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NOTICE OF PROPOSED RULEMAKING
INCLUDING STATEMENT OF NEED & FISCAL IMPACT

FILED
10/30/2025 9:22 PM
ARCHIVES DIVISION
SECRETARY OF STATE

CHAPTER 333
OREGON HEALTH AUTHORITY
PUBLIC HEALTH DIVISION

FILING CAPTION: Consumer confidence report rule additions and improvements for public drinking water requirements

LAST DAY AND TIME TO OFFER COMMENT TO AGENCY: 11/30/2025 5:00 PM

The Agency requests public comment on whether other options should be considered for achieving the rule's substantive goals while reducing negative economic impact of the rule on business.

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Filed By:
Public Health Division
Rules Coordinator

HEARING(S)

Auxiliary aids for persons with disabilities are available upon advance request. Notify the contact listed above.

DATE: 11/19/2025
TIME: 10:00 AM
OFFICER: Staff

REMOTE HEARING DETAILS
MEETING URL: Click here to join the meeting
PHONE NUMBER: 971-277-2343
CONFERENCE ID: 603518809
SPECIAL INSTRUCTIONS:
This hearing is being held remotely via Microsoft Teams. To provide oral (spoken) testimony during this hearing, please contact publichealth.rules@odhsoha.oregon.gov to register and receive the link for the Microsoft Teams video conference via calendar appointment, or you may access the hearing using the meeting URL above. Alternatively, you may dial 971- 277-2343, Phone Conference ID 603 518 809# for audio (listen) only. This hearing will close no later than 11:00AM but may close as early as 10:30AM if everyone who signs up to
provide testimony has been heard from.

Accessibility Statement: For individuals with disabilities or individuals who speak a language other than English, OHA can provide free help. Some examples are: sign language and spoken language interpreters, real-time captioning, braille, large print, audio, and written materials in other languages. If you need help with these services, please contact the Public Health Division at 971-673-1222, 711 TTY or publichealth.rules@odhsoha.oregon.gov at least 48 hours before the meeting. All relay calls are accepted. To best ensure our ability to provide a modification please contact us if you are considering attending the meeting and require a modification. The earlier you make a request the more likely we can meet the need.

NEED FOR THE RULE(S)

The Oregon Health Authority (OHA), Public Health Division, Drinking Water Services is proposing amendments to Oregon Administrative Rules in chapter 333, division 61 to incorporate revisions to the federal consumer confidence rule, which are necessary for Oregon to remain consistent with federal primacy grant requirements, and to clarify or improve other rule text so rules are easier to implement.

DOCUMENTS RELIED UPON, AND WHERE THEY ARE AVAILABLE

- OAR chapter 333, division 61:

https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=1273

- ORS chapter 448: https://www.oregonlegislature.gov/bills_laws/ors/ors448.html.
- Code of Federal Regulations, Title 40, Part 141: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-141?toc=1

OAR chapter 333, division 061 and ORS chapter 448 are also available for inspection at the Oregon Health Authority, Drinking Water Services, 800 NE Oregon Street, Suite 640, Portland, OR 97232 or by calling 971-673-0405.

STATEMENT IDENTIFYING HOW ADOPTION OF RULE(S) WILL AFFECT RACIAL EQUITY IN THIS STATE

Amendment of these rules is generally expected to have a neutral effect on racial equity within Oregon because public water system regulation is based primarily upon the population served by water system and type of water source used for drinking water, regardless of the location of the water system within Oregon. One proposed rule amendment could be expected to have a positive effect upon racial equity, due to public water suppliers serving 100,000 or more people being required to develop a plan for assistance for water consumers with limited English proficiency when delivering annual consumer confidence reports, by encouraging water suppliers to make additional good faith efforts to deliver consumer confidence reports to non-bill paying customers and by encouraging water suppliers to provide reports in an accessible format when an accommodation is requested.

FISCAL AND ECONOMIC IMPACT:

Public water suppliers serving 10,000 or more people will bear increased costs due to the requirement to publish consumer confidence reports twice every year. Public water suppliers serving 100,000 or more people will bear additional increased costs due to the requirement to provide translation assistance for people with limited English reading or speaking ability. There may be a financial benefit for some small public water suppliers because two rule amendments reduce regulatory requirements, one of which eases the criteria for returning the routine monitoring frequency to once every calendar quarter at non-community water systems with only groundwater sources and the other repeals a requirement for capacity assessments at new transient non-community water systems.

COST OF COMPLIANCE:

(1) Identify any state agencies, units of local government, and members of the public likely to be economically affected by the rule(s). (2) Effect on Small Businesses: (a) Estimate the number and type of small businesses subject to the rule(s); (b) Describe the expected reporting, recordkeeping and administrative activities and cost required to comply with the rule(s); (c) Estimate the cost of professional services, equipment supplies, labor and increased administration required to comply with the rule(s).

(1) The proposed rule amendments are not expected to impact regulatory officials and there is no anticipated cost of compliance impact on state agencies or units of local government, nor do the proposed rule amendments have any anticipated cost of compliance to the public.

(2)(a) Some public water systems are operated by small businesses, including mobile home parks, recreational vehicle parks, private campgrounds, restaurants, tourist accommodations, retail stores or other commercial enterprises. OHA

records indicate less than 1,000 public water systems are operated by a small business.

(b) Public water suppliers serving 10,000 or more people may bear increased costs due to the requirement to publish reports twice every year, and additionally those serving 100,000 or more people to provide translation assistance.

(c) Public water suppliers serving 10,000 or more people may bear increased costs due to the requirement to publish reports twice every year, and additionally those serving 100,000 or more people to provide translation assistance.

DESCRIBE HOW SMALL BUSINESSES WERE INVOLVED IN THE DEVELOPMENT OF THESE RULE(S):

The State Drinking Water Advisory Committee (DWAC), which is established according to ORS 448.153, includes representatives for certified water system operators and privately-owned public water systems that represent small businesses. These representatives reviewed the proposed rules and related rulemaking documents, including this Statement of Need and Fiscal Impact form, and were engaged as partners during this rulemaking process.

WAS AN ADMINISTRATIVE RULE ADVISORY COMMITTEE CONSULTED? YES

RULES PROPOSED:
333-061-0032, 333-061-0036, 333-061-0040, 333-061-0043, 333-061-0061, 333-061-0076, 333-061-0220

AMEND: 333-061-0032

RULE SUMMARY: Amend OAR 333-061-0032: The Treatment Requirements and Performance Standards rule will be amended to include rule text previously cited as sanitary survey significant deficiencies. These requirements remain the same but will be included as requirements of this rule rather than deficiencies to only be cited during water system inspections.

CHANGES TO RULE:

333-061-0032
Treatment Requirements and Performance Standards ~~for Surface Water, Groundwater Under Direct Influence of Surface Water, and Groundwater~~ ¶

(1) General requirements for all public water systems supplied by a surface water source or a groundwater source under the direct influence of surface water. ¶
(a) This rule establishes criteria under which filtration and treatment technique requirements are prescribed in lieu of maximum contaminant levels (MCLs) for the following contaminants: Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium, and turbidity. At every public water system with a surface water source or a groundwater source under the direct influence of surface water, water suppliers must provide treatment of source water that complies with these treatment technique requirements. ¶
(A) The treatment technique requirements specified in this subsection consist of installing and properly operating water treatment processes which reliably achieve: ¶
(i) At least 99.9 percent (3-log) removal or inactivation of Giardia lamblia cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer~~;~~, and ¶
(ii) At least 99.99 percent (4-log) removal or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer. ¶
(iii) At least 99 percent (2-log) removal of Cryptosporidium between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer for water systems providing filtration treatment, or for water systems without filtration treatment:¶
(I) Cryptosporidium control according to the system's watershed control plan; and¶
(II) Cryptosporidium treatment according to subsections (3)(e) through (g) of this rule. ¶
(iv) Compliance with any applicable disinfection profiling and benchmark requirements as specified in OAR 333-061-0036(4)(l) and 333-061-0060(1)(e). ¶
(B) Sampling and Bin Classification for Cryptosporidium: ¶

(i) All water suppliers must conduct an initial and second round of source water monitoring, as prescribed in subsection 333-061-0036(5)(e) of these rules, for each plant that treats a surface water or groundwater under the direct influence of surface water (GWUDI) source to determine what level, if any, of additional Cryptosporidium treatment they must provide. ¶
(ii) At water systems with filtration, water suppliers must determine the Cryptosporidium treatment bin classification as prescribed in subsection (4)(f) of this rule and provide additional treatment for Cryptosporidium, if required, as prescribed in subsection (4)(g) of this rule. All unfiltered systems must provide treatment for Cryptosporidium as prescribed in subsections (3)(e) through (g) of this rule. Filtered and unfiltered systems must implement Cryptosporidium treatment according to the schedule in paragraph (1)(a)(F) of this rule. ¶
(iii) At water systems where additional treatment for Cryptosporidium is required, water suppliers must implement microbial toolbox options that are designed and operated as prescribed in sections (12) through (16) of this rule and in OAR 333-061-0036(5)(c), 333-061-0050(4) and 333-061-0050(5)(k). ¶
(C) Schedule for compliance with Cryptosporidium treatment requirements. ¶
(i) Following initial bin classification as prescribed in subsection (4)(f) of this rule at filtered water systems, water suppliers must provide the level of treatment for Cryptosporidium required under subsection (4)(g) of this rule according to the schedule in subparagraph (1)(a)(F)(iii) of this rule. ¶
(ii) Following initial determination of the mean Cryptosporidium level as prescribed by subsection (2)(c) of this rule, water suppliers for unfiltered water systems must provide the level of treatment for Cryptosporidium required by subsection (3)(e) of this rule according to the schedule in subparagraph (1)(a)(F)(iii) of this rule. ¶
(iii) Cryptosporidium treatment compliance dates. The ~~Authority~~Oregon Health Authority (Authority) may allow up to an additional two years from the date specified below for water systems making capital improvements. ¶
(I) Water systems that serve at least 100,000 people must comply with Cryptosporidium treatment by April 1, 2012. ¶
(II) Water systems that serve from 50,000 to 99,999 people must comply with Cryptosporidium treatment by October 1, 2012. ¶
(III) Water systems that serve from 10,000 to 49,999 people must comply with Cryptosporidium treatment by October 1, 2013. ¶
(IV) Water systems that serve fewer than 10,000 people must comply with Cryptosporidium treatment by October 1, 2014. ¶
(iv) If the bin classification for a filtered water system changes following the second round of source water monitoring as prescribed in subsection (4)(f) of this rule, the water system must provide the level of treatment for Cryptosporidium required by subsection (4)(g) of this rule on a schedule approved by the Authority. ¶
(v) If the mean Cryptosporidium level for an unfiltered water system changes following the second round of monitoring as prescribed by paragraph (2)(c)(A) of this rule, the water system must provide the level of Cryptosporidium treatment required by subsection (3)(e) of this rule, due to the change, following a schedule approved by the Authority. ¶
(b) Public water systems using a surface water source or a groundwater source under the direct influence of surface water is considered to be in compliance with the requirements of this rule if: ¶
(A) The requirements for avoiding filtration in section (2) of this rule, the disinfection requirements in section (3) of this rule and the disinfection benchmarking requirements of OAR 333-061-0060(1)(e) are met; or ¶
(B) The filtration requirements in section (4) of this rule, the disinfection requirements in section (5) of this rule and the disinfection benchmarking requirements of OAR 333-061-0060(1)(e) are met. ¶
(c) At water systems that utilize sources that have been determined to be under the direct influence of surface water according to section (7) of this rule, water suppliers must meet the requirements of sections (2) and (3) of this rule, or the requirements of sections (4) and (5) of this rule within 18 months of the determination. During that time, water suppliers must meet the following interim standards at the system: ¶
(A) The turbidity of water entering the distribution system must never exceed 5 nephelometric turbidity units (NTU). Turbidity measurements must be taken a minimum of once per day. If continuous turbidimeters are in place, measurements should be taken every four hours; and ¶
(B) Disinfection must be sufficient to reliably achieve at least 1.0 log inactivation of Giardia lamblia cysts prior to the first user. Daily disinfection "CT" values must be calculated and recorded daily, including pH and temperature measurements, and disinfection residuals at the first customer. ¶
(C) Reports must be submitted to the Authority monthly as prescribed in OAR 333-061-0040. ¶
(D) If these interim standards are not met, the water supplier must notify customers of the failure as required in OAR 333-061-0042(2)(b)(A).¶
(2) Requirements for public water systems utilizing surface water or GWUDI sources without filtration. ¶
(a) Source water quality conditions. ¶
(A) The fecal coliform concentration must be equal to or less than 20/100 ml, or the total coliform concentration must be equal to or less than 100/100 ml, in samples collected as prescribed by OAR 333-061-0036(5)(a)(A) in at

least 90 percent of the measurements made for the ~~6~~six previous months that a water system served water to the public on an ongoing basis. If a water supplier measures both fecal and total coliform as specified in this paragraph, only the fecal coliform criterion must be met. ¶
(B) The turbidity level cannot exceed the MCL prescribed in OAR 333-061-0030(3)(a). ¶
(b) Site-specific conditions. ¶
(A) The disinfection requirements prescribed in section (3) of this rule must be met at least 11 of the 12 previous months that the water system served water to the public on an ongoing basis, unless a system fails to meet the requirements during 2 of the 12 previous months that the system served water to the public and the Authority determines that at least one of these failures was caused by circumstances that were unusual and unpredictable. ¶
(B) Water suppliers must maintain a comprehensive watershed control program which minimizes the potential for contamination by Giardia lamblia cysts, Cryptosporidium oocysts, and viruses in the source water. For water systems using GWUDI, and at the discretion of the Authority, a certified drinking water protection plan (OAR 340-040-0160 to 340-040-0180) that addresses both the groundwater and surface water components of the drinking water supply may be substituted for a watershed control program. The watershed control program shall be developed according to guidelines in OAR 333-061-0075. The public water system must demonstrate through ownership or written agreements with landowners within the watershed that it can control all human activities which may have an adverse impact on the microbiological quality of the source water. The system must submit an annual report to the Authority identifying any special concerns about the watershed, the procedures used to resolve the concern, current activities affecting water quality, and projections of future adverse impacts or activities and the means to address them. At a minimum, the watershed control program must: ¶
(i) Characterize the watershed hydrology and land ownership; ¶
(ii) Identify watershed characteristics and activities which have or may have an adverse effect on source water quality; and ¶
(iii) Monitor the occurrence of activities which may have an adverse effect on source water quality. ¶
(C) Water systems must be subject to an annual on-site inspection of the watershed control program and the disinfection treatment process by the Authority. The on-site inspection must indicate to the Authority's satisfaction that the watershed control program and disinfection treatment process are adequately designed and maintained including the adequacy limiting the potential contamination by Cryptosporidium oocysts. The inspection must include: ¶
(i) A review of the effectiveness of the watershed control program; ¶
(ii) A review of the physical condition of the source intake and how well it is protected; ¶
(iii) A review of the system's equipment maintenance program to ensure there is low probability for failure of the disinfection process; ¶
(iv) An inspection of the disinfection equipment for physical deterioration; ¶
(v) A review of operating procedures; ¶
(vi) A review of data records to ensure that all required tests are being conducted and recorded and disinfection is effectively practiced; and ¶
(vii) Identification of any improvements which are needed in the equipment, system maintenance and operation, or data collection. ¶
(D) Water systems must not have been identified by the Authority as the source of waterborne disease outbreak under the system's current configuration. If such an outbreak occurs, the water system's treatment process must be sufficiently modified, as determined by the Authority, to prevent any future such occurrence. ¶
(E) Each of the following conditions must be met on an ongoing basis for at least 11 of the 12 previous months that the water system served water to the public unless the Authority determines that failure to meet this requirement was not caused by a deficiency in treatment of the source water. ¶
(i) The MCL for E. coli as prescribed by OAR 333-061-0030(4) was not exceeded at the water system. ¶
(ii) A level one coliform investigation was not triggered according to OAR 333-061-0078(2)(a)(A) or (B) at the water system if applicable. ¶
(F) Water systems must be in compliance with the requirements for total trihalomethanes (TTHM), haloacetic acids (five) (HAA5), bromate, chlorite, chlorine, chloramines, and chlorine dioxide as specified in OAR 333-061-0036(4). ¶
(c) Determination of mean Cryptosporidium level. ¶
(A) At water systems without filtration, water suppliers must calculate the arithmetic average of all Cryptosporidium sample concentrations following completion of the initial and second round of source water monitoring conducted according to OAR 333-061-0036(5)(e). Water suppliers must report this value to the Authority for approval no later than ~~6~~six months after the date the system was required to complete the required monitoring. ¶
(B) If the frequency of monthly Cryptosporidium sampling varies, water suppliers must calculate a monthly average for each month of sampling. Water suppliers must then use these monthly average concentrations rather

