoring to Discontinue 4-log Treatment.

- (a) After December 1, 2009, the ~~owner-O/O~~ of a groundwater system that disinfects to 4-log treatment shall not discontinue 4-log treatment unless:
- (1) No significant deficiencies related to source water integrity as specified in Env-Dw 717.20 were identified within the prior 5 years;
  - (2) No microbiological violations as specified in ~~Env-Ws 325 or successor rules in~~ Env-Dw 709 have occurred within the prior 3 years;
  - (3) The ~~owner-O/O~~ demonstrates that the source water is free from fecal contamination in accordance with (b), below; and
  - (4) The ~~owner-O/O~~ has submitted a written request pursuant to (c), below, ~~which~~***that*** has been approved pursuant to (d), below.
- (b) To demonstrate that the source water is free from fecal contamination, the ~~owner-O/O~~ of a groundwater system shall:
- (1) Collect a source water sample in each of 12 consecutive months and have each sample analyzed for E. coli, unless an alternate sampling schedule has been approved by the department in accordance with (f), below; and
  - (2) Provide evidence that all analytical results show the absence of E. coli.

(c) The ~~owner~~***O/O*** of a groundwater system who wants to discontinue providing 4-log treatment shall request to be removed from disinfection and compliance monitoring as required in Env-Dw 717.13 through Env-Dw 717.17 by submitting the following information in writing to the department:

- (1) The system's name and ~~EPA identification number~~***PWS identifier***;
- (2) The name, daytime telephone number, and, if available, e-mail address for the system's representative who can be contacted by the department regarding the request;
- (3) A full explanation of why disinfection is no longer needed; and
- (4) Documentation to show that the criteria in (a)(1)-(3) and (b), above, are met.

(d) The department shall approve the request if the request demonstrates that the criteria specified in (a)(1)-(3) and (b) are met.

(e) The department shall notify the system ~~owner~~***O/O*** of its decision on the request in writing. If the department denies the request, the notice shall specify the reason(s) for the denial.

(f) The ~~owner~~***O/O*** of a groundwater system may request a reduction in the number of samples required by (b), above, by providing information to the department, in writing, which demonstrates that the disinfection was installed:

- (1) For a system deficiency that has been corrected rather than due to a contaminated source; or
- (2) As a proactive, safety measure, even though the system had not experienced bacteria contamination, and that the system has been free of any coliform bacteria for a minimum of 3 years.

#### Env-Dw 717.11 Triggered Monitoring.

(a) A groundwater system that does not provide at least 4-log treatment shall be subject to the triggered monitoring requirements specified in (b) through (f), below, upon being notified that a valid sample collected under the requirements of ~~Env Ws 325 or successor rules in~~ Env-Dw 709.02 is total coliform-positive.

(b) Within 24 hours of notification of the total coliform-positive sample, the ~~owner~~***O/O*** of the groundwater system shall collect at least one groundwater source sample from each groundwater source in use at the time the total coliform-positive sample was collected and have each sample analyzed for E. coli and total coliform as specified in Env-Dw 717.05.

(c) The ~~owner~~***O/O*** may request an extension of the 24-hour time limit in accordance with Env-Dw 717.12 if the ~~owner~~***O/O*** is unable to collect the samples due to circumstances beyond the ~~owner~~***O/O***'s control.

~~(d) The owner of a groundwater system serving 1,000 people or fewer, or those collecting one sample per monitoring period, may use a repeat sample collected from a groundwater source to meet both the requirements of Env Ws 325 or successor rules in Env Dw 709 and the requirements of this section.~~

~~(e)~~ If the valid sample is E. coli positive, the ~~owner~~***O/O*** of the groundwater system shall:

- (1) Institute a boil order in accordance with ~~Env Ws 325.11 or successor rules in~~ Env-Dw 709.4419, and
- (2) Provide notice in accordance with the public notice requirements in Env-Dw 717.23.