than individual sample concentrations for the calculation of the mean Cryptosporidium level prescribed in paragraph (2)(c)(A) of this rule. ¶
(C) The report to the Authority of the mean Cryptosporidium levels calculated according to paragraph (2)(c)(A) of this rule must include a summary of the source water monitoring data used for the calculation. ¶
(d) Failure to comply with any of the conditions or criteria specified in section (2) of this rule is in violation of a treatment technique requirement. The Authority can require filtration to be installed where it determines necessary.¶
(3) Disinfection requirements for water systems utilizing surface water or GWUDI sources without filtration.¶
(a) Disinfection treatment must be sufficient to ensure at least 99.9 percent (3-log) inactivation of Giardia lamblia cysts and 99.99 percent (4-log) inactivation of viruses, every day a water system serves water to the public, except any one day each month. Each day water systems serve water to the public, water suppliers must calculate the "CT" value(s) using the procedure specified in OAR 333-061-0036(5)(a)(C) and determine whether this value(s) is sufficient to achieve the specified inactivation rates for Giardia lamblia cysts and viruses. If a water system uses a disinfectant other the chlorine, the water supplier must demonstrate to the Authority through the use of an approved protocol for on-site disinfection demonstration studies or other information satisfactory to the Authority that the required inactivation rates are achieved on a daily basis instead of meeting the "CT" values in this rule. ¶
(b) Systems for disinfection must have either: ¶
(A) Redundant components, including an auxiliary power supply with automatic start-up and alarm or for ultraviolet light (UV) disinfection, at least one additional reactor of at least equal capacity as the largest duty reactor to ensure that disinfectant application is maintained continuously while water is being delivered to the distribution system; or ¶
(B) Automatic shut-off of delivery of water to the distribution system whenever there is less than 0.2 mg/l of residual disinfectant concentration in the water, or if the UV system fails. If the Authority determines that automatic shut-off would cause unreasonable risk to health or interfere with fire protection, the system must comply with paragraph (3)(b)(A) of this rule. ¶
(c) The residual disinfectant concentration in the water entering the distribution system, measured as specified in OAR 333-061-0036(5)(a)(E), cannot be less than 0.2 mg/l for more than four hours. ¶
(d) The residual disinfectant concentration in the distribution system, measured as free chlorine, total chlorine, combined chlorine, or chlorine dioxide as specified in OAR 333-061-0036(5)(a)(F) cannot be undetectable in more than ~~5~~five percent of the samples each month, for any two consecutive months that the system serves water to the public. ¶
(e) At unfiltered water systems, water suppliers must provide the level of Cryptosporidium inactivation specified in this subsection, based on the mean Cryptosporidium levels determined according to subsection (2)(c) of this rule and according to the schedule in subsection (1)(a) of this rule. ¶
(A) At unfiltered systems with a mean Cryptosporidium level of 0.01 oocysts/L or less, at least 2-log Cryptosporidium inactivation must be provided. ¶
(B) At unfiltered systems with a mean Cryptosporidium level of greater than 0.01 oocysts/L, at least 3-log Cryptosporidium inactivation must be provided. ¶
(f) Inactivation by chlorine dioxide, ozone or UV as prescribed by OAR 333-061-0036(5)(c) must be utilized at water systems using surface water or GWUDI sources without filtration to meet the Cryptosporidium inactivation requirements specified in this section. ¶
(A) Water suppliers violate a treatment technique requirement if chlorine dioxide or ozone disinfection fails to achieve the Cryptosporidium inactivation required in subsection (3)(e) of this rule on more than one day in a calendar month. ¶
(B) Water suppliers violate a treatment technique requirement if UV disinfection fails to achieve the Cryptosporidium inactivation required in subsection (3)(e) of this rule because the criteria specified in subsection (17)(c) of this rule are not met. ¶
(g) At unfiltered water systems, water suppliers must meet the combined Cryptosporidium inactivation requirements of subsection (3)(e) of this rule, and the Giardia lamblia and virus inactivation requirements of subsection (3)(a) of this rule using a minimum of two disinfectants. Each of the two disinfectants must achieve by itself, the total inactivation required for at least one of the following pathogens: Cryptosporidium, Giardia lamblia, or viruses.¶
(4) Requirements for systems utilizing surface water or GWUDI sources that provide filtration.¶
(a) At public water systems using a surface water source or a groundwater source under the direct influence of surface water, if all of the criteria in sections (1), (2), and (3) of this rule for avoiding filtration is not met, the water supplier violates a treatment technique and must provide treatment consisting of both disinfection, as specified in section (5) of this rule, and filtration treatment which complies with the requirements of either subsection (4)(b), (c), (d), or (e) of this rule within 18 months of the failure to meet the criteria in section (2) of this rule for avoiding

filtration. Failure to install a required treatment by the prescribed dates is a violation of this rule. ¶
(b) At water systems using conventional or direct filtration treatment, the turbidity requirements as specified in OAR 333-0061-0030(3)(b)(A)(i) and (ii) must be met. ¶
(c) At water systems using slow sand filtration treatment, the turbidity requirements specified in OAR 333-061-0030(3)(b)(B) must be met. ¶
(d) At water systems using diatomaceous earth filtration treatment, the turbidity requirements specified in OAR 333-061-0030(3)(b)(C) must be met. ¶
(e) At water systems using other filtration technologies, the turbidity requirements specified in OAR 333-061-0030(3)(b)(D) must be met. ¶
(A) At water systems with GWUDI sources using bank filtration as an alternate filtration technology, water suppliers must meet the requirements listed in section (8) of this rule. ¶
(B) At water systems using membrane filtration, water suppliers must conduct continuous indirect integrity testing and daily direct integrity testing according to OAR 333-061-0036(5)(d)(B) and (C). ¶
(f) Cryptosporidium Bin classification for filtered water systems. Following completion of the initial round of source water monitoring required by OAR 333-061-0036(5)(e) at filtered water systems, water suppliers must calculate an initial Cryptosporidium bin concentration for each water treatment plant where monitoring was required. Calculation of the bin concentration must be based upon the Cryptosporidium monitoring completed according to OAR 333-061-0036(5)(e) and must comply with paragraphs (4)(f)(A) through (F) of this rule. ¶
(A) For water systems where 48 or more samples are collected, the bin concentration is equal to the arithmetic average of all sample concentrations. ¶
(B) For water systems where at least 24 samples but not more than 47 samples are collected, the bin concentration is equal to the highest arithmetic average of all sample concentrations in any 12 consecutive months during which Cryptosporidium samples were collected. ¶
(C) For water systems that serve fewer than 10,000 people and Cryptosporidium samples are only collected for 12 months, that is, 24 samples are collected in 12 months, the bin concentration is equal to the arithmetic average of all sample concentrations. ¶
(D) For water systems where treatment plants are operated only part of the year and monitoring is less frequent than 12 months per year as prescribed by OAR 333-061-0036(5)(e)(E), the bin concentration is equal to the highest arithmetic average of all sample concentrations during any year of Cryptosporidium monitoring. ¶
(E) If the monthly Cryptosporidium sampling frequency varies, water suppliers must first calculate a monthly average for each month of monitoring. Water suppliers must then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification of this subsection. ¶
(F) Bin classification table. ¶
(i) Water suppliers must determine their initial bin classification from Table 8 as follows and using the Cryptosporidium bin concentration calculated under subsection (4)(f) of this rule~~:~~: ¶
(ii) Following completion of the second round of source water monitoring required as prescribed by OAR 333-061-0036(5)(e)(B) at filtered water systems, water suppliers must recalculate their Cryptosporidium bin concentration based upon the sample results collected according to OAR 333-061-0036(5)(e)(B) and following the procedures specified in paragraphs (4)(f)(A) through (D) of this rule. Water suppliers must then re-determine their bin classification using Table 8 in paragraph (4)(f)(F) of this rule.¶
(G) Water suppliers must report their bin classification as prescribed by paragraph (4)(f)(F) of this rule to the Authority for approval no later than ~~6~~six months after being required to complete the initial and second round of source water monitoring based on the schedule in OAR 333-061-0036(5)(e)(C). ¶
(H) The bin classification report to the Authority must include a summary of source water monitoring data and the calculation procedure used to determine bin classification. Failure to comply with the conditions of this paragraph is a violation of treatment technique requirements. ¶
(g) Additional Cryptosporidium treatment requirements. ¶
(A) At filtered water systems, water suppliers must provide the level of additional treatment for Cryptosporidium specified in Table 9 based on their bin classification as determined according to subsection (4)(f) of this rule, and according to the schedule in paragraph (1)(a)(F) of this rule.¶
(B) Water suppliers must use one or more of the treatment and management options listed in section (12) of this rule, termed the microbial toolbox, to comply with the additional Cryptosporidium treatment required by paragraph (4)(g)(A) of this rule. ¶
(C) At water systems classified in Bin 3 or Bin 4, water suppliers must ensure at least 1-log of the additional Cryptosporidium treatment required by paragraph (4)(g)(A) of this rule is provided, using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV, as described in sections (13) through (17) of this rule and in OAR 333-061-0036(5)(c). ¶
(i) Failure at a water system, during any month, to achieve the treatment credit required by sections (13) through

(17) of this rule and OAR 333-061-0036(5)(c) that is at least equal to the level of treatment required by paragraph (4)(g)(A) of this rule, is a violation of treatment technique requirements. ¶
(ii) If the Authority determines during a sanitary survey or equivalent source water assessment, that after a water supplier completed the monitoring conducted required by OAR 333-061-0036(5)(e)(A) or (B), significant changes occurred in a water system's watershed that could lead to increased contamination of the source water by Cryptosporidium, the water supplier must take action as specified by the Authority to address the contamination. These actions may include additional source water monitoring or implementing microbial toolbox options specified in section (12) of this rule.¶
(5) Disinfection requirements for water systems utilizing surface water or GWUDI sources with filtration.¶
(a) Disinfection treatment must be sufficient to ensure that the total treatment processes at a water system achieve at least 99.9 percent (3-log) inactivation or removal of Giardia lamblia cysts and at least 99.99 percent (4-log) inactivation or removal of viruses as determined by the Authority. ¶
(b) The residual disinfectant concentration in the water entering the distribution system, measured as specified in OAR 333-061-0036(5)(b)(D), cannot be less than 0.2 mg/l for more than 4four hours. ¶
(c) The residual disinfectant concentration in the distribution system, measured as free chlorine, total chlorine, combined chlorine or chlorine dioxide, as specified is OAR 333-061-0036(5)(b)(D) cannot be undetectable in more than 5five percent of the samples each month, for any two consecutive months that the system serves water to the public.¶
(6) Requirements for water systems with groundwater sources. ¶
(a) Water suppliers responsible for groundwater systems as defined by OAR 333-061-0020(68) must comply with the requirements of this section when a significant deficiency is identified or a groundwater source sample collected according to OAR 333-061-0036(6)(j) is E. coli positive. The Authority may require a water supplier to comply with the provisions of this section when a groundwater source sample collected according to OAR 333-061-0036(6)(i) or (k) is E. coli positive. ¶
(b) When a significant deficiency is identified at a public water system that uses both groundwater and surface water or GWUDI sources, the water supplier must comply with provisions of this section except in cases where the Authority determines that the significant deficiency is in a portion of the distribution system served solely by surface water or GWUDI sources. ¶
(c) Water suppliers must consult with the Authority regarding the appropriate corrective action within 30 days of receiving written notice from the Authority of a significant deficiency, written notice from a laboratory that a groundwater source sample collected in accordance with OAR 333-061-0036(6)(j) was E. coli -positive, or direction from the Authority that an E. coli -positive collected in accordance with OAR 333-061-0036(6)(i) or (k) requires corrective action. ¶
(d) Water suppliers must take action within 120 days (or earlier if directed by the Authority) of receiving written notification from the Authority of a significant deficiency, written notice from a laboratory that a groundwater source sample collected in accordance with OAR 333-061-0036(6)(j) was found to be E. coli positive, or direction from the Authority that an E. coli -positive sample collected in accordance with OAR 333-061-0036(6)(i) or (k) requires corrective action, and must either: ¶
(A) Have completed corrective action in accordance with applicable Authority plan review processes or other Authority guidance, including any Authority-specified interim measures; or ¶
(B) Be in compliance with an Authority approved corrective action plan and schedule subject to the following conditions: ¶
(i) Any subsequent modifications to an approved corrective action plan and schedule must be approved by the Authority; and ¶
(ii) If the Authority specifies interim measures for the protection of public health, pending Authority approval of the corrective action plan and schedule, or pending completion of the corrective action plan, the water supplier must comply with these interim measures as well as with any schedule specified by the Authority. ¶
(e) Water suppliers subject to the requirements of this section must, upon approval by the Authority, implement one or more of the following corrective action alternatives: ¶
(A) Correct all significant deficiencies; ¶
(B) Disconnect the groundwater source from the water system and provide an alternate source of water. If a disconnected well is or will be within 100 feet of a public water supply well, the disconnected well must be abandoned in accordance with 333-061-0050(2)(a)(E); ¶
(C) Eliminate the source of contamination, including removal all fecal contaminant sources not allowed within 100 feet of the groundwater source according to OAR 333-061-0050(2)(a)(E); or ¶
(D) Provide treatment for the groundwater source that reliably achieves at least 4-log inactivation, removal, or a combination of inactivation and removal of viruses before or at the first customer. If the groundwater source does not meet all of the applicable construction standards specified in OAR 333-061-0050(2)(a) or (b), and the Authority determines that reconstruction of the groundwater source will add a significant measure of public

health protection, then the groundwater source must be made to meet all of the applicable construction standards specified in OAR 333-061-0050(2)(a) or (b) before treatment is applied as prescribed by OAR 333-061-0050(5)(b). ¶
(f) Water suppliers responsible for water systems using fecally contaminated groundwater sources must provide disinfection for pathogen inactivation as prescribed by OAR 333-061-0050(5) when disinfection is approved by the Authority as a corrective action. ¶
(g) At water systems where three or more coliform investigations are triggered within a rolling 12-month period or four or more coliform investigations are triggered within a rolling two-year period, water suppliers must install and utilize treatment for disinfectant residual maintenance. For the purposes of this subsection, only coliform investigations triggered as specified in OAR 333-061-0078(2)(a)(A) or (B) or (2)(b)(A) will be considered. ¶
(A) The Authority may suspend the requirement to install treatment if a sanitary defect reasonably believed to be the source of contamination is corrected after the requirement to utilize treatment is triggered or if the Authority approves a schedule to correct the defect. The Authority may immediately re-establish the requirement to utilize treatment if one or more coliform investigations are triggered following the correction of the sanitary defect.¶
(B) If the Authority determines a groundwater source is the source of contamination, it may approve the installation of UV disinfection that meets the requirements in OAR 333-061-0050(5)(k)(L) in lieu of disinfectant residual maintenance.¶
(C) Treatment must be installed and operating within six months unless the Authority approves an alternate schedule. ¶
(D) For disinfectant residual maintenance, residuals must be monitored as prescribed by OAR 333-061-0036(9). ¶
(h) A water supplier violates this rule if any of the situations specified in paragraphs (6)(h)(A) through (C) of this rule occur. Violation of this rule is a violation of treatment technique requirements and requires a tier two public notice be published as specified by OAR 333-061-0042. ¶
(A) Within 120 days (or earlier if directed by the Authority) of receiving written notice from the Authority of a significant deficiency, a water supplier: ¶
(i) Fails to complete corrective action in accordance with applicable Authority plan review processes or other Authority guidance, including Authority specified interim actions and measures; or ¶
(ii) Fails to be in compliance with an Authority approved corrective action plan and schedule. ¶
(B) Within 120 days (or earlier if directed by the Authority) of receiving notification of an E. coli-positive groundwater source sample collected according to OAR 333-061-0036(6)(j) and not invalidated according to OAR 333-061-0036(6)(l), a water supplier: ¶
(i) Fails to complete corrective action according to applicable Authority plan review processes or other Authority guidance, including interim actions and measures; or ¶
(ii) Fails to be in compliance with an Authority approved corrective action plan and schedule. ¶
(i) Water suppliers may discontinue the operation of 4-log treatment for viruses, whether the treatment is source water inactivation, removal, or an Authority-approved combination of the two if the Authority first determines and documents in writing that 4-log treatment of viruses is no longer necessary for a groundwater source. If 4-log treatment of viruses is discontinued, the water supplier must monitor at the applicable groundwater source(s) as specified in OAR 333-061-0036(6).¶
(7) Determination of groundwater under the direct influence of surface water (GWUDI). ¶
(a) Except for wells using only a handpump, all groundwater sources must be evaluated for the potential of surface water influence if the source is in proximity to perennial or intermittent surface water and meets one of the hydrogeologic setting-surface water setback criteria identified in paragraph (A) and either paragraph (B) or (C). Hydrogeologic setting is identified by the Source Water Assessment or some other hydrogeologic study approved by the Authority. ¶
(A) The groundwater source draws water from: ¶
(i) A sand aquifer and is within 75 feet of surface water; ¶
(ii) A sand and gravel aquifer and is within 100 feet of surface water; ¶
(iii) A coarse sand, gravel, and boulder aquifer and is within 200 feet of surface water; ¶
(iv) A fractured bedrock aquifer or layered volcanic aquifer and is within 500 feet of surface water; or ¶
(v) Greater distances if geologic conditions or historical monitoring data indicate additional risk at the source; and ¶
(B) There is a history of microbiological contamination in the source; or ¶
(C) The Source Water Assessment or some other hydrogeologic study approved by the Authority determines the source is highly sensitive as a result of aquifer characteristics, vadose zone characteristics, monitoring history or well construction. ¶
(b) Except as provided by subsection (7)(c) of this rule, water suppliers must conduct sampling for any groundwater source(s) meeting the criteria specified in subsection (7)(a) of this rule. Sampling must be conducted according to the following criteria: ¶

(A) Collection of twelve consecutive monthly source water samples when the source is used year-round, or every month the source provides water to the public during one operational season for water sources used seasonally; ¶
(B) Samples must be analyzed for E. coli in accordance with all the applicable provisions of OAR 333-061-0036(1); and ¶
(C) Samples must be collected at the water source prior to any treatment unless the Authority approves an alternate sampling location that is representative of source water quality. ¶
(c) Public water systems that are required to evaluate their source(s) for direct influence of surface water may submit results of a hydrogeologic assessment completed by an Oregon registered geologist or other licensed professional with demonstrated experience and competence in hydrogeology in accordance with ORS 672.505 through 672.705 to demonstrate that the source is not potentially under the direct influence of surface water. The assessment must be consistent with the Oregon State Board of Geologist Examiners "Hydrology Report Guidelines," must be completed within a timeframe specified by the Authority and must include the following: ¶
(A) Well characteristics: well depth, screened or perforated interval, casing seal placement; ¶
(B) Aquifer characteristics: thickness of the vadose zone, hydraulic conductivity (meaning the capacity of the medium, for example, soil, aquifer, or any hydrogeological unit of interest, to transmit water) of the vadose zone and the aquifer, presence of low permeability zones in the vadose zone, degree of connection between the aquifer and surface water; ¶
(C) Hydraulic gradient: gradient between the aquifer and surface water source during pumping conditions, variation of static water level and surface water level with time; and ¶
(D) Groundwater flow: flow of water from the surface water source to the groundwater source during pumping conditions, estimated time-of-travel (TOT) for groundwater from the surface water source(s) to the well(s), spring(s), etc. ¶
(d) If a source water sample collected in accordance with subsection (7)(b) of this rule is reported as E. coli positive, then the water supplier must collect five additional source water samples within 24 hours of receiving notification of the positive sample result. ¶
(e) If any of the five additional source water samples specified in subsection (7)(d) of this rule is E. coli positive then the original E. coli positive sample is considered confirmed, and the water supplier must have the groundwater source analyzed for surface water influence according to subsection (7)(h) of this rule. Further E. coli monitoring is not required. ¶
(f) A water supplier may be required to have the groundwater source analyzed for surface water influence according to subsection (7)(h) of this rule at the discretion of the Authority if source water samples are consistently total coliform positive. ¶
(g) Emergency groundwater sources that meet the criteria of subsection (7)(a) of this rule can either be evaluated as prescribed in subsection (7)(b) or (7)(c) of this rule, or the evaluation can be waived if a Tier 2 public notice as prescribed in OAR 333-061-0042 is issued each time the source is used. The notice must explain that the source has been identified as potentially under the direct influence of surface water, but has not been fully evaluated, and therefore may not be treated sufficiently to inactivate pathogens such as Giardia lamblia and Cryptosporidium. ¶
(h) Determination of surface water influence on a groundwater source must be based upon a minimum of two samples conducted according to the "Consensus Method for Determining Groundwaters under the Direct Influence of Surface Water Using Microscopic Particulate Analysis (MPA)." Both water samples must be collected during a period of high runoff or streamflow and separated by a period of at least four weeks, or at other times as determined by the Authority. Scoring for diatoms, other algae, and insects/larvae is partially modified according to Table 10. Scoring for Giardia lamblia, coccidia, rotifers, and plant debris remains unchanged.¶
(i) A water source will be classified as groundwater or GWUDI as follows: ¶
(A) If the two initial microscopic particulate analyses have a risk score of less than 10, the water system source is classified as groundwater; ¶
(B) If any microscopic particulate analysis (MPA) risk score is greater than 19, or each risk score is greater than 14, the water source is classified as GWUDI; ¶
(C) If at least one of the two MPA risk scores is between 10 and 19, two additional microscopic particulate analyses must be conducted, and water source classification will be made as follows: ¶
(i) If all of the MPA risk scores are less than 15, the water system source is classified as groundwater; ¶
(ii) If any MPA risk score is greater than 19, or two or more are greater than 14, the water system source is classified as under the direct influence of surface water; or ¶
(iii) If only one of four MPA risk scores is greater than 14, two additional microscopic particulate analyses must be conducted, and water source classification will be based upon further evaluation by the Authority. ¶
(j) If an infiltration gallery, Ranney well, or dug well has been classified as groundwater under this rule, the turbidity of the source must be monitored and recorded daily and kept by the water system operator. If the turbidity exceeds 5 NTU or if the surface water body changes course such that risk to the groundwater source is increased, an MPA must be conducted at that time. Reevaluation may be required by the Authority at any time. ¶

(k) The Authority may determine a groundwater source to be under the direct influence of surface water if the criteria in subsection (7)(a) of this rule are met and there are significant or relatively rapid shifts in groundwater characteristics, such as turbidity, which closely correlate to changes in weather or surface water conditions. ¶
(l) The Authority may require reevaluation of a groundwater source, as specified in this section, if geologic conditions, water quality trends, or other indicators change despite any data previously collected or any determination previously made. ¶
(m) The Authority may determine that a source is not under direct influence of surface water based on criteria other than MPAs including the Source Water Assessment, source water protection, and other water quality parameters. The determination shall be based on the criteria indicating that the water source has a very low susceptibility to contamination by parasites, including Giardia lamblia and Cryptosporidium. The Authority may impose additional monitoring or disinfection treatment requirements to ensure that the risk remains low.-¶
(8) Requirements for groundwater sources under the direct influence of surface water seeking alternative filtration credit through bank filtration: ¶
(a) At water systems with all MPA risk scores less than 30, water suppliers may choose the option to evaluate for bank filtration credit. The water supplier must conduct a demonstration of performance study that includes an assessment of the ability of the local hydrogeologic setting to provide a minimum of 2-log reduction in the number of particles and microorganisms in the Giardia and Cryptosporidium size range between surface water and the groundwater source. The bank filtration study must involve the collection of data on removal of biological surrogates and particles in the Cryptosporidium size range of 2-5 microns or other surrogates approved by the Authority, and related hydrogeologic and water quality parameters during the full range of operating conditions. The demonstration study methods shall be reviewed and approved by the Authority prior to implementation. Final assessment of removal credit granted to the well shall be made by the Authority based on the study results. ¶
(b) If a GWUDI system using bank filtration as an alternative filtration technology violates the MCL for turbidity specified in OAR 333-061-0030(3)(b)(D), the water system must investigate the cause of the high turbidity within 24 hours of the exceedance. Pending the results of the investigation by the water system, the Authority may require a new bank filtration study.-¶
(9) Disinfection Byproduct Control Requirements: ¶
(a) This rule establishes criteria under which water suppliers for community and non-transient non-community (NTNC) water systems where a chemical disinfectant is added to the water in any part of the drinking water treatment process must modify their practices to meet MCLs and maximum residual disinfectant levels (MRDLs) in OAR 333-061-0030 and 0031, respectively. This rule also establishes the treatment technique requirements for disinfection byproduct precursors, and the criteria under which transient non-community (TNC) water systems that use chlorine dioxide as a disinfectant or oxidant must modify their practices to meet the MRDL for chlorine dioxide as specified in OAR 333-061-0031. ¶
(b) Water systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines (but not chlorine dioxide) to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross connection events. ¶
(c) Enhanced coagulation or enhanced softening are authorized treatment techniques to control the level of disinfection byproduct precursors for water systems using surface water or groundwater under the direct influence of surface water and conventional filtration treatment. Community and NTNC water systems using conventional filtration treatment must operate with enhanced coagulation or enhanced softening to achieve the total organic carbon (TOC) percent removal levels specified in subsection (9)(d) of this rule unless the system meets at least one of the alternative compliance criteria listed in paragraph (9)(c)(A) or (9)(c)(B) of this rule. ¶
(A) Alternative compliance criteria for enhanced coagulation and enhanced softening systems. Water systems may use the alternative compliance criteria in subparagraphs (9)(c)(A)(i) through (vi) of this rule in lieu of complying with the performance criteria specified in subsection (e) of this section. Systems must still comply with monitoring requirements specified in OAR 333-061-0036(4)(k). ¶
(i) The system's source water TOC level is less than 2.0 mg/L, calculated quarterly as a running annual average (RAA). ¶
(ii) The system's treated water TOC level is less than 2.0 mg/L, calculated quarterly as a RAA. ¶
(iii) The system's source water TOC is less than 4.0 mg/L, calculated quarterly as a RAA; the source water alkalinity is greater than 60 mg/L (as CaCO3 calculated quarterly as a RAA; and the TTHM and HAA5 RAAs are no greater than 0.040 mg/L and 0.030 mg/L, respectively. ¶
(iv) The TTHM and HAA5 RAAs are no greater than 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system. ¶
(v) The system's source water specific ultraviolet absorption (SUVA), prior to any treatment and measured monthly is less than or equal to 2.0 L/mg-m, calculated quarterly as a RAA. ¶
(vi) The system's finished water SUVA, measured monthly is less than or equal to 2.0 L/mg-m, calculated quarterly

as a RAA. ¶
(B) Additional alternative compliance criteria for softening systems. Systems practicing enhanced softening that cannot achieve the TOC removals required by paragraph (9)(d)(B) of this rule may use the alternative compliance criteria in subparagraphs (9)(c)(B)(i) and (ii) of this rule in lieu of complying with subsection (9)(d) of this rule. Systems must still comply with monitoring requirements in specified in OAR 333-061-0036(4)(k). ¶
(i) Softening that results in lowering the treated water alkalinity to less than 60 mg/L (as CaCO3), measured monthly and calculated quarterly as a RAA. ¶
(ii) Softening that results in removing at least 10 mg/L of magnesium hardness (as CaCO3), measured monthly and calculated quarterly as a RAA. ¶
(d) Enhanced coagulation and enhanced softening performance requirements. ¶
(A) Systems must achieve the percent reduction of TOC specified in paragraph (9)(d)(B) in this rule between the source water and the combined filter effluent, unless the Authority approves a system's request for alternate minimum TOC removal (Step 2) requirements under paragraph (9)(d)(C) of this rule. ¶
(B) Required Step 1 TOC reductions, specified in Table 11, are based upon specified source water parameters. Systems practicing softening are required to meet the Step 1 TOC reductions in the far-right column (Source water alkalinity >120 mg/L) for the specified source water TOC.¶
(C) Water systems that cannot achieve the Step 1 TOC removals required by paragraph (9)(d)(B) of this rule due to water quality parameters or operational constraints must apply to the Authority, within three months of failure to achieve the TOC removals required by paragraph (9)(d)(B) of this rule, for approval of alternative minimum TOC (Step 2) removal requirements submitted by the water system. If the Authority approves the alternative minimum TOC removal (Step 2) requirements, the Authority may make those requirements retroactive for the purposes of determining compliance. Until the Authority approves the alternate minimum TOC removal (Step 2) requirements, the water system must meet the Step 1 TOC removals contained in paragraph (9)(d)(B) of this rule. ¶
(D) Alternate minimum TOC removal (Step 2) requirements. Applications made to the Authority by enhanced coagulation systems for approval of alternative minimum TOC removal (Step 2) requirements under paragraph (9)(d)(C) of this rule must include, as a minimum, results of bench-scale or pilot-scale testing conducted under subparagraph (9)(d)(D)(i) of this rule. The submitted bench-scale or pilot scale testing must be used to determine the alternate enhanced coagulation level. ¶
(i) Alternate enhanced coagulation level is defined as coagulation at a coagulant dose and pH as determined by the method described in subparagraphs (9)(d)(D)(i) through (v) of this rule such that an incremental addition of 10 mg/L of alum (or equivalent amount of ferric salt) results in a TOC removal of less than or equal to 0.3 mg/ L. The percent removal of TOC at this point on the "TOC removal versus coagulant dose" curve is then defined as the minimum TOC removal required for the system. Once approved by the Authority, this minimum requirement supersedes the minimum TOC removal required by the Table 11 in paragraph (9)(d)(B) of this rule. This requirement will be effective until such time as the Authority approves a new value based on the results of a new bench-scale and pilot-scale test. Failure to achieve Authority-set alternative minimum TOC removal levels is a violation.-¶
(ii) Bench-scale or pilot-scale testing of enhanced coagulation must be conducted by using representative water samples and adding 10 mg/L increments of alum (or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH as specified in Table 12.¶
(iii) For waters with alkalinities of less than 60 mg/L for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, the system must add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added (or equivalent addition of iron coagulant) is reached. ¶
(iv) The system may operate at any coagulant dose or pH necessary, consistent with these rules to achieve the minimum TOC percent removal approved under paragraph (9)(d)(C) of this rule. ¶
(v) If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), the water is deemed to contain TOC not amenable to enhanced coagulation. The water system may then apply to the Authority for a waiver of enhanced coagulation requirements. ¶
(e) Compliance calculations. ¶
(A) Water systems other than those identified in paragraphs (9)(c)(A) or (d)(B) of this rule must comply with requirements contained in paragraph (9)(d)(B) or (C) of this rule. Systems must calculate compliance quarterly, beginning after the system has collected 12 months of data, by determining an annual average using the following method: ¶
(i) Determine actual monthly TOC percent removal, equal to: {1- (treated water TOC/source water TOC)}x100. ¶
(ii) Determine the required monthly TOC percent removal (from either Table 11 in paragraph (9)(d)(B) of this rule or from paragraph (9)(d)(C) of this rule).-¶