~~(f)~~ If the valid sample taken pursuant to (b), above, is E. coli positive, the ~~owner~~***O/O*** of the groundwater system shall:

(1) Conduct corrective action if directed by the department in accordance with Env-Dw 717.21(e); or

(2) If the department determines that the appropriate corrective action is not readily apparent, collect 5 additional source water samples from the same source within 24 hours of being notified of the positive E. coli result and have them analyzed for E. coli ***and total coliform bacteria*** as specified in Env-Dw 717.05.

Env-Dw 717.12 ~~Triggered-Source~~ ***Monitoring: Extension Requests, Alternate Plans for Multiple Wells.***

(a) The ~~owner~~***O/O*** of a groundwater system subject to ~~triggered-source~~ monitoring who wishes to obtain an extension of the time in which to resample shall submit a written request for an extension to the department within 24 hours of notification of the positive result ***or invalidation.***

(b) The ~~owner~~***O/O*** of a groundwater system that has multiple wells and is subject to triggered monitoring who wishes to have a triggered source water monitoring plan ~~which~~***that*** correlates each approved sampling location to a specific well shall submit a written request to the department for approval of such a plan. Preparation of a plan shall not constitute grounds to extend the requirement to sample within 24 hours of notification of the positive result.

(c) A written request submitted under (a) or (b), above, shall include:

(1) The system's name and ~~EPA identification number~~***PWS identifier;***

(2) The name, daytime telephone number, and, if available, e-mail address for the system's representative who can be contacted by the department regarding the request;

(3) For an extension of time, a full explanation of why an extension is necessary and how much time is requested; and

(4) For approval of a triggered source water monitoring plan, a demonstration of which wells are associated with which distribution system sampling sites.

(d) The department shall respond to the request in writing. If the request is denied, the department's response shall specify the reason(s) for the denial.

(e) The department shall approve a request for an extension of time if the department determines that additional time is needed for reasons beyond the control of the system ~~owner~~***O/O.***

(f) The department shall approve a request for a triggered source water monitoring plan ~~which~~***that*** correlates each sampling location to a specific well if the department determines that the proposed plan will result in samples that fulfill the intent of the sampling requirements.

Env-Dw 717.13 ***Compliance Monitoring.***

(a) As required by 40 CFR 141.403(b)(1), a groundwater system that provides at least 4-log treatment shall demonstrate to the department, in writing, before December 1, 2009, that it meets 4-log treatment.

(b) The demonstration required by (a), above, shall include engineering, operational, and other information as necessary to demonstrate the effectiveness and reliability of treatment.

(c) The department shall respond in writing and, based on the technology used:

(1) Specify operational and monitoring requirements; and

(2) Establish a compliance monitoring program designed to ensure that ~~the~~***all*** operational and monitoring requirements ***that are necessary to meet the purpose of the program*** are met, ~~which~~

~~include, as applicable,~~ ***including but not limited to*** minimal residual disinfectant concentrations, membrane operating or membrane integrity criteria, ***and*** alternative treatment operating criteria, ~~and such other program elements as are necessary to meet the purpose of the program~~ ***as applicable.***

(d) Groundwater systems subject to compliance monitoring shall monitor in accordance with the schedule specified in Env-Dw 717.14 through Env-Dw 717.1617, as applicable, to demonstrate treatment effectiveness.

Env-Dw 717.14 Compliance Monitoring for Systems with Chemical Disinfection Serving More than 3,300 People.

(a) The requirements of this section shall apply to each groundwater system serving greater than 3,300 people that meets 4-log treatment using chemical disinfection.

(b) The ~~owner~~***O/O*** of a groundwater system that is subject to this section shall:

(1) Continuously monitor the residual disinfectant concentration using analytical methods specified in 40 CFR 141.74(a)(2) at the approved sampling location;

(2) Record the lowest residual disinfectant concentration each day that water is served to the system's customers; and

(3) Maintain the residual disinfectant concentration specified by the department every day the groundwater system serves water from the groundwater source.

~~(bc)~~ If a failure in the continuous monitoring equipment occurs, the ~~owner~~***O/O*** of a groundwater system that is subject to this section shall:

(1) Collect grab samples every 4 hours until the continuous monitoring equipment is returned to service; and

(2) Resume continuous residual disinfectant monitoring within 14 days of the failure.