(iii) Divide the value in subparagraph (9)(e)(A)(i) of this rule by the value in subparagraph (9)(e)(A)(ii) of this rule. ¶
(iv) Add together the results of subparagraph (9)(e)(A)(iii) of this rule for the last 12 months and divide by 12. ¶
(v) If the value calculated in subparagraph (9)(e)(A)(iv) of this rule is less than 1.00, the water system is not in compliance with the TOC percent removal requirements. ¶
(B) Water systems may use the provisions in subparagraphs (9)(e)(B)(i) through (v) of this rule in lieu of the calculations in subparagraph (9)(e)(A)(i) through (v) of this rule to determine compliance with TOC percent removal requirements. ¶
(i) In any month that the water system's treated or source water TOC level is less than 2.0 mg/L, the water system may assign a monthly value of 1.0 (in lieu of the value calculated in subparagraph (9)(e)(A)(iii) of this rule) when calculating compliance under the provisions of paragraph (9)(e)(A) of this rule. ¶
(ii) In any month that a system practicing softening removes at least 10 mg/L of magnesium hardness (as CaCO3), the water system may assign a monthly value of 1.0 (in lieu of the value calculated in subparagraph (9)(e)(A)(iii) of this rule) when calculating compliance under the provisions of paragraph (9)(e)(A) of this rule. ¶
(iii) In any month that the water system's source water SUVA, prior to any treatment is less than or equal to 2.0 L/mg-m, the water system may assign a monthly value of 1.0 (in lieu of the value calculated in subparagraph (9)(e)(A)(iii) of this rule) when calculating compliance under the provisions of paragraph (9)(e)(A) of this rule. ¶
(iv) In any month that the water system's finished water SUVA is less than or equal to 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in subparagraph (9)(e)(A)(iii) of this rule) when calculating compliance under the provisions of paragraph (9)(e)(A) of this rule. ¶
(v) In any month that a system practicing enhanced softening lowers alkalinity below 60 mg/L (as CaCO3), the water system may assign a monthly value of 1.0 (in lieu of the value calculated in subparagraph (9)(e)(A)(iii) of this rule) when calculating compliance under the provisions of paragraph (9)(e)(A) of this rule. ¶
(C) Water systems using conventional treatment may also comply with the requirements of this section by meeting the criteria in paragraph (9)(c)(A) or (B) of this rule.¶
(10) Requirements for Water Treatment Plant Recycled Water.¶
(a) Any water system using surface water or groundwater under the direct influence of surface water that uses conventional filtration treatment or direct filtration treatment and that recycles spent filter backwash water, thickener, supernatant, or liquids from dewatering processes must meet the requirements of subsections (10)(b) and (c) of this rule and OAR 333-061-0040(2)(i). ¶
(b) Water suppliers must notify the Authority in writing within 30 days if it decides to recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes at a public water system. This notification must include, at a minimum, the information specified in paragraphs (10)(b)(A) and (B) of this rule. ¶
(A) A water treatment plant schematic showing the origin of all flows which are recycled (including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes), the hydraulic conveyance used to transport them, and the location where they are re-introduced back into the water treatment plant. ¶
(B) Typical recycle flow in gallons per minute (gpm), the highest observed water treatment plant flow experienced in the previous year (gpm), the design flow for the water treatment plant (gpm), and the operating capacity of the water treatment plant (gpm) that has been determined by the Authority where the Authority has made such determinations. ¶
(c) Any water system that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must return these flows through the processes of the system's existing filtration treatment as defined by these rules or at an alternate location approved by the Authority. If capital improvements are required to modify the recycle location to meet this requirement, all capital improvements must be completed according to a schedule approved by the Authority.¶
(11) Water systems using uncovered finished water storage facilities must comply with the conditions of either subsections (11)(a) or (b) of this rule for each uncovered finished water storage facility, or be in compliance with an Authority approved schedule to meet these conditions no later than April 1, 2009. ¶
(a) Water systems must cover any uncovered finished water storage facility; or ¶
(b) Treat the discharge from the uncovered finished water storage facility into the distribution system to achieve at least 4-log virus, 3-log Giardia lamblia, and 2-log Cryptosporidium inactivation or removal using a protocol approved by the Authority. ¶
(c) Failure to comply with the requirements of this section is a violation of the treatment technique requirement.¶
(12) Summary and General Requirements of Microbial toolbox options for meeting Cryptosporidium treatment requirements. Filtered water systems are eligible for the treatment credits listed in Table 13 of this section by meeting the conditions for microbial toolbox options described in sections (13) through (17) of this rule and in OAR 333-061-0036(5)(c). Unfiltered water systems are eligible only for the treatment credits specified as inactivation toolbox options in Table 13. Water systems apply these treatment credits to meet the requirements of subsections (3)(e) or (4)(g) of this rule, as applicable.¶

(13) Source toolbox components for meeting Cryptosporidium treatment requirements. ¶
(a) Watershed control program. Water systems receive 0.5-log Cryptosporidium treatment credit for implementing a watershed control program that meets the requirements of this subsection. ¶
(A) Water systems must notify the Authority of the intent to apply for the watershed control program credit no later than two years prior to the treatment compliance date applicable to the system in subsection (1)(a) of this rule. ¶
(B) Water systems must submit a proposed watershed control plan to the Authority no later than one year before the applicable treatment compliance date in subsection (1)(a) of this rule. The Authority must approve the watershed control plan for the water system to receive the applicable treatment credit. The watershed control plan must include the following elements: ¶
(i) Identification of an area of influence, outside of which the likelihood of Cryptosporidium or fecal contamination affecting the treatment plant intake, being the works or structures at the head of a conduit through which water is diverted from a source, such as a river or lake, into a treatment plant, is not significant. This is the area to be evaluated in future watershed surveys under subparagraph (13)(a)(E)(ii) of this rule; ¶
(ii) Identification of both potential and actual sources of Cryptosporidium contamination, and an assessment of the relative impact of these contamination sources on the water system's source water quality; ¶
(iii) An analysis of the effectiveness and feasibility of control measures that could reduce Cryptosporidium loading from sources of contamination to the system's source water; and ¶
(iv) A statement of goals and specific actions the system will undertake to reduce source water Cryptosporidium levels. The plan must explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions identified in the plan. ¶
(C) Water Systems with existing watershed control programs are eligible to seek this credit, but must meet the requirements prescribed in paragraph (13)(a)(B) of this rule, and must specify ongoing and future actions that will reduce source water Cryptosporidium levels. ¶
(D) If the Authority does not respond to a water system regarding approval of a watershed control plan submitted in accordance with this section, and the system meets the other requirements of this section, the watershed control program will be considered approved and a 0.5 log Cryptosporidium treatment credit will be awarded unless the Authority subsequently withdraws such approval. ¶
(E) Water systems must complete the actions specified in this paragraph to maintain the 0.5-log credit. ¶
(i) Water systems must submit an annual watershed control program status report to the Authority. The status report must describe the water system's implementation of the approved plan, and assess the adequacy of the plan to meet its goals. It must explain how the water system is addressing any deficiencies in plan implementation, including those previously identified by the Authority, or as the result of the watershed survey conducted in accordance with subparagraph (13)(a)(E)(ii) of this rule. The watershed control program status report must also describe any significant changes that have occurred in the watershed since the last watershed sanitary survey. ¶
(ii) Water systems must undergo a watershed sanitary survey every three years for community water systems and every five years for non-community water systems and submit the survey report to the Authority. The survey must be conducted according to Authority guidelines and by persons the Authority approves. ¶
(I) The watershed sanitary survey must meet the following criteria: encompass the region identified in the Authority approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water Cryptosporidium levels; and identify any significant new sources of Cryptosporidium. ¶
(II) If the Authority determines that significant changes may have occurred in the watershed since the previous watershed sanitary survey, water systems must undergo another watershed sanitary survey by a date determined by the Authority regardless of the regular date specified in subparagraph (13)(a)(E)(ii) of this rule. ¶
(iii) The water system must make the watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request. These documents must be in a plain language style and include criteria by which to evaluate the success of the program in achieving plan goals. The Authority may approve withholding portions of the annual status report, watershed control plan, and watershed sanitary survey from the public based on water supply security considerations. ¶
(F) If the Authority determines that a water system is not implementing the approved watershed control plan, the Authority may withdraw the watershed control program treatment credit. ¶
(G) If a water system determines, during implementation, that making a significant change to its approved watershed control program is necessary, the system must notify the Authority prior to making any such changes. If any change is likely to reduce the level of source water protection, the system must notify the Authority of the actions the water system will take to mitigate this effect. ¶
(b) Alternative source. A water system may conduct source water monitoring that reflects a different intake location (either in the same source or from an alternate source), or a different procedure for the timing or level of withdrawal from the source. If the Authority approves, a system may determine its bin classification under

subsection (4)(f) of this rule based on the alternative source monitoring results. ¶
(A) If a water system conducts alternative source monitoring as prescribed by this subsection, the water system must also monitor their current plant intake concurrently as prescribed by OAR 333-061-0036(5)(e). ¶
(B) Alternative source monitoring as prescribed by this subsection must meet the requirements for source monitoring to determine bin classification, as described in OAR 333-061-0036(1), 333-061-0036(5)(e) through (g), and 333-061-0040(1)(o). Water systems must report the alternative source monitoring results to the Authority, including supporting information that documents the operating conditions under which the samples were collected. ¶
(C) If a system determines its bin classification according to subsection (4)(f) of this rule using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, the system must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in subsection (1)(a) of this rule. ¶
(14) Pre-filtration treatment toolbox components for meeting Cryptosporidium treatment requirements. ¶
(a) Presedimentation. Systems receive 0.5-log Cryptosporidium treatment credit for a presedimentation basin during any month the process meets the criteria specified in this paragraph: ¶
(A) The presedimentation basin must be in continuous operation, and must treat the entire plant flow taken from a surface water or GWUDI source; ¶
(B) The water system must continuously add a coagulant to the presedimentation basin; and ¶
(C) The presedimentation basin must achieve the performance criteria specified in this paragraph. ¶
(i) The basin must demonstrate at least 0.5-log mean reduction of influent turbidity. This reduction must be determined using daily turbidity measurements of the presedimentation process influent and effluent, and must be calculated as follows: log10(monthly mean of daily influent turbidity)-_log10(monthly mean of daily effluent turbidity). ¶
(ii) The basin must also comply with Authority-approved performance criteria that demonstrates at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process. ¶
(b) Two-stage lime softening. Systems receive an additional 0.5-log Cryptosporidium treatment credit for a two-stage lime softening plant if chemical addition and hardness precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or GWUDI source. ¶
(c) Bank filtration. Water systems receive Cryptosporidium treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria specified in this section. Water systems using bank filtration when they begin source water monitoring according to OAR 333-061-0036(5)(e) must collect samples as prescribed by OAR 333-061-0036(5)(g) and are not eligible for this credit. ¶
(A) Wells with a groundwater flow path of at least 25 feet receive 0.5-log treatment credit. Wells with a groundwater flow path of at least 50 feet receive 1.0-log treatment credit. The groundwater flow path must be determined as specified in paragraph (D) of this subsection. ¶
(B) Only wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A water system must characterize the aquifer at the well site by extracting a core from the aquifer and demonstrating that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material. ¶
(C) Only horizontal and vertical wells are eligible for treatment credit. ¶
(D) For vertical wells, the groundwater flow path is the measured distance from the edge of the surface water body under high flow conditions (as determined by the 100 year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the groundwater flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen. ¶
(E) Water systems must monitor each wellhead for turbidity at least once every four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the system must report this result to the Authority and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the Authority determines that microbial removal has been compromised, the Authority may revoke treatment credit until the water system implements Authority-approved corrective actions to remediate the problem. ¶
(F) Springs and infiltration galleries are not eligible for treatment credit under this section, but are eligible for a treatment credit in accordance with subsection (15)(c) of this rule. ¶
(G) Bank filtration demonstration of performance. The Authority may approve Cryptosporidium treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in paragraph (14)(c)(A) through (E) of this rule. ¶
(i) The study must follow an Authority approved protocol, and must include the collection of data on the removal

of Cryptosporidium or a surrogate for Cryptosporidium and related hydrogeologic and water quality parameters during the full range of operating conditions. ¶
(ii) The study must include sampling from both the production well(s) and monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well(s).-¶
(15) Treatment performance toolbox components for meeting Cryptosporidium treatment requirements. ¶
(a) Combined filter performance. Water systems using conventional filtration treatment or direct filtration treatment receive an additional 0.5-log Cryptosporidium treatment credit during any month that the water system meets the criteria in this subsection. Combined filter effluent (CFE) turbidity must be less than or equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be measured as described in OAR 333-061-0036(5)(a)(B). ¶
(b) Individual filter performance. Water systems using conventional filtration treatment or direct filtration treatment receive 0.5-log Cryptosporidium treatment credit, which can be in addition to the 0.5-log credit under subsection (15)(a) of this rule, during any month the system meets the criteria in this subsection. Compliance with this criteria must be based on individual filter turbidity monitoring as described in OAR 333-061-0036(5)(d). ¶
(A) The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month. ¶
(B) No individual filter may have a measured turbidity greater than 0.3 NTU in two consecutive measurements taken 15 minutes apart. ¶
(C) Any system that has received treatment credit for individual filter performance and fails to meet the requirements of paragraphs (15)(b)(A) or (B) of this rule, during any month, is in violation of treatment technique requirements as prescribed by subsection (4)(g) of this rule unless the Authority determines the following: ¶
(i) The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing treatment plant design, operation, or maintenance; and ¶
(ii) The system has experienced no more than two such failures in any calendar year. ¶
(c) Demonstration of performance. The Authority may approve Cryptosporidium treatment credit for water treatment processes based on a demonstration of performance study that meets the criteria in this subsection. This treatment credit may be greater than or less than the prescribed treatment credits in subsection (4)(g) or sections (14) through (17) of this rule and may be awarded to treatment processes that do not meet the criteria for the prescribed credits. ¶
(A) Water systems cannot receive the prescribed treatment credit for any toolbox option in sections (14) through (17) of this rule, if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this subsection. ¶
(B) The demonstration of performance study must follow an Authority approved protocol, and must demonstrate the level of Cryptosporidium reduction achieved by the treatment process under the full range of expected operating conditions for the water system. ¶
(C) Approval by the Authority must be in writing, and may include monitoring and treatment performance criteria that the system must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The Authority may require such criteria where necessary to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.-¶
(16) Additional filtration toolbox components for meeting Cryptosporidium treatment requirements. ¶
(a) Bag and cartridge filters. Systems receive Cryptosporidium treatment credit of up to 2.0-log for individual bag or cartridge filters and up to 2.5-log for bag or cartridge filters operated in series by meeting the requirements in OAR 333-061-0050(4)(c)(J). To be eligible for this credit, water systems must report to the Authority, the results of challenge testing conducted in accordance with OAR 333-061-0050(4)(c)(J). The filters must treat the entire plant flow. ¶
(b) Membrane filtration. Systems receive Cryptosporidium treatment credit for membrane filtration that meets the requirements of this paragraph. Filters that meet the definition of membrane filtration in OAR 333-061-0020(59)(f) are eligible for this credit. The level of treatment credit a system receives is equal to the lower of the values determined under OAR 333-061-0050(4)(c)(H)(i) and (ii). ¶
(c) Second stage filtration. Water systems receive 0.5-log Cryptosporidium treatment credit for a separate second stage of Authority-approved filtration that consists of sand, dual media, granular activated carbon (GAC), or other fine grain media following granular media filtration. To be eligible for this credit, the first stage of filtration must be preceded by a coagulation step and, both filtration stages must treat the entire plant flow taken from a surface water or GWUDI source. The Authority must assign the treatment credit based on an assessment of the design characteristics of the filtration process. A cap (added layer of filter media), such as GAC, on a single stage of filtration is not eligible for this credit. ¶
(d) Slow sand filtration (as secondary filter). Water systems are eligible to receive 2.5-log Cryptosporidium treatment credit for a slow sand filtration process that follows a separate stage of filtration if both filtration stages treat the entire plant flow taken from a surface water or GWUDI source, and no disinfectant residual is present in

the influent water to the slow sand filtration process. The Authority must assign the treatment credit based on an assessment of the design characteristics of the filtration process. This subsection does not apply to treatment credit awarded to slow sand filtration used as a primary filtration process.¶
(17) Inactivation toolbox components for meeting Cryptosporidium treatment requirements. ¶
(a) If Chlorine Dioxide is used, CT values in OAR 333-061-0036, Table 30 must be met.¶
(b) If Ozone is used, CT values in OAR 333-061-0036, Table 31 must be met.¶
(c) To receive treatment credit for UV light, water systems must treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose, as prescribed by OAR 333-061-0036(5)(c)(D) and 333-061-0050(5)(k)(I). Systems must demonstrate compliance with this condition by the monitoring required in OAR 333-061-0036(5)(c)(D)(ii).
Statutory/Other Authority: ORS 448.131
Statutes/Other Implemented: ORS 448.131, 448.175, 448.273

RULE ATTACHMENTS MAY NOT SHOW CHANGES. PLEASE CONTACT AGENCY REGARDING CHANGES.

333-061-0032
Treatment Requirements and Performance Standards

Table 8
Bin Classification Table for Filtered Systems

Mean *Cryptosporidium* concentration[1]	Bin Classification
< 0.075 *Cryptosporidium* oocysts/L, including water systems serving fewer than 10,000 people and not required to monitor for *Cryptosporidium* under OAR 333-061-0036(5)(e)(A).	Bin 1
0.075 oocyst/L to < 1.0 oocysts/L	Bin 2
≥ 1.0 oocysts/L to < 3.0 oocysts/L	Bin 3
≥ 3.0 *Cryptosporidium* oocysts/L	Bin 4

[1]Based on calculations as prescribed by paragraphs (4)(f)(A) through (E) of this rule, as applicable.

Table 9
Additional *Cryptosporidium* Treatment Requirements:

Bin Classification	Type of Filtration Treatment			
	Conventional Filtration	Direct Filtration	Slow Sand or Diatomaceous Earth Filtration	Alternative Filtration Technologies
1	No additional Treatment	No additional Treatment	No additional Treatment	No additional Treatment
2	1-log treatment	1.5-log treatment	1-log treatment	[1]
3	2-log treatment	2.5-log treatment	2-log treatment	[2]
4	2.5-log treatment	3-log treatment	2.5-log treatment	[3]

[1] As determined by the Authority such that the total *Cryptosporidium* removal and inactivation is at least 4.0-log.
[2] As determined by the Authority such that the total *Cryptosporidium* removal and inactivation is at least 5.0-log.
[3] As determined by the Authority such that the total *Cryptosporidium* removal and inactivation is at least 5.5-log.

Table 10
Modified Scoring of Microscopic Particulate Analyses

Indicators of Surface Water, Oregon Modified Scoring (counted per 100 gal. water)					
Diatoms		Other Algae		Insects / Larvae	
Abundance	Risk Score	Abundance	Risk Score	Abundance	Risk Score
1-10	6	1-20	4	1-15	3
11-16	7	21-32	5	16-22	4
17-22	8	33-48	6	23-30	5
23-28	9	49-64	7	31-65	6
29-34	10	65-80	8	66-99	7
35-40	11	81-95	9	100-130	8
41-100	12	96-160	10	>130	9
101-149	13	161-220	11		
150-200	14	221-299	12		
201-250	15	300-360	13		
>251	16	>360	14		

EPA Consensus Method Scoring (counted per 100 gal. water)							
Giardia		Coccidia		Rotifers		Plant Debris	
Abundance	Risk Score	Abundance	Risk Score	Abundance	Risk Score	Abundance	Risk Score
1-5	20	1-5	20	1-20	1	1-25	0
6-15	25	6-15	25	21-60	2	26-70	1
16-30	30	16-30	30	61-149	3	71-200	2
>30	40	>30	35	>150	4	>200	3

Table 11
Step 1 Required Removal (in percent) of TOC by Enhanced Coagulation and Enhanced Softening for Systems Using Conventional Treatment[1,2]

Source-water TOC, mg/L	Source-water alkalinity, mg/L as $CaCO_3$		
	0-60	61-120	>120[3]
>2.0-4.0	35.0	25.0	15.0
>4.0-8.0	45.0	35.0	25.0
>8.0	50.0	40.0	30.0

[1] Systems meeting at least one of the conditions in subparagraphs (d)(A)(i)-(vi) of this section are not required to operate with enhanced coagulation.

[2] Softening systems meeting one of the alternative compliance criteria in paragraph (d)(B) of this section are not required to operate with enhanced softening.

[3] Systems practicing softening must meet the TOC removal requirements in this column.

Table 12
Enhanced Coagulation Step 2 Target pH

Alkalinity (mg/L as $CaCO_3$)	Target pH
0-60	5.5
>60-120	6.3
>120-240	7.0
>240	7.5

Table 13
Microbial Toolbox Options

Toolbox Option	*Crypto* treatment credit with design and implementation criteria summary
Source Protection and Management Toolbox Options	
Watershed Control Program	0.5-log credit for Authority approved program including the required elements, an annual program status report to the Authority, and regular watershed surveys. Specific criteria are in subsection (14)(a) of this rule.
Alternative source/intake management	No prescribed credit. Systems must conduct simultaneous monitoring for treatment bin classification at alternative intake locations or using alternative intake management strategies. Specific criteria are in subsection (14)(b) of this rule.
Pre Filtration Toolbox Options	
Presedimentation basin with coagulation	0.5-log credit during any month that presedimentation basins achieve a monthly mean 0.5-log or greater reduction of turbidity, or alternative Authority approved performance criteria. To be eligible, basins must be operated continuously with coagulant addition and all plant flow must pass through the basins. Specific criteria are in subsection (15)(a) of this rule.
Two-stage lime softening	0.5-log credit for two-stage softening where chemical addition and hardness precipitation occur in both stages. All plant flow must pass through both stages. Single-stage softening is credited as equivalent to conventional treatment. Specific criteria are in subsection (15)(b) of this rule.
Bank filtration	0.5-log credit for 25-foot setback; 1.0-log credit for 50-foot setback; aquifer must be unconsolidated sand containing at least 10 percent fines; average turbidity in wells must be less than 1 NTU. Water systems using wells followed by filtration must sample at the well to determine bin classification when conducting source water monitoring, and are not eligible for additional credit. Specific criteria are in subsection (15)(c) of this rule.
Treatment Performance Toolbox Options	
Combined filter performance	0.5-log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each month. Specific criteria are in subsection (16)(a) of this rule.

Individual filter performance	0.5-log credit if individual filter effluent turbidity is less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3 NTU in two consecutive measurements in any filter. This credit is cumulative to the 0.5-log combined filter performance credit. Specific criteria are in subsection (16)(b) of this rule.
Demonstration of performance	Credit awarded to unit process or treatment train based on a demonstration to the Authority with an Authority approved protocol. Specific criteria are in subsection (16)(c) of this rule.

Additional Filtration Toolbox Options

Bag or cartridge filters (individual filters)	Up to 2-log credit based on the removal efficiency demonstrated during challenge testing with a 1.0-log factor of safety. Specific criteria are in subsection (17)(a) of this rule.
Bag or cartridge filters (in series)	Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety. Specific criteria are in subsection (17)(a) of this rule.
Membrane filtration	Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing. Specific criteria are in subsection (17)(b) of this rule.
Second stage filtration	0.5-log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter. Specific criteria are in subsection (17)(c) of this rule.
Slow sand filters	2.5-log credit as a secondary filtration step; 3.0-log credit as a primary filtration process. No prior chlorination for either option. Specific criteria are in subsection (17)(d) of this rule.

Inactivation Toolbox Options

Chlorine dioxide	Log credit based on measured CT in relation to CT table. Specific criteria in OAR 333-061-0036(5)(c).
Ozone	Log credit based on measured CT in relation to CT table. Specific criteria in OAR 333-061-0036(5)(c).
UV	Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operating conditions. Specific criteria in OAR 333-061-0036(5)(c).

AMEND: 333-061-0036

RULE SUMMARY: Amend OAR 333-061-0036: The Sampling and Analytical Requirements rule will be amended to include rule text previously cited as a sanitary survey significant deficiency, a requirement for initial distribution system evaluation plans to be approved prior to the evaluation, and a change in the criteria needed to return coliform monitoring to a routine frequency at non-community water systems, including reformatting of Table 34 in this rule.

CHANGES TO RULE:

333-061-0036
Sampling and Analytical Requirements ¶

(1) General: ¶
(a) Samples required by these rules must be analyzed using United States Environmental Protection Agency (U.S. EPA) approved methods set forth in 40 CFR 141 by a laboratory accredited according to OAR chapter 333, division 064 and the Oregon Environmental Laboratory Accreditation Program (ORELAP). The laboratory must be certified to analyze drinking water samples using the specific method for the contaminant being analyzed. ¶
(A) The Oregon Health Authority (Authority) will only accept sample results that have been handled and documented according to ORELAP standards, except as prescribed by subsection (1)(i) of this rule. ¶
(B) Samples required by these rules must be collected after the water has been allowed to flow from the sample tap for a sufficient length of time to assure that the collected sample is representative of water in the distribution system or from the water source as applicable, except samples for lead or copper in tap water which must be collected as prescribed by subsection (10)(b) of this rule. ¶
(b) Accredited laboratories are considered either a primary or subcontracted laboratory as specified by paragraphs (1)(b)(A) and (B) of this rule. ¶
(A) A primary laboratory is the first accredited laboratory that receives a compliance sample for analysis, and is responsible for chain of custody documentation (if applicable), performing the analytical method on a compliance sample (if applicable), final report review, and submission of results to the water system and the Authority as specified in OAR 333-061-0040(1)(b)(B). Primary laboratories must hold primary or secondary ORELAP accreditation. ¶
(B) A subcontracted laboratory is an accredited laboratory that performs the analytical method on a compliance sample, and is responsible for sample analysis and result reporting to the primary laboratory as specified in OAR 333-061-0040(1)(b)(B). Subcontracted laboratories must hold ORELAP primary or secondary accreditation for the appropriate method(s). ¶
(c) Alternate Analytical Methods: ¶
(A) With the written permission of the Authority, and concurred in by the Administrator of the U.S. EPA, an alternate analytical method may be employed on the condition that it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with any maximum contaminant level (MCL); and ¶
(B) The use of the alternate analytical method shall not decrease the frequency of sampling required by these rules. ¶
(d) Monitoring at purchasing water systems: ¶
(A) When a public water system obtains its water, in whole or in part, from one or more public water systems, the monitoring requirements imposed by these rules on the purchasing water system may be modified by the Authority to the extent that the system supplying the water is in compliance with its source monitoring requirements. When a public water system supplies water to one or more other public water systems, the Authority may modify monitoring requirements imposed by this rule to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes. ¶
(B) Any modified monitoring shall be conducted pursuant to a schedule specified by the Authority and concurred in by the Administrator of the U.S. EPA. ¶
(e) Water suppliers shall monitor each water source individually for contaminants listed in OAR 333-061-0030, except for coliform bacteria, haloacetic acids (five) (HAA5s), total trihalomethanes (TTHMs) and corrosion by-products, at the entry point to the distribution system except as described below. Any such modified monitoring shall be conducted pursuant to a schedule prescribed by the Authority. ¶
(A) At water systems drawing water from more than one source and where sources are combined before distribution, water suppliers may be allowed to sample at an entry point to the distribution system during normal operating conditions, where justified, taking into account operational considerations, geologic and hydrologic conditions, and other factors. ¶
(B) If a water system draws water from multiple ground water sources which are not combined before

distribution, the water supplier may be allowed to sample at a representative source or sources, where justified, taking into account geologic and hydrogeologic conditions, land uses, well construction, and other factors.¶
(f) Compliance with MCLs shall be based on each sampling point as described in this section. If any point is determined to be out of compliance, the system shall be deemed out of compliance. If an entirely separated portion of a water system is out of compliance, then only that portion of the system shall be deemed out of compliance.¶
(g) The Authority may require additional sampling and analysis for the contaminants included in OAR 333-061-0030 when necessary to determine whether an unreasonable risk to health exists. The Authority may also require sampling and analysis for additional contaminants not included in OAR 333-061-0030 when necessary for public health protection.¶
(h) Water suppliers and their appointed representatives shall collect water samples from representative locations in the water system as prescribed in this rule and shall employ proper sampling procedures and techniques. Samples submitted to laboratories for analysis shall be clearly identified and shall include the name of the water system, public water system identification number, sampling date, and time, sample location identifying the sample tap and the name of the person collecting the sample.¶
(i) Measurements for turbidity, disinfectant residual, temperature, alkalinity, calcium, conductivity, chlorite, bromide, total organic carbon (TOC), specific ultraviolet absorption SUVA, dissolved organic carbon, UV254, orthophosphate, silica and pH may be performed on site using approved methods by individuals trained in sampling and testing techniques. Daily chlorite samples measured at the entrance to the distribution system must be performed by a party approved by the Authority.¶
(j) Nothing in these rules precludes the Authority or any of its duly authorized representatives from collecting samples and from using the results of such samples to determine compliance with applicable requirements of these rules.¶
(k) Wellfield Determination.¶
(A) At water systems possessing two or more wells that separately supply water to the distribution system, the Authority may consider those wells as a wellfield source for monitoring purposes provided the requirements of this rule are met. The Authority will determine whether the wellfield designation is appropriate based on information in a water system's source water assessment report.¶
(B) To be classified as a wellfield, wells must meet the following criteria:¶
(i) The wells must be within 2,500 feet of one another or as determined in a state approved hydrogeological study to minimize inter-well interference drawdowns. For wells located in a low-impact land use area, this criterion may be waived at the discretion of the Authority.¶
(ii) The wells must produce water from the same aquifer. This criterion is determined using source water assessment results, based on well reports, maps and other hydrogeological information.¶
(C) To be considered for wellfield designation, water suppliers must submit the following to the Authority:¶
(i) A schematic drawing showing all sources, entry points and relevant sample taps;¶
(ii) A map and description of the land use activities within the respective wellhead protection areas (WHPAs) (using the inventory section of the Source Water Assessment Report); and¶
(iii) A description of the pumping patterns.¶
(D) If a water system's wells are considered to comprise a wellfield, the susceptibility analysis conducted during the source water assessment is utilized to determine the sampling point(s). Table 14 summarizes the alternatives.¶
(E) To determine the most susceptible well, the area within the two-year time-of-travel (TOT~~)~~ is considered). The Authority will consider the potential contaminant source inventory determined during the source water assessment, the aquifer sensitivity as defined in OAR 333-061-0050, pumping patterns and other pertinent hydrogeological information.¶
(F) The Authority may still designate more than one entry point within the wellfield as a sampling point if well construction or land use practices warrant. For a large area containing numerous wells, sub-wellfields may be identified, each with its own sample site designation.¶
(2) Inorganic chemicals.¶
(a) ~~A~~antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium and thallium.¶
(A) Sampling at water systems for regulated inorganic chemicals shall be conducted as follows:¶
(i) At community and non-transient non-community (NTNC) water systems using surface water or groundwater under the direct influence of surface water (GWUDI) sources solely or in combination with groundwater sources, water suppliers must monitor at each point in the distribution system representative of each source after treatment or at entry points to the distribution system after any application of treatment. Initial monitoring must be conducted annually at each sampling point. Samples must be collected at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.¶

(ii) At community and NTNC water systems using groundwater sources, water suppliers must monitor at each point in the distribution system representative of each source after treatment or at entry points to the distribution system representative of each source after any application of treatment. Monitoring must be conducted once every three years at each sampling point. Samples must be collected at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.¶
(iii) At new transient non-community (TNC) ~~and state regulated~~ water systems or existing TNC ~~and state regulated~~ water systems with new sources, water suppliers must monitor once for arsenic. Samples must be collected at the entry points to the distribution system representative of each source after any application of treatment.¶
(iv) If a system draws water from more than one source and the sources are combined before distribution, samples must be collected at an entry point to the distribution system during periods of normal operating conditions when water is representative of all the sources being used.¶
(v) Monitoring after the installation of arsenic treatment.¶
(I) At water systems where centralized treatment is approved to reduce concentrations of arsenic, water suppliers must monitor for arsenic at least once every calendar quarter according to paragraph (2)(a)(B) of this rule. Monitoring may be reduced to one sample per year after monitoring results are below the MCL for arsenic for at least four consecutive calendar quarters. Monitoring may not be reduced to less frequently than once per year.¶
(II) At water systems where point-of-use (POU) treatment is approved to reduce concentrations of arsenic, water suppliers must monitor for arsenic once at every device, immediately after installation, followed by monitoring at one-third of the POU devices every calendar quarter, such that monitoring is conducted at every POU device at least once within three calendar quarters. If both the initial and quarterly monitoring results for every POU device are below the MCL for arsenic, monitoring may be reduced to at least one sample collected at one-third of the POU devices every year. Water suppliers must monitor every POU device at least once every three years. If monitoring at any POU device exceeds the MCL for arsenic, the water supplier must monitor at every POU device within 90 days. Monitoring must be increased to once every calendar quarter for at least one year at any POU device where the MCL was exceeded.¶
(vi) At water systems with two or more wells that have been determined to constitute a wellfield as specified in subsection (1)(k) of this rule, the Authority may approve monitoring at those entry point(s) determined to represent water quality throughout the wellfield.¶
(B) At water systems where samples exceed a MCL identified in OAR 333-061-0030, water suppliers must monitor quarterly beginning in the next calendar quarter after the sample result exceeded the MCL. The Authority may decrease the quarterly monitoring requirement to the frequencies prescribed in paragraph (2)(a)(A) of this rule when the Authority determines that sample results are reliably and consistently below the MCL. Before such a decrease is permitted for a groundwater system, water suppliers must collect at least two quarterly samples or a minimum of four quarterly samples at water systems supplied by a surface water source.¶
(C) Water suppliers may apply to the Authority for a waiver from the monitoring frequencies specified in paragraph (2)(a)(A) of this rule on the condition that at least one sample is collected while the waiver is effective and the effective period for the waiver shall not exceed one nine-year compliance cycle.¶
(i) The Authority may grant a waiver provided water suppliers have monitored annually for at least three years at water systems supplied by surface water sources or have conducted a minimum of three rounds of monitoring (at least one sample shall have been collected since January 1, 1990) at water systems supplied by groundwater sources, and all analytical results are less than the MCLs prescribed in OAR 333-061-0030 for inorganic chemicals. At water systems with a new water source, a waiver may not be granted until three rounds of monitoring from the new source have been completed.¶
(ii) Waivers granted by the Authority shall be in writing and shall set forth the basis for the determination. The Authority shall review and revise, where appropriate, its determination of the appropriate monitoring frequency when the water supplier submits new monitoring data or where other data relevant to the appropriate monitoring frequency at the water system becomes available. In determining the appropriate reduced monitoring frequency, the Authority shall consider the reported concentrations from all previous monitoring; the degree of variation in reported concentrations; and other factors which may affect concentrations such as changes in groundwater pumping rates, changes in water system configuration, changes in operating procedures, or changes in stream flows or characteristics.¶
(D) The Authority may allow compositing of samples from a maximum of five sampling points, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory. Composite samples must be analyzed within 14 days of collection. If the concentration in the composite sample is equal to or greater than one-fifth of the MCL of any inorganic chemical listed in section (2) of this rule, then a follow-up sample must be taken for the contaminants which exceeded one-fifth of the MCL within 14 days of sample validation by the laboratory, at each sampling point included in the composite. If duplicates of the original sample taken from each sampling point used in the composite are available, the water