Env-Dw 717.15 Compliance Monitoring for Systems with Chemical Disinfection Serving 3,300 People or Fewer.

(a) The requirements of this section shall apply to each groundwater system serving 3,300 or fewer people that meets 4-log treatment using chemical disinfection.

(b) The ~~owner~~***O/O*** of a groundwater system that is subject to this section shall:

(1) Monitor the residual disinfectant concentration at the approved sampling location, either continuously or on a daily basis by taking a daily grab sample during the hour of peak flow or another time designated by the department;

(2) Record the residual disinfectant concentration each day that water is served to the system's customers; and

(3) Maintain the department-determined residual disinfectant concentration every day the groundwater system serves water from the groundwater source.

(c) The ~~owner~~***O/O*** of a groundwater system that is subject to this section shall collect follow-up grab samples every 4 hours if any daily grab sample measurement falls below the established residual concentration level, until the required residual concentration is met.

*Readopt Env-Dw 717.16 and Env-Dw 717.17, eff. 11-21-09 (doc. #9600), to read as follows:*

Env-Dw 717.16 Operation and Compliance Monitoring for Membrane Filtration.

(a) Groundwater systems using membrane filtration to meet 4-log treatment shall monitor the membrane filtration process in accordance with the monitoring requirements and specifications established by the department pursuant to (c), below, upon review of the information submitted in accordance with Env-Dw 717.13.

(b) Membrane filtration shall meet 4-log treatment requirements only if:

- (1) 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;
- (2) The membrane process is operated in accordance with compliance requirements specified by the department pursuant to Env-Dw 717.13(c); and
- (3) The integrity of the membrane is intact.

(c) The department shall establish monitoring requirements and specifications designed to ensure that the membrane filtration technology being used meets 4-log treatment, using continuous monitoring of filtered water quality turbidity or particle counts, or both.

Env-Dw 717.17 Operation and Compliance Monitoring for Alternative Treatment.

(a) Groundwater systems using alternative treatment to meet 4-log treatment shall operate and monitor the alternative treatment in accordance with the operational and monitoring requirements established pursuant to (b), below, deemed necessary to demonstrate achievement of 4-log treatment.

(b) The department shall establish operational and monitoring requirements designed to ensure that the alternative treatment actually meets 4-log treatment based on the type of technology used by the system.

*Readopt with amendment Env-Dw 717.18 and Env-Dw 717.19, eff. 11-21-09 (doc. #9600), to read as follows:*

Env-Dw 717.18 Compliance Monitoring Reporting Requirements.

(a) The ~~owner~~***O/O*** of a groundwater system that provides 4-log treatment of viruses using inactivation, removal, or a department-approved combination of 4-log virus inactivation and removal shall report the information specified in (c) through (e), below, as applicable, monthly to the department by the 10<sup>th</sup> day of the month immediately following the month for which the report is being provided.

(b) The ~~owner~~***O/O*** of a groundwater system that provides 4-log treatment shall notify the department as soon as possible, but in no case later than the end of the next business day, any time the system fails to meet any of the requirements established for the system for greater than 4 hours, including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria.

(c) The ~~owner~~***O/O*** of a groundwater system that provides 4-log treatment using chlorine disinfection shall report the following information:

- (1) For each day, the lowest measured residual disinfectant concentration, in milligrams per liter (mg/L), in water entering the distribution system;
- (2) The daily residual disinfectant concentration, in mg/L, in water measured at the approved sampling location at or before the first service connection;

- (3) The disinfectant contact time (CT), in minutes, associated with the calculated peak flow rate for the system used for calculating the CT value;
  - (4) The daily measurement of pH of disinfected water following the point of chlorine disinfection;
  - (5) The daily measurement of water temperature, in degrees Celsius, following each point of disinfection;
  - (6) The daily CT value calculated for each treatment plant before or at the first customer; and
  - (7) The daily determination of whether disinfection achieves at least 4-log treatment.
- (d) The ~~owner-O/O~~ of a groundwater system that provides 4-log treatment using membrane filtration shall report the information specified in ***the department's approval of the alternative treatment in accordance with Env-Dw 717.1916.***
- (e) The ~~owner-O/O~~ of a groundwater system than provides 4-log treatment using alternative treatment shall report the information specified in the department's approval of the alternative treatment ***in accordance with Env-Dw 717.17.***

Env-Dw 717.19 Compliance Monitoring Recordkeeping Requirements.