supplier may use these instead of resampling. The duplicates must be analyzed and the results reported to the Authority within 14 days of collection. For a water system serving more than 3,300 people, only samples from that water system may be composited. For water systems serving 3,300 people or less, samples from multiple water systems may be composited if the five sample limit is maintained. ¶
(E) At new water systems or systems that use a new source of water, water suppliers must demonstrate compliance with the MCL within a period of time specified by the Authority. The water supplier must also comply with the initial sampling frequencies specified by the Authority to demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted according to the requirements in this section. ¶
(b) Asbestos: ¶
(A) At community and NTNC water systems regardless of source, sampling must be conducted for Asbestos at least once during the initial three-year compliance period of each nine-year compliance cycle unless a waiver is granted by the Authority according to paragraph (2)(b)(B) of this rule. ¶
(B) The Authority may grant a waiver from the monitoring prescribed by paragraph (2)(b)(A) of this rule if a water system is determined not to be vulnerable to either asbestos contamination in its source water or due to corrosion of asbestos-cement pipe, or both. If granted, the water supplier will not be required to monitor while the waiver remains in effect. A waiver remains in effect until the completion of the three-year compliance period. ¶
(C) At water systems vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe, one sample must be collected at a tap served by the asbestos-cement pipe under conditions where asbestos contamination is most likely to occur. ¶
(D) At water systems vulnerable to asbestos contamination due solely to asbestos in source water shall, one sample must be collected at the entry point to the distribution system after any treatment. ¶
(E) A system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur. ¶
(F) If a sample result exceeds the MCL for asbestos as prescribed in subsection (2)(h) of this rule, the water supplier shall monitor quarterly beginning in the next quarter after the violation occurred. If the Authority determines that the sample results are reliably and consistently below the MCL based on a minimum of two quarterly samples for groundwater systems or a minimum of four quarterly samples for water systems using surface water sources, the monitoring may be returned to the frequency prescribed in paragraph (2)(b)(A) of this rule. ¶
(c) Nitrate:¶
(A) At community and NTNC water systems using surface water or GWUDI sources, water suppliers must monitor nitrate every calendar quarter at each point in the distribution system representative of each source after treatment or at entry points to the distribution system after any application of treatment. The Authority may allow a water supplier to reduce the sampling frequency to annually provided that all analytical results from four consecutive quarters are less than 50 percent of the MCL. At surface water systems, monitoring shall return to quarterly if nitrate in any one sample is 50 percent of the MCL or greater. ¶
(B) At community and NTNC water systems using groundwater sources, water suppliers must monitor nitrate annually at each point in the distribution system representative of each source after treatment or at entry points to the distribution system after any application of treatment. The Authority shall require quarterly monitoring for a least one year following any one sample in which the concentration of nitrate is 50 percent of the MCL or greater. Monitoring may return to annual after four consecutive quarterly samples are found to be reliably and consistently below the MCL. ¶
(C) At TNC ~~and state regulated~~ water systems, water suppliers must monitor nitrate annually at each point in the distribution system representative of each source after treatment or at entry points to the distribution system after any application of treatment. At TNC water systems, water suppliers must monitor quarterly for at least one year following any one sample in which the concentration of nitrate is 50 percent of the MCL or greater. Monitoring may return to annual after four consecutive quarterly samples are found to be reliably and consistently below the MCL.¶
(D) After the initial round of quarterly sampling is completed at community and NTNC water systems where monitoring is annually, water suppliers must collect subsequent samples during the quarter(s) which previously resulted in the highest analytical result.¶
(d) Nitrite: ¶
(A) At community, NTNC, and TNC water systems, water suppliers must collect one sample for nitrite at each point in the distribution system representative of each source after treatment or at entry points to the distribution system after any application of treatment. ¶
(B) After the initial sample, at systems where analytical results for nitrite are <50 percent of the MCL, water suppliers must monitor once during each subsequent compliance period.¶
(C) Water suppliers must monitor every quarter for at least one year following any one sample in which the

concentration is e50 percent of the MCL. A water system may change to annual monitoring after four consecutive quarterly samples are found to be reliably and consistently below 50 percent of the MCL.¶
(D) At water systems where an analytical result e50 percent of the MCL, water suppliers may never monitor less frequently than annually. At systems where monitoring is annually, water suppliers must collect each subsequent sample during the quarter(s) which previously resulted in the highest analytical result.¶
(E) The Authority may grant a waiver from the monitoring frequency specified in paragraph (2)(d)(B) of this rule provided that water systems have conducted a minimum of three rounds of monitoring (at least one sample shall have been collected since January 1, 1993), and all analytical results are less than 50 percent of the MCL prescribed in OAR 333-061-0030. At water systems that have been granted a waiver, water suppliers must monitor once during each nine-year compliance cycle. Waivers must be granted as prescribed by subparagraph (2)(a)(C)(ii) of this rule.¶
(F) At water systems with two or more wells that have been determined to constitute a wellfield as specified in subsection (1)(k) of this rule, the Authority may approve monitoring at those entry point(s) determined to represent water quality throughout the wellfield.¶
(e) Sodium:¶
(A) Samples of water which is delivered to users shall be analyzed for sodium as follows:¶
(i) At community and NTNC water systems using surface water or GWUDI sources, water suppliers must monitor once per year for each source.¶
(ii) At community and NTNC water systems using groundwater sources, water suppliers must monitor once every three years for each source.¶
(B) The water supplier shall report to the Authority the results of the analyses for sodium as prescribed in OAR 333-061-0040. The Authority shall notify local health officials of the test results.¶
(f) Confirmation Samples:¶
(A) Where the results of sampling for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium or thallium exceed the MCL prescribed in OAR 333-061-0030 for inorganic chemicals, the Authority may require one additional sample to be collected as soon as possible after the initial sample was collected (but not to exceed two weeks) at the same sampling point.¶
(B) Where the results of sampling for nitrate or nitrite exceed the MCL prescribed in OAR 333-061-0030 for inorganic chemicals, water suppliers must collect one additional sample within 24 hours of notification of the results of the initial sample at the same sampling point. Water suppliers unable to comply with the 24-hr sampling requirement must initiate consultation with the Authority as soon as practical, but no later than 24 hours after learning of the violation and must immediately notify their users as prescribed in OAR 333-061-0042(2)(a)(B), and collect one additional sample within two weeks of notification of the results of the initial sample.¶
(C) If a confirmation sample required by the Authority is collected for any contaminant, the results of the initial and confirmation sample shall be averaged. The resultant average shall be used to determine the system's compliance as prescribed in subsection (2)(h) of this rule.¶
(g) The Authority may require more frequent monitoring than specified in subsections (2)(a) through (f) of this rule or may require confirmation samples for positive and negative results. Systems may apply to the Authority to conduct more frequent monitoring than is required in this section.¶
(h) Compliance with the inorganic MCLs as listed in OAR 333-061-0030(1) (Table 1) shall be determined based on the analytical result(s) obtained at each sampling point as follows:¶
(A) For water systems where the monitoring frequency is greater than annual, compliance with the MCLs for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium or thallium is determined by a running annual average (RAA) at any sampling point. If the average of sample results at any sampling point rounded to the same number of significant figures as the MCL for the substance in question is greater than the MCL, then the water system is out of compliance. If any single sample result would cause the annual average to be exceeded, then the system is out of compliance immediately. Any sample with results below the detection limit specified for the approved U.S. EPA analytical method shall be calculated at zero for the purpose of determining the annual average. If a water supplier fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.¶
(B) At water systems where monitoring is annual or less frequent for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium or thallium, water suppliers must begin quarterly sampling if the level of a contaminant at any sampling point is greater than the MCL listed in OAR 333-061-0030(1). The water supplier must then determine compliance with the MCL by RAA at the sampling point. The water system will not be considered in violation of the MCL until one year of quarterly monitoring is completed. If any sample result will cause the RAA to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately. If a water supplier fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.¶
(C) Compliance with MCLs for nitrate and nitrite is determined based on one sample if the levels of these

contaminants are below the MCLs. If the levels of nitrate or nitrite exceed the MCLs in the initial sample, a confirmation sample is required in accordance with paragraph (2)(f)(B) of this rule and compliance shall be determined based on the average of the initial and confirmation samples.¶
(D) If the results of an analysis as prescribed in this rule indicate the level of any contaminant exceeds the MCL, the water supplier shall report the analysis results to the Authority within 48 hours as prescribed in OAR 333-061-0040 and initiate the public notice procedures as prescribed by OAR 333-061-0042.¶
(E) A water system's RAA is calculated by averaging the analytical results for the current monitoring period and the previous monitoring periods within a one-year time frame. For water systems where monitoring is less frequently than quarterly, the first sample result that exceeds the MCL is considered to be the initial sample result for determination of the RAA. Multiple sample results within any monitoring period will be averaged and then rounded to the same number of significant figures as the MCL of the contaminant in question. For the purposes of calculating a RAA, a monitoring period may be a calendar month or calendar quarter.¶
(F) At water systems where POU treatment is approved to reduce concentrations of a chemical listed in subsection (2)(a) of this rule, compliance with the MCL for the water system is determined by RAA for each treatment device.¶
(3) Organic chemicals:¶
(a) At community and NTNC water systems, water suppliers must monitor according to this section for the following regulated synthetic organic chemicals (SOC): alachlor, atrazine, benzo(a)pyrene, carbofuran, chlordane, dalapon, dibromochloropropane, dinoseb, dioxin(2,3,7,8-TCDD), diquat, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, ~~e~~endothall, endrin, ethylene dibromide, glyphosate, heptachlor, heptachlor epoxide, hexachlorobenzene, hexachlorocyclopentadiene, lindane(BHC-g), methoxychlor, oxamyl(Vydate), picloram, polychlorinated biphenyls, pentachlorophenol, simazine, toxaphene, 2,4-D and 2,4,5-TP silvex.¶
(A) Initial sampling.¶
(i) At sampling points served by surface water or GWUDI sources, samples must be collected at each point in the distribution system representative of each source after treatment or at entry points to the distribution system after any application of treatment. At least four consecutive quarterly samples must be collected at each sampling point during each compliance period. Samples must be collected from the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.¶
(ii) At sampling points served by groundwater sources only, samples must be collected at every entry point to the distribution system after any application of treatment. Samples must be collected annually for three consecutive years at each sampling point during each compliance period. Samples must be collected from the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. New wells in an existing wellfield, within an existing drinking water protection area (DWPA), or within an area well characterized by area-wide source water assessments or past monitoring results as determined by the Authority, may be eligible for a reduction in initial monitoring from three consecutive annual samples to one sample if no detections occur and if, based on the system's source water assessment, the Authority determines that the new well is producing from the same and only the same aquifer or does not significantly modify the existing DWPA.¶
(iii) If a system draws water from more than one source and sources are combined before distribution, samples must be collected at an entry point to the distribution system during periods of normal operating conditions when water is representative of all the sources being used.¶
(iv) At water systems with two or more wells that have been determined to constitute a wellfield as specified in subsection (1)(k) of this rule, sampling may be reduced to only those entry points designated by the Authority.¶
(B) If the initial analyses as specified in subparagraphs (3)(a)(A)(i) or (ii) of this rule does not detect any contaminant listed in subsection (3)(a) of this rule, then monitoring at each sampling point should be conducted as follows:¶
(i) At water systems serving more than 3,300 people, two quarterly samples in the same calendar year during each repeat 3-year compliance period; or¶
(ii) At systems serving 3,300 people or less, one sample in each repeat 3-year compliance period.¶
(C) Water suppliers may apply to the Authority for a waiver from the monitoring frequencies specified in subparagraphs (3)(a)(A)(i) or (ii) or paragraph (3)(a)(B) of this rule. If the Authority determines there was no previous use of a contaminant within a watershed or zone of influence, a waiver may be granted. If the Authority determines that a contaminant was used previously or the use of a contaminant is unknown then the factors specified in subparagraph (3)(a)(C)(iii) of this rule shall determine whether a waiver is granted. A waiver must be in place prior to the year in which the monitoring is to be conducted. Water suppliers must reapply for a waiver for each compliance period. Regardless of waiver status, monitoring must occur at the minimum frequencies specified in subparagraph (3)(a)(C)(v) or (vi) of this rule.¶
(i) The DWPA delineated during the source water assessment must be used according to Authority procedures and guidance.¶
(ii) For waivers based on the use of a contaminant, the criteria considered by the Authority includes but is not

limited to the use, storage, distribution, transport and disposal of the contaminant within the delineated recharge or watershed area.¶
(iii) For waivers based on susceptibility to contamination, the criteria considered by the Authority includes but is not limited to the history of bacteria or nitrate contamination, well construction, agricultural management practices, infiltration potential, contaminant mobility and persistence, previous analytical results, the proximity of the system to a potential point or non-point source of contamination, and use of polychlorinated biphenyls (PCBs) in equipment used in the production, distribution, or storage of water.¶
(iv) The Authority may establish area-wide waivers based on historical monitoring data, land use activity, and the results of source water assessments or waivers based on use or susceptibility.¶
(v) Monitoring must be conducted at least once every six years for all SOCs if an Authority approved drinking water protection plan exists for the water system.¶
(vi) Monitoring must be conducted at least once every nine years for those SOCs not used within the DWPA if no Authority approved drinking water protection plan exists for a water system. Monitoring must be conducted at least once every six years or once every nine years as determined by the Authority, for those SOCs used within the DWPA based upon SOC chemical characteristics, aquifer characteristics and well construction.¶
(D) If a contaminant listed in subsection (3)(a) of this rule is detected at a water system equal to or greater than the minimum detection limit listed in Table 15, then the water supplier shall monitor quarterly at each sampling point where a detection occurred. If a contaminant is detected at a concentration greater than the MCL, monitoring must be conducted as prescribed by paragraph (3)(a)(E) of this rule. ¶
(i) The Authority may reduce the monitoring frequency required by paragraph (3)(a)(D) of this rule to annually if at least two quarterly samples for groundwater sources or four quarterly samples for surface water sources are reliably and consistently below the MCL. Annual monitoring according to this subparagraph must be conducted during the quarter that previously yielded the highest analytical result.¶
(ii) At systems where three consecutive annual samples are collected with no detection of a contaminant, water suppliers may apply to the Authority for a waiver. Monitoring may not be reduced to less often than annually except upon receipt of a waiver granted by the Authority.¶
(iii) If monitoring required by paragraphs (3)(a)(A) through (D) of this rule results in the detection of either heptachlor or heptachlor epoxide, then subsequent monitoring shall analyze for both contaminants.¶
(E) If a contaminant listed in subsection (3)(a) of this rule is detected at a concentration greater than the MCL, then the water supplier must monitor quarterly. After a minimum of four quarterly samples, if results are reliably and consistently below the MCL and in compliance with paragraph (3)(a)(H) of this rule, then the water supplier may monitor annually.¶
(F) The Authority may require confirmation samples for positive or negative results. If a confirmation sample is required by the Authority, the result must be averaged with the original sample result (unless the previous sample has been invalidated by the Authority) and the average used to determine compliance.¶
(G) The Authority may allow compositing of samples to reduce the number of samples to be analyzed at a water system. Composite samples from a maximum of five sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be conducted in the laboratory and analyzed within 14 days of sample collections. If the concentration in the composite sample detects one or more contaminants listed in subsection (3)(a) of this rule, then a follow-up sample must be collected and analyzed within 14 days at each sampling point included in the composite, and be analyzed for that contaminant. Duplicates collected for the original composite samples may be used instead of re-sampling provided the duplicates are analyzed and the results reported to the Authority within 14 days of collection. For water systems serving more than 3,300 people, the Authority may allow compositing at sampling points only within a single system. For systems serving 3,300 people or less, the Authority may allow compositing among different systems, provided the 5-sample limit is maintained.¶
(H) Compliance with the MCL for contaminants listed in OAR 333-061-0030(2)(a) shall be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the water system is in violation of the MCL. At water systems where monitoring is more than once per year, compliance with the MCL is determined by a RAA at each sampling point. At systems where annual or less frequent monitoring takes place, if sample results exceed the regulatory detection limit prescribed in paragraph (3)(a)(D) of this rule (Table 15), monitoring must be increased to quarterly. A water system will not be considered in violation of the MCL until one year of quarterly monitoring is completed. If any single sample result will cause the RAA to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately. If a water supplier fails to collect the required number of samples, compliance will be based on the total number of samples collected. If a sample result is less than the detection limit, zero will be used to calculate the annual average. If the system is out of compliance, the system shall follow the reporting and public notification procedures as prescribed in OAR 333-061-0040 and 333-061-0042(2)(b)(A).¶
(I) The RAA for a contaminant is calculated by averaging the analytical results for the current monitoring period

and the previous monitoring periods within a one-year time frame. For water systems where monitoring is less frequent than quarterly, the first sample result that exceeds the detection limit or MCL is considered to be the initial sampling result for determination of the RAA. Multiple sample results within any monitoring period will be averaged and then rounded to the same number of significant figures as the MCL for the contaminant in question. For the purposes of calculating a RAA, a monitoring period may be a calendar month or calendar quarter. Special samples, as described by paragraph (1)(h)(C) of this rule, will not be included in the calculation of the RAA at a water system.¶
(J) At new water systems or systems where a new source of water is added, water suppliers must demonstrate compliance with the MCL within a period of time specified by the Authority. The water supplier must also comply with the initial sampling frequencies specified by the Authority to demonstrate compliance with the MCL.¶
(b) Water suppliers responsible for community and NTNC water systems must conduct monitoring according to this section for the following regulated volatile organic chemicals (VOCs): benzene, carbon tetrachloride, cis-1,2-dichloroethylene, dichloromethane, ethylbenzene, monochlorobenzene, o-dichlorobenzene, p-dichlorobenzene, styrene, tetrachloroethylene(PCE), toluene, trans-1,2-dichloroethylene, trichloroethylene(TCE), vinyl chloride, xylenes(total), 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,2-dichloroethane, 1,2-dichloropropane, and 1,2,4-trichlorobenzene.¶
(A) Initial monitoring:¶
(i) At sampling points served by surface water or GWUDI sources, samples must be collected at each point in the distribution system representative of each source after treatment or at entry points to the distribution system after any application of treatment. At least four consecutive quarterly samples must be collected at each sampling point during each compliance period. Samples must be collected from the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.¶
(ii) At sampling points served by groundwater sources only, samples must be collected at every entry point to the distribution system after any application of treatment. Samples must be collected annually for three consecutive years at each sampling point during each compliance period. Samples must be collected from the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. New wells in an existing wellfield, within an existing DWPA, or within an area well characterized by area-wide source water assessments or past monitoring results as determined by the Authority, may be eligible for a reduction in initial monitoring from three consecutive annual samples to one sample if no detections occur and if, based on the system's source water assessment, the Authority determines that the new well is producing from the same and only the same aquifer or does not significantly modify the existing DWPA.¶
(iii) The Authority may designate additional sampling points within the distribution system or at the consumer's tap which more accurately determines consumer exposure to VOCs.¶
(iv) If a water system draws water from more than one source and the sources are combined before distribution, the samples must be collected at entry points to the distribution system during periods of normal operating conditions when water is representative of all sources being used.¶
(v) A water system with two or more wells that have been determined to constitute a wellfield as specified in subsection (1)(k) of this rule may reduce sampling to only those entry point(s) designated by the Authority.¶
(B) If the initial analyses conducted according to subparagraphs (3)(b)(A)(i) or (ii) of this rule do not detect any contaminant listed in subsection (3)(b) of this rule, then monitoring for all of the VOCs should be conducted as follows:¶
(i) For sampling points served by surface water or GWUDI sources, one sample every year per entry point; or¶
(ii) For sampling points served only by groundwater sources, one sample every three years per entry point.¶
(C) Water suppliers may apply to the Authority for a waiver from the monitoring frequencies specified in paragraph (3)(b)(B) of this rule. Waivers will be granted according to the criteria and procedures specified in subparagraphs (3)(a)(C)(i) through (vi) of this rule if the Authority determines there were no detections of any contaminant listed in subsection (3)(b) of this rule and if an Authority approved drinking water protection plan exists for the water system or for those VOCs used within a portion of the DWPA that the Authority has determined is not susceptible to VOC contamination.¶
(i) Waivers granted for monitoring at groundwater systems shall be effective for no more than six years.¶
(I) Waivers must be in place prior to the year in which monitoring is to be conducted, and water suppliers must reapply for a waiver from VOC monitoring every two compliance periods (six years).¶
(II) As a condition of a waiver, water suppliers must collect one sample at each sampling point during the time the waiver is in effect and update the vulnerability assessment for the water system addressing those factors listed in subparagraphs (3)(a)(C)(ii) and (iii) of this rule. The Authority must be able to confirm that a system is not susceptible within three years of the original determination, and every time the vulnerability assessment is updated, or the waiver is invalidated and monitoring must be conducted as specified in paragraph (3)(b)(B) of this rule.¶
(ii) At water systems using surface water that have been determined not to be vulnerable to VOC contamination

by the Authority, monitoring must be conducted at the frequency prescribed by the Authority. Water suppliers must update the vulnerability assessment for such water systems during each compliance period and submit the vulnerability assessment to the Authority regardless of the frequency of monitoring.¶
(iii) The Authority may establish area-wide waivers based on historical monitoring data, land use activity, the results of source water assessments or waivers granted for use of VOCs or susceptibility to VOC contamination.¶
(D) If a contaminant listed in subsection (3)(b) of this rule (except vinyl chloride) is detected in any sample at a concentration greater than the minimum detection limit of 0.0005 mg/l, then the water supplier shall monitor quarterly at each sampling point where a detection occurred except as provided in subparagraph (3)(b)(D)(i) of this rule.¶
(i) The Authority may reduce the monitoring frequency specified in this paragraph to annually if results for the water system are reliably and consistently below the MCL for at least two quarters for sample points served only by groundwater sources and four quarters for sample points served by surface water or GWUDI sources.¶
(I) For annual monitoring, samples must be collected during the quarter that previously yielded the highest analytical result.¶
(II) If a contaminant is detected at a concentration greater than 0.0005 mg/l but below the MCL in one of the annual samples as prescribed by subparagraph (3)(b)(D)(i) of this rule, the water supplier must monitor at the frequency specified by the Authority but in no case less frequently than annually.¶
(ii) At water systems or sampling points where three consecutive annual samples are collected with no detection of a contaminant, water suppliers may apply to the Authority for a waiver. Monitoring may not be reduced to less often than annually except upon by a waiver granted by the Authority.¶
(iii) At water systems using groundwater sources where one or more of the following two-carbon organic compounds was detected: trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene or 1,1-dichloroethylene, the water supplier shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be collected at each sampling point at which one or more of the two-carbon organic compounds was detected. If the results of the first analysis do not detect vinyl chloride, the Authority may reduce the quarterly monitoring frequency of vinyl chloride monitoring to one sample during each compliance period. Water suppliers responsible for surface water systems are required to monitor for vinyl chloride at the discretion of the Authority.¶
(E) If a contaminant listed in subsection (3)(b) of this rule is detected at a concentration greater than the MCL, then the water supplier must monitor quarterly. After a minimum of four consecutive quarterly samples, if results are reliably and consistently below the MCL and in compliance with paragraph (3)(b)(H) of this rule, then the water supplier may monitor annually. Annual samples must be collected during the quarter which previously yielded the highest analytical result.¶
(F) The Authority may require confirmation samples for positive or negative results. If a confirmation sample is required by the Authority, the result must be averaged with the original sample result and the average used to determine compliance.¶
(G) The Authority may allow compositing of samples to reduce the number of samples to be analyzed by the system. Composite samples from a maximum of five sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be conducted in the laboratory and samples must be analyzed within 14 days of sample collections. If the concentration in the composite sample is 0.0005 mg/l or greater for any contaminant listed in subsection (3)(b) of this rule, then a follow-up sample must be collected and analyzed within 14 days at each sampling point included in the composite and be analyzed for that contaminant. Duplicates collected for the original composite samples may be used instead of resampling provided the duplicates are analyzed and the results reported to the Authority within 14 days of collection. For water systems serving a population greater than 3,300 people, the Authority may allow compositing at sampling points only within a single water system. For water systems serving population of 3,300 people or less, the Authority may allow compositing among different water systems provided the 5-sample limit is maintained.¶
(H) Compliance with contaminants listed in OAR 333-061-0030(2)(c) shall be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the water system is in violation of the MCL. For systems where monitoring is more than once per year, compliance with the MCL is determined by a RAA at each sampling point. At systems where annual or less frequent monitoring takes place, if sample results exceed the MCL, monitoring must be increased to quarterly. The system will not be considered in violation of the MCL until at least one year of quarterly sampling is completed. If any single sample result will cause the running annual average to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately. If a water supplier fails to collect the required number of samples, compliance will be based on the total number of samples collected. If a sample result is less than the detection limit, zero will be used to calculate the annual average. If the water system is out of compliance, the water supplier shall follow the reporting and public notification procedures as prescribed in 333-061-0040 and 333-061-0042(2)(b)(A).¶

(I) The RAA for a contaminant is calculated by averaging the analytical results for the current monitoring period and the previous monitoring periods within a one-year time frame. For water systems where monitoring is less frequent than quarterly, the first sample result that exceeds the detection limit or MCL is considered to be the initial sampling result for determination of the RAA. Multiple sample results within any monitoring period will be averaged and then rounded to the same number of significant figures as the MCL for the contaminant in question. For the purposes of calculating a RAA, a monitoring period may be a calendar month or calendar quarter. Special samples, as described by paragraph (1)(h)(C) of this rule, will not be included in the calculation of the running annual average at a water system.¶
(J) At new water systems or water systems using a new source of water, water suppliers must demonstrate compliance with the MCL within a period of time specified by the Authority. The water supplier must also comply with the initial sampling frequencies specified by the Authority to demonstrate compliance with the MCL.¶
(4) Disinfectant Residuals, Disinfection Byproducts, and Disinfection Byproduct Precursors.¶
(a) General sampling and analytical requirements. The requirements of this section apply to all community and NTNC water systems where a disinfectant (oxidant) is added to the water supply at any point in the treatment process or deliver water in which a disinfectant (oxidant) has been added to the water supply except that compliance with paragraph (4)(i)(B) is required at TNCs where chlorine dioxide is used as a disinfectant or oxidant. ¶
(A) Water suppliers must collect all samples during normal operating conditions.¶
(B) Failure to monitor in accordance with the monitoring plan as specified in paragraph (4)(c)(B) of this rule is a monitoring violation.¶
(C) Failure to monitor will be treated as a violation for the entire period covered by the annual average where compliance is based on a RAA of monthly or quarterly samples or averages and where a water supplier's failure to monitor makes it impossible to determine compliance with MCLs or maximum residual disinfectant levels (MRDLs).¶
(D) Water suppliers may use only data collected under the provisions of this rule to qualify for reduced monitoring.¶
(E) All samples collected and analyzed under the provisions of section (4) of this rule must be included in determining compliance, even if that number is greater than the minimum required.¶
(b) Initial Distribution System Evaluation (IDSE) Requirements. This subsection establishes monitoring and other requirements for identifying monitoring locations which, in conjunction with the requirements of subsections (4)(c) and (4)(d) of this rule, determine compliance with the MCLs for TTHM and HAA5 as specified in OAR 333-061-0030. Water suppliers for NTNC water systems serving less than 10,000 people are exempt from the requirements of this subsection. ¶
(A) Water suppliers that begin adding a disinfectant to ~~a water system must complete an~~the drinking water supply at a water system must submit a schedule to the Authority for approval which identifies when the water supplier will submit a plan for either standard monitoring or a system specific study as described in paragraphs (4)(b)(B) or (C) of this rule. Upon approval by the Authority of the schedule and plan, water suppliers must complete the IDSE by conducting either the standard monitoring or a system specific study as described in the plan. Water suppliers must consult with the Authority after completing the IDSE to identify compliance monitoring locations prior to developing a monitoring plan as prescribed in paragraph (4)(c)(B) of this rule that includes monitoring locations identified through the IDSE process. Samples collected to conduct an IDSE will not be used for the purpose of determining compliance with MCLs as prescribed by OAR 333-061-0030(2)(b).¶
(B) Standard monitoring.¶
(i) Standard monitoring plans must include the elements specified in sub-subparagraphs (4)(b)(B)(i)(I) through (III) of this rule:¶
(I) A schematic of the distribution system (including distribution system water sources, entry points, and storage facilities), with notes indicating the locations and dates of all projected standard monitoring;¶
(II) An explanation of standard monitoring location selection, and a summary of data relied on to justify the selection; and¶
(III) The population served and source water classification for the water system.¶
(ii) Water suppliers must monitor as indicated in Table 16. Water suppliers must collect dual sample sets at each monitoring location, and at least one round of monitoring must be conducted during the peak historical month for TTHM or HAA5 levels, or during the month of warmest water temperature. Water suppliers must review available compliance, study, or operational data to determine the peak historical month for TTHM or HAA5 levels or the month of warmest water temperature.¶
(iii) Samples must be collected at locations spread throughout the distribution system.¶
(iv) If the number of entry points to the distribution system is fewer than the number of entry point monitoring locations specified in Table 16, excess entry point samples must be replaced equally by samples collected at locations where you would expect to find high TTHM and HAA5 concentration. If there is an odd number of excess

sampling locations, the additional sample must be collected at a location where you would expect to find high TTHM concentration. If the number of entry points to the distribution system is greater than the number of entry point monitoring locations specified in Table 16, the samples must be collected at entry points having the highest annual water flows.¶
(v) Monitoring in accordance with Table 16 may not be reduced according to the provisions of subsection (1)(d) of this rule.¶
(vi) IDSE report. Water suppliers must submit an IDSE report to the Authority within 90 days of completing standard monitoring that includes the following elements:¶
(I) All TTHM and HAA5 analytical results collected according to this rule, and all standard monitoring analytical results collected during the period of the IDSE as individual analytical results and a locational running annual average (LRAA) presented in a format acceptable to the Authority. If changed from the standard monitoring plan prescribed by subparagraph (4)(b)(B)(i) of this rule, the report must also include a schematic of the distribution system, the population served, and the source water type.¶
(II) An explanation of any deviations from the approved standard monitoring plan.¶
(III) Recommended times and locations for the compliance monitoring required by subsections (4)(c) and (4)(d) of this rule, based on the protocol prescribed by subparagraph (4)(b)(D)(iii) of this rule, including an explanation for why the locations were selected.¶
(C) System Specific Study. A system specific study must be based on modeling as prescribed by subparagraph (4)(b)(C)(i) of this rule.¶
(i) Modeling. Water suppliers may conduct analysis of an extended period simulation hydraulic model. The hydraulic model and analysis must meet the following criteria: ¶
(I) The model must simulate a 24-hour variation in demand and show a consistently repeating 24-hour pattern of residence time;¶
(II) The model must represent the following criteria: (1) 75 percent of pipe volume; (2) 50 percent of pipe length; (3) all pressure zones; (4) all 12-inch diameter and larger pipes; (5) all 8-inch and larger pipes that connect pressure zones, influence zones from different sources, storage facilities, major demand areas, pumps, and control valves, or are known or expected to be significant conveyors of water; (6) all 6-inch and larger pipes that connect remote areas of a distribution system to the main portion of the system; (7) all storage facilities with standard operations represented in the model; and (8) all active pump stations with controls represented in the model; and (9) all active control valves; and¶
(III) The model must be calibrated, or have calibration plans for the current configuration of the distribution system during the period of highest TTHM formation potential. All storage facilities must be evaluated as part of the calibration process. Calibration must be completed no later than 12-months after submission of the system specific study plan.¶
(IV) Reporting modeling. The system specific study plan must include: (1) tabular or spreadsheet data demonstrating that the model meets requirements in sub-subparagraph (C)(i)(II) of this section; (2) a description of all calibration activities undertaken, and if calibration is complete, a graph of predicted tank levels versus measured tank levels for the storage facility with the highest residence time in each pressure zone, and a time series graph of the residence time at the longest residence time storage facility in the distribution system showing the predictions for the entire simulation period (that is, from time zero until the time it takes to for the model to reach a consistently repeating pattern of residence time); (3) model output showing preliminary 24 hour average residence time predictions throughout the distribution system; (4) timing and number of samples representative of the distribution system planned for at least one monitoring period of TTHM and HAA5 dual sample monitoring at a number of locations no less than would be required for the system under standard monitoring in paragraph (4)(b)(B) of this rule during the historical month of high TTHM; (5) description of how all requirements will be completed no later than 12 months after system submits the system specific study plan; (6) schematic of the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating the locations and dates of all completed system specific study monitoring (if calibration is complete) and all compliance monitoring conducted in accordance with this rule; and (7) population served and system type (surface water, groundwater under the direct influence of surface water, or groundwater).¶
(V) If a model is submitted that does not meet the requirements of subparagraph (4)(b)(C)(i) of this rule, the system must correct the deficiencies and respond to Authority inquiries concerning the model. Failure to correct deficiencies or respond to inquiries by the Authority will result in the system having to conduct standard monitoring as prescribed by paragraph (4)(b)(B) of this rule.¶
(ii) IDSE report. Water suppliers must submit the IDSE report to the Authority within 90 days of completing the system specific study, and the report must include the following elements: ¶
(I) The IDSE report must include all system specific study monitoring results collected during the period of the system specific study submitted in a tabular or spreadsheet format acceptable to the Authority. If changed from the system specific study plan submitted under paragraph (4)(b)(C) of this rule, the IDSE report must also include a