- (a) The ~~owner-O/O~~ of a groundwater system conducting compliance monitoring, including provider systems, shall maintain records according to this section.
- (b) Records of minimum disinfectant residual shall be retained for 10 years.
- (c) Subject to (d), below, the following records shall be retained for 5 years:
- (1) The lowest daily residual disinfectant concentration;
  - (2) The date and duration of any failure to maintain the minimum residual disinfectant concentration for a period of more than 4 hours;
  - (3) The date the ~~owner-O/O~~ contacted the department with notification of the failure to maintain the minimum residual disinfectant concentration for a period of more than 4 hours and the name of the individual at the department to whom the ~~owner-O/O~~ spoke;
  - (4) The compliance requirements for membrane filtration and parameters specified by department for the approved alternative treatment, as applicable; and
  - (5) The date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than 4 hours.
- (d) If the ~~owner-O/O~~ is notified in writing that an enforcement action or other legal action is pending against the system, the ~~owner-O/O~~ shall retain all records for the longer of the time period specified in (b) or (c), above, if applicable, or 6 months after the date of the final decision in the action.

*Readopt Env-Dw 717.20, eff. 11-21-09 (doc. #9600), as amended eff. 7-30-10 (doc. #9758), to read as follows:*

Env-Dw 717.20 Significant Deficiencies. Any of the following conditions shall constitute a significant deficiency:

- (a) Well casing is buried;
- (b) Top of well can be flooded;

- (c) Well is not sealed;
- (d) Unsanitary material or debris is stored or discarded in the sanitary radius of a well;
- (e) Well is not constructed in accordance with applicable requirements;
- (f) Well casing extension does not meet applicable requirements;
- (g) Well is damaged or otherwise subject to contamination;
- (h) Operation, maintenance, or monitoring of disinfection processes does not meet applicable requirements;
- (i) System has low or negative pressures that could result in entry of contaminants;
- (j) System lacks cross connection control program or devices, if applicable;
- (k) Pump house is subject to flooding;
- (l) Pump house conditions are unsanitary;
- (m) System does not have a certified operator even though one is required by Env-Dw 502;
- (n) Certified operator, if required, is below the appropriate grade;
- (o) Inspection, internal cleaning, and maintenance of storage tank(s) does not meet applicable requirements;
- (p) Water storage tank is subject to contamination;
- (q) Facility operations are not inspected for unsanitary conditions on a regular basis;
- (r) Monitoring, reporting, and recordkeeping are not being done as required; and
- (s) Any other significant deficiency identified in Env-Dw 720.03.

*Readopt with amendment Env-Dw 717.21, eff. 7-30-10 (doc. #9758), to read as follows:*

Env-Dw 717.21 Notice of Significant Deficiencies; Corrective Actions and Corrective Action Plans.

- (a) The department shall inform the ~~owner~~***O/O*** and certified operator, if the system has a certified operator, of the groundwater system of all significant deficiencies in writing.
- (b) The notice issued pursuant to (a), above, shall require the ~~owner~~***O/O*** to:
  - (1) Implement any corrective action(s) specified in the notice for which consultation or prior approval from the department is not required within 120 days or such earlier time as is specified pursuant to (e), below; and
  - (2) Consult with the department within 30 days of receiving written notice for the purpose of developing a corrective action plan (CAP) as specified in (f), below, for any corrective action(s) not covered by (1), above.
- (c) The ~~owner~~***O/O*** of a groundwater system shall consult with the department within 10 days of receiving written notice from a laboratory that a groundwater source sample collected in accordance with Env-Dw 717.11 is positive for E. coli to determine what corrective action needs to be taken or whether a CAP as specified in (f), below needs to be developed.
- (d) The corrective action(s) specified in the notice shall consist of one or more of the following, as necessary to correct the problem and protect public health:

- (1) Correct significant deficiencies;
  - (2) Provide an alternate source of water;
  - (3) Eliminate the source of contamination; or
  - (4) Provide treatment that reliably achieves 4-log treatment, as specified in Env-Dw 717.13.
- (e) The department shall specify a compliance deadline of less than 120 days if:
- (1) The actions to be taken can reasonably be implemented in a shorter period of time; and
  - (2) An earlier date is needed to protect public health.
- (f) If a system ~~owner-O/O~~ is required to develop a corrective action plan (CAP) pursuant to (b)(2) or (c), above, then within 30 days after the required consultation, or by such later date established by agreement with the department, the ~~owner-O/O~~ shall develop and submit to the department a CAP, ~~which~~ ***that*** identifies the action(s) that will be taken to correct the system's deficiencies and the schedule upon which the action(s) will be taken.
- (g) If any of the significant deficiencies cannot be corrected within 120 days of the date of a notice issued pursuant to (a), above, or received from the laboratory pursuant to (c), above, the CAP submitted by the system ~~owner-O/O~~ shall identify interim measures that will be taken in order to protect the health and safety of persons served by the system pending final action.
- (h) The department shall approve a CAP proposed by the system ~~owner-O/O~~ if:
- (1) The action(s) and schedule for taking the action(s) will correct all problems within a time frame that is protective of public health; and
  - (2) The CAP identifies interim measures that will be taken to address any significant deficiencies that cannot be corrected within 120 days of the date of the notice in order to protect the health and safety of persons served by the system pending final action.
- (i) The ~~owner-O/O~~ shall not make any modifications to the approved CAP without first obtaining approval for the modifications from the department in accordance with (j) and (k), below.
- (j) To request approval for modifications to the action(s) or schedule in an approved CAP, the ~~owner-O/O~~ shall submit a request in writing to the department ~~which~~ ***that*** explains the requested modification(s) and the reason(s) why the CAP as modified meet the criteria for approval specified in (k), below.
- (k) The department shall approve a modification to a CAP if:
- (1) The modification was made necessary due to circumstances beyond the control of the system ~~owner-O/O~~; and
  - (2) The CAP as modified will correct all remaining problems and be equally as protective of public health.
- (l) Within 120 days of the date of a notice issued pursuant to (a) or (c), above, the ~~owner-O/O~~ of a groundwater system shall:
- (1) Have fully corrected all significant deficiencies; or
  - (2) Be in compliance with a CAP approved by the department pursuant to (h), above.

(m) The ~~owner~~***O/O*** of a groundwater system who has been directed to take corrective action or to implement a CAP shall notify the department within 30 days of completion of the corrective action or CAP, as applicable.

(n) A system ~~owner~~***O/O*** shall be subject to enforcement as specified in RSA 485:58 for any failure to correct the deficiency(ies) and for any failure to comply with an approved CAP.

*Readopt with amendment Env-Dw 717.22 through Env-Dw 717.25, eff. 11-21-09 (doc. #9600), to read as follows:*

Env-Dw 717.22 Violations.

(a) Failure to meet the ~~compliance~~ monitoring requirements specified in ***Env-Dw 717.07 through Env-Dw 717.09 and*** Env-Dw 717.13 through Env-Dw 717.17 shall constitute a monitoring violation.

(b) Failure to maintain at least 4-log treatment shall constitute a treatment technique violation if the failure is not corrected within 4 hours of determining the system is not maintaining at least 4-log treatment in accordance with Env-Dw 717.13 through Env-Dw 717.17.

(c) Failure to submit the monthly reports required by Env-Dw 717.18 shall constitute a reporting violation.

(d) Failure to meet the treatment technique requirements specified in Env-Dw 717.21, after notification of a significant deficiency or fecal-contaminated source water shall constitute a treatment technique violation.

Env-Dw 717.23 Public Notification, Consumer Confidence Report, & Special Notice.