schematic of the distribution system, the population served, and source water classification;¶
(II) If using the modeling provision prescribed by sub-subparagraph (4)(b)(C)(i) of this rule, the water supplier must include final information for the elements described in ~~sub-~~subparagraphs (4)(b)(C)(i)(IV) and (V) of this rule, and a 24-hour time series graph of residence time for each location selected for monitoring in accordance with subsections (4)(c) and (4)(d) of this rule;¶
(III) The water supplier must recommend monitoring locations selected for monitoring in accordance with subsections (4)(c) and (4)(d) of this rule based on the protocol in paragraph (4)(b)(D) of this rule. It must also recommend and justify the timing of the monitoring to be conducted at these monitoring locations.¶
(IV) The IDSE report must include an explanation of any deviations from the approved system specific study plan.¶
(V) The IDSE report must include the analytical and modeling results, and the justification for recommending the monitoring locations selected for monitoring in accordance with subsections (4)(c) and (4)(d) of this rule.¶
(D) Monitoring location recommendations.¶
(i) The IDSE report must include recommendations and explanation for where and during what month(s) TTHM and HAA5 monitoring in accordance with subsections (4)(c) and (4)(d) of this rule should be conducted. Recommendations must be based on the criteria in subparagraphs (4)(b)(D)(ii) through (v) of this rule.¶
(ii) Water suppliers must collect samples as prescribed by Table 17. The number of samples and recommended locations must be used for monitoring in accordance with subsections (4)(c) and (4)(d) of this rule, unless the Authority requires different or additional locations. Monitoring locations should be dispersed throughout the distribution system to the maximum extent possible.¶
(iii) Water suppliers must recommend locations for monitoring in accordance with subsections (4)(c) and (4)(d) of this rule based on standard monitoring results or system specific study results. Water suppliers must comply with the protocol specified in sub-subparagraphs (4)(b)(D)(iii)(I) through (VI) of this rule. If a water system is required to monitor at more than six locations, the protocol must be repeated as necessary. Water systems must select the:¶
(I) Location with the highest TTHM LRAA not previously selected through this protocol;¶
(II) Location with the highest HAA5 LRAA not previously selected through this protocol;¶
(III) Location with the highest TTHM LRAA not previously selected through this protocol;¶
(IV) Location with the highest TTHM LRAA not previously selected through this protocol;¶
(V) Location with the highest HAA5 LRAA not previously selected through this protocol; and¶
(VI) Location with the highest HAA5 LRAA not previously selected through this protocol.¶
(iv) A water supplier may recommend locations other than those determined through subparagraph (4)(b)(D)(iii) of this rule, if the system includes a rationale for selecting other locations. If the Authority approves the alternate locations, the water system must monitor at these locations to determine compliance with subsections (4)(c) and (4)(d) of this rule.¶
(v) The water system's recommended monitoring schedule must include the month of historically highest TTHM and HAA5 concentration, unless the Authority approves another month. Once the highest historical month has been identified, and if quarterly or more frequent routine monitoring is required, water systems must schedule monitoring at a regular frequency of at least every 90 days.¶
(c) Monitoring requirements for TTHM and HAA5:¶
(A) Routine Monitoring Frequency. At water systems for which an IDSE report was submitted, samples must be collected at the locations and during the months recommended in the IDSE report as prescribed by paragraph (4)(b)(D) of this rule, unless the Authority requires other or additional locations after its review. At NTNC water systems serving less than 10,000 people and for water systems granted a waiver by the U.S. EPA exempting the water supplier from completing an IDSE, samples must be collected at the location(s) and dates identified in the monitoring plan developed as prescribed in paragraph (4)(c)(B) of this rule. Samples must be collected at no fewer than the number of locations identified in Table 18.¶
(B) A monitoring plan must be developed for every water system where monitoring is required according to this subsection and must be maintained and made available for inspection by the Authority and the general public.¶
(i) The monitoring plan must include the following elements:¶
(I) Monitoring locations;¶
(II) Monitoring dates; and¶
(III) Compliance calculation procedures.¶
(ii) For water systems where an IDSE report was not required as prescribed in paragraphs (4)(b)(B) or (4)(b)(C) of this rule the monitoring plan must identify the required number of monitoring locations for monitoring in accordance with subsections (4)(c) and (4)(d) of this rule. Water suppliers must identify the locations by alternating the selection of locations representing high TTHM levels and high HAA5 levels until the required number of monitoring locations have been identified. Water suppliers must also provide a rationale for identifying the locations as having high levels of TTHM or HAA5.¶
(iii) For water systems using surface water or GWUDI sources serving more than 3,300 people, a copy of the monitoring plan must be submitted to the Authority prior to the date the water supplier conducts initial

monitoring according to this subsection, unless the IDSE report submitted as prescribed in subsection (4)(b) of this rule contains all the information required in paragraph (4)(c)(B) of this rule.¶
(iv) Revisions to monitoring plans. Water suppliers may revise monitoring plans to reflect changes in treatment, distribution system operations, layout (including new service areas), or other factors that may affect TTHM or HAA5 formation, including Authority-approved reasons, after consultation with the Authority regarding the need and justification for the revision. If monitoring locations are changed, then water systems must replace existing monitoring locations with the lowest LRAA with new locations that reflect current distribution system locations expected to have high TTHM or HAA5 levels. The Authority may require modifications in monitoring plans. Surface water or groundwater under the direct influence of surface water systems serving > 3,300 people must submit a copy of their modified monitoring plan to the Authority prior to the date required to comply with the revised monitoring plan.¶
(C) A water system monitoring for TTHM or HAA5 in accordance with subsections (4)(c), (4)(d) or (4)(e) of this rule is in violation of the MCL specified in OAR 333-061-0030(2)(b) when the LRAA calculation at any monitoring location exceeds the MCL based on four consecutive quarters of monitoring (or fewer than four quarters of monitoring if the MCL would be exceeded regardless of monitoring results in subsequent quarters). A water system is in violation of the monitoring requirements every quarter that a monitoring result would be used in calculating an LRAA if the system fails to monitor.¶
(D) Compliance calculations and determinations. For water systems where quarterly monitoring is required, water suppliers must make compliance calculations at the end of every calendar quarter beginning with the fourth quarter of the initial monitoring period. The LRAA must be calculated prior to the fourth quarter if fewer than four quarters of data would cause the MCL to be exceeded, regardless of the monitoring results in subsequent quarters. Water suppliers required to conduct monitoring at a frequency less than quarterly must make compliance calculations every time samples are collected.¶
(i) Water suppliers must calculate the LRAA for TTHM and HAA5 to determine that each LRAA does not exceed the MCL listed in OAR 333-061-0030(2)(b) for water systems where quarterly monitoring is required. Water suppliers that fail to complete four consecutive quarters of monitoring must calculate the LRAA based on the available data from the most recent four quarters. Water suppliers that collect more than one sample per quarter at a specific monitoring location must average all samples collected in the quarter for that location to determine a quarterly average to be used in the LRAA calculation.¶
(ii) For water systems where monitoring is yearly or less frequent, water suppliers must determine that each sample collected is less than the MCL listed in OAR 333-061-0030(2)(b). If any sample exceeds the MCL, the water system must comply with the requirements of subsection (4)(e) of this rule. If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.¶
(iii) A water supplier required to conduct quarterly monitoring at a water system is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if monitor is not conducted.¶
(d) Reduced monitoring. Water suppliers may reduce monitoring to the frequency specified in Table 19 any time the LRAA is d0.040 mg/L for TTHM and d0.030 mg/L for HAA5 at all monitoring locations.¶
(A) Water suppliers may only use data collected under the provisions of subsections (4)(c) and (4)(d) of this rule to qualify for reduced monitoring. In addition, the annual source water average TOC level, before any treatment, must be less than or equal to 4.0 mg/L at each plant treating surface water or groundwater under the direct influence of surface water, based on monitoring conducted as prescribed in paragraph (4)(d)(D) and subsection (4)(k) of this rule.¶
(B) Water suppliers may remain on reduced monitoring so long as:¶
(i) The LRAA for water systems conducting quarterly monitoring is less than or equal to 0.040 mg/L for TTHM and less than or equal to 0.030 mg/L for HAA5 at each monitoring location; or¶
(ii) Samples collected by water systems conducting annual or less frequent monitoring are less than or equal to 0.060 mg/L for TTHM and less than or equal to 0.045 mg/L for HAA5.¶
(C) Water suppliers must resume routine monitoring as prescribed in subsection (4)(c) of this rule, or begin increased monitoring as prescribed in subsection (4)(e) of this rule if:¶
(i) The LRAA based on quarterly monitoring exceeds 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 at any monitoring location; or¶
(ii) A sample collected at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5 when the monitoring frequency is annual or less frequent; or¶
(iii) The average annual source water TOC level, before any treatment, is greater than 4.0 mg/L at any treatment plant treating surface water or groundwater under the direct influence of surface water.¶
(D) Monitoring requirements for source water TOC. For water systems using surface water or GWUDI sources, TOC samples must be collected every 30 days at a location prior to any treatment in order to qualify for reduced TTHM and HAA5 monitoring as prescribed by this subsection, unless the water system is monitoring as prescribed

by subsection (4)(k) of this rule. To remain on reduced monitoring, and in addition to meeting other criteria for reduced monitoring, the source water TOC running annual average must be d4.0 mg/L, based on the most recent four quarters of monitoring, on a continuing basis at a location prior to any treatment. Once qualified for reduced monitoring as prescribed by this subsection, a water system may reduce source water TOC monitoring to quarterly TOC samples collected every 90 days at a location prior to any treatment.¶
(E) A water system may be returned to routine monitoring at the Authority's discretion.¶
(e) Increased Monitoring:¶
(A) At water systems where annual or less frequent monitoring is required according to subsections (4)(c) or (4)(d) of this rule, monitoring must be increased to dual sample sets collected every 90 days at all locations if a TTHM or HAA5 sample exceeds the MCL at any location.¶
(B) At water systems where increased monitoring is conducted according to paragraph (4)(e)(A) of this rule, samples must be collected at the monitoring locations specified in the monitoring plan developed according to paragraph (4)(c)(B) of this rule.¶
(C) Monitoring may be returned to routine if at least four consecutive quarters of increased monitoring has been conducted and the LRAA for every monitoring location is less than or equal to 0.060 mg/L for TTHM and 0.045 mg/L for HAA5.¶
(f) Operational Evaluation Levels:¶
(A) The Operational evaluation level for TTHM or HAA5 has been exceeded at a monitoring location when the sum of the two previous quarters' sample results plus twice the current quarter's sample result, divided by 4, exceeds the MCL.¶
(B) Operational evaluation and report.¶
(i) At water systems where the operational evaluation level for either TTHM or HAA5 is exceeded, water suppliers must conduct an operational evaluation and submit a written report of the evaluation to the Authority no later than 90 days after being notified of the analytical result that causes the system to exceed the operational evaluation level. The written report must be made available to the public upon request.¶
(ii) Operational evaluations must include an examination of the water system's treatment and distribution practices, including but not limited to: storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation. The examination must also include what steps could be considered to minimize future exceedances.¶
(I) The Authority may allow water suppliers to limit the scope of the evaluation if the water supplier is able to identify the cause of the operational evaluation level exceedance.¶
(II) The request to limit the scope of the evaluation does not extend the schedule specified in subparagraph (4)(f)(B)(i) of this rule for submitting the written report. The Authority must approve this limited scope of evaluation in writing, and the water system must keep that approval with the completed report.¶
(g) Chlorite monitoring and compliance for community and NTNC water systems where chlorine dioxide is used for disinfection or oxidation.¶
(A) Routine monitoring.¶
(i) Daily monitoring. Samples must be collected every day at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the water supplier must collect additional samples in the distribution system the following day at the locations required by paragraph (4)(g)(B) of this rule, in addition to the sample required at the entrance to the distribution system.¶
(ii) Monthly monitoring. A three-sample set must be collected every month in the distribution system. The water supplier must collect one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three sample sets, at the specified locations). The water supplier may use the results of additional monitoring conducted under paragraph (4)(g)(B) of this rule to meet the requirement for monitoring in this paragraph.¶
(B) Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the water supplier is required to collect three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).¶
(C) Reduced monitoring.¶
(i) Chlorite monitoring at the entrance to the distribution system required by subparagraph (4)(g)(A)(i) of this rule may not be reduced.¶
(ii) Chlorite monitoring in the distribution system required by subparagraph (4)(g)(A)(ii) of this rule may be reduced to one three sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under subparagraph (4)(g)(A)(ii) of this rule has exceeded the chlorite MCL and

the system has not been required to conduct monitoring under paragraph (4)(g)(B) of this rule. The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under subparagraph (4)(g)(A)(ii) of this rule exceeds the chlorite MCL or the system is required to conduct monitoring under paragraph (4)(g)(B) of this rule, at which time the system must revert to routine monitoring. ¶
(D) Compliance must be based on an arithmetic average of each three-sample set taken in the distribution system as required by subparagraph (4)(g)(A)(ii) of this rule and paragraph (4)(g)(B) of this rule. If the arithmetic average of any three-sample set exceeds the MCL, the water system is in violation of the MCL and must notify the public as required by OAR 333-061-0042(2)(b)(A), in addition to reporting to the Authority as required by OAR 333-061-0040. ¶
(h) Bromate monitoring and compliance for water systems where ozone is used for disinfection or oxidation.¶
(A) Routine monitoring. One sample must be collected every month for each treatment plant in the water system using ozone. Water suppliers must collect samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions. ¶
(B) Reduced monitoring. Bromate monitoring may be reduced from monthly to quarterly if the bromate concentration is less than or equal to 0.0025 mg/L as a running annual average based on monthly bromate measurements for the most recent four quarters. Water suppliers may continue reduced monitoring as long as the running annual average of quarterly bromate samples is less than or equal to 0.0025 mg/L. If the running annual average bromate concentration is >0.0025 mg/L, the water supplier must resume routine monitoring as required by paragraph (4)(h)(A) of this rule. ¶
(C) Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples collected during the month) collected by the water supplier as required by this subsection. If the average of samples covering any consecutive four quarter period exceeds the MCL, the water system is in violation of the MCL and must notify the public as required by OAR 333-061-0042(2)(b)(A), in addition to reporting to the Authority as required by OAR 333-061-0040. If a water supplier fails to complete 12 consecutive months monitoring, compliance with the MCL for the last four quarter compliance period must be based on an average of the available data. ¶
(i) Monitoring and compliance requirements for disinfectant residuals.¶
(A) Chlorine and chloramines. ¶
(i) Routine monitoring. At water systems where chlorine or chloramines are used, water suppliers must measure the residual disinfectant level at the same points in the distribution system and at the same time when total coliforms are sampled as specified in OAR 333-061-0036(6). At water systems where surface water or GWUDI sources are used, results of residual disinfectant concentration sampling conducted as required by OAR 333-061-0036(5)(a)(F) for unfiltered systems or OAR 333-061-0036(5)(b)(E) for systems which filter, may be used in lieu of collecting separate samples. Compliance with this rule is achieved when the running annual average of monthly averages of samples collected in the distribution system, computed quarterly, is less than or equal to the MRDL. Operators may increase residual disinfectant levels of chlorine or chloramine (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health in order to address specific microbiological contaminant problems resulting