(a) The ~~owner~~***O/O*** of a groundwater system at which any violation described in Env-Dw 717.22 occurs shall conduct standard public notice in accordance with ~~Env-Ws 351 or successor rules in~~ Env-Dw ~~800~~***801***.

(b) The ~~owner~~***O/O*** of a groundwater system notified of valid sample that is E. coli positive, including the ~~owners~~***O/Os*** of consecutive systems served by such a groundwater source, shall conduct acute public notice as specified in ~~Env-Ws 351 or successor rules in~~ Env-Dw ~~800~~***801***.

(c) The ~~owner~~***O/O*** of a community groundwater system shall notify the system's customers through the consumer confidence reporting (CCR) requirements of ~~Env-Ws 352 or successor rules in~~ Env-Dw 811, if:

(1) It receives notice from department of a significant deficiency identified in Env-Dw 717.20, that has not been corrected; or

(2) A groundwater source sample was E. coli positive.

(d) The information noted in (c), above, shall be reported in the CCR annually until the deficiency, ***E. coli contamination***, or violation has been corrected and confirmation of the correction has been received from the department.

(e) The ~~owner~~***O/O*** of a non-community groundwater system shall notify its customers of a significant deficiency, as specified in Env-Dw 717.20;

(1) That has not been corrected within 12 months of being notified of the deficiency; ***and***

(2) ***Continue to notify the public annually until the significant deficiency is corrected.***

(f) The notice required by (e), above, shall include:

- (1) The nature of the significant deficiency and the date it was identified by the department; and
  - (2) A description of the approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed.
- (g) In a community where the population of non-English speaking residents exceeds 20% of the community population, the notice shall contain:
- (1) Information in the appropriate language(s) regarding the importance of the notice; or
  - (2) A telephone number or address, in the appropriate language, at which customers can contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

Env-Dw 717.24 Groundwater Rule General Recordkeeping Requirements.

- (a) In addition to the requirements of Env-Dw 717.19 and ~~Env-Ws 304 or successor rules in subtitle~~ Env-Dw **718**, the ~~owner~~ ***O/O*** of a groundwater system shall maintain the records described in (b) through (d), below, for the time period specified.
- (b) As required by 40 CFR 141.405(b)(1), documentation of corrective actions shall be retained for 10 years.
- (c) Documentation of notice to the public as required under ~~Env-Ws 351 or successor rules in~~ Env-Dw 800 shall be retained for 3 years.
- (d) Records of invalidation of E. coli positive samples shall be retained for 5 years.

Env-Dw 717.25 Groundwater Rule Consecutive System Notification and Recordkeeping Requirements.

- (a) A consecutive groundwater system ~~owner~~ ***O/O*** that has a total coliform-positive sample collected under ~~Env-Ws 325 or successor rules in~~ Env-Dw 709 shall:
- (1) Notify the provider system(s) within 24 hours of being notified of the total coliform-positive sample; and
  - (2) If the consecutive system has a source that supplies water to the distribution system, conduct triggered monitoring as specified in Env-Dw 717.11.
- (b) A provider system that does not provide 4-log treatment and receives notice from a consecutive system it serves that a sample collected under ~~Env-Ws 325, or successor rules in~~ Env-Dw 709 is total coliform-positive shall:
- (1) Collect a sample from each groundwater source and analyze each sample for E. coli and total coliform, in accordance with Env-Dw 717.05, within 24 hours of being notified of the total coliform-positive sample; and
  - (2) Conduct all triggered monitoring as specified in Env-Dw 717.11.
- (c) A provider system that receives notice that its groundwater source sample is E. coli positive shall:
- (1) Notify all consecutive systems served by the water source within 24 hours of being notified of the E. coli positive result; and
  - (2) Conduct all triggered monitoring requirements as specified in Env-Dw 717.11.
- (d) Documentation of notification to the provider system(s) of total-coliform positive samples that are not invalidated under Env-Dw 717.06 shall be kept for a period of at least 5 years.

**APPENDIX A: STATUTES/REGULATIONS IMPLEMENTED**

<b>Rule Section(s)</b>	<b>State Statute(s) Implemented</b>	<b>Federal Regulation(s) Implemented</b>
Env-Dw 717.01	RSA 485:3, I	40 CFR 141.400(a)
Env-Dw 717.02	RSA 485:3, I	40 CFR 141.400(b)
Env-Dw 717.03	RSA 485:3, I	40 CFR 141.2, 141.400(b) & 142.16
Env-Dw 717.04	RSA 485:3, I & VI	40 CFR 141.400(d)
Env-Dw 717.05	RSA 485:3, I	40 CFR 141.402(e)
Env-Dw 717.06	RSA 485:3, I	40 CFR 141.402
Env-Dw 717.07	RSA 485:3, I & VI	40 CFR 141.402(f) & 141.403(b)
Env-Dw 717.08	RSA 485:3, I & VI	40 CFR 141.400(b)
Env-Dw 717.09	RSA 485:3, I & VI	40 CFR 141.400(a); 40 CFR 141.403(b)(1)
Env-Dw 717.10	RSA 485:3, I & VI	40 CFR 141.403(c)
Env-Dw 717.11	RSA 485:3, I & VI	40 CFR 141.400(a)
Env-Dw 717.12	RSA 485:3, I & VI	40 CFR 141.402(a)
Env-Dw 717.13	RSA 485:3, I & VI	40 CFR 141.402(a); 40 CFR 141.403(b)(1)
Env-Dw 717.14	RSA 485:3, I & VI	40 CFR 141.400(b)
Env-Dw 717.15 - 717.17	RSA 485:3, I & VI	40 CFR 141.402(b)
Env-Dw 717.18	RSA 485:3, I & VI	40 CFR 141.405(a)
Env-Dw 717.19	RSA 485:3, I & VI	40 CFR 141.405(b)
Env-Dw 717.20	RSA 485:3, I & VI	40 CFR 141.403 & 141.405(a)
Env-Dw 717.20 intro, (n), (s)	RSA 485:1; RSA 485:3, I & VI	40 CFR 141.403; 40 CFR 141.405(a)
Env-Dw 717.21	RSA 485:3, I & VI	40 CFR 141.202; 40 CFR 141.203; 40 CFR 141.402(h); 40 CFR 141.404
Env-Dw 717.22	RSA 485:3, I & VI	40 CFR 141.402(g) & 141.403(a)
Env-Dw 717.23	RSA 485:3, I & VI	40 CFR 141.400(a)
Env-Dw 717.24	RSA 485:3, I & VI	40 CFR 141.400(b)
Env-Dw 717.25	RSA 485:3, I & VI	40 CFR 141.400(a)

**APPENDIX B: FEDERAL DEFINITIONS****40 CFR §141.2**

*Coagulation* means a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

*Compliance cycle* means the nine-year calendar year cycle during which public water systems must monitor. Each compliance cycle consists of three three-year compliance periods. The first calendar year cycle begins January 1, 1993 and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; the third begins January 1, 2011 and ends December 31, 2019.

*Compliance period* means a three-year calendar period within a compliance cycle. Each compliance cycle has three three-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998, the third from January 1, 1999 to December 31, 2001.

*Confluent growth* means a continuous bacterial growth covering the entire filtration area of a membrane filter, or portion thereof, in which bacterial colonies are not discrete.

*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 direct connection or through the distribution system of one or more consecutive systems.

Added text in ***bold italics***

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Explanatory comments in *{bracketed blue italics}*

*Disinfection* means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

~~*Medium-size water system*, for the purpose of subpart I of this part only, means a water system that serves greater than 3,300 and less than or equal to 50,000 persons.~~

*Membrane filtration* means a pressure or vacuum driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.”

~~*Near the first service connection* means at one of the 20 percent of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.~~

*Residual disinfectant concentration* (“C” in CT calculations) means the concentration of disinfectant measured in mg/l in a representative sample of water.

*Too numerous to count* means that the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.

*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.

#### **40 CFR §141.91 Recordkeeping requirements:**

“Any system subject to the requirements of this subpart shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, State determinations, and any other information required by §§141.81 through 141.88. Each water system shall retain the records required by this section for no fewer than 12 years.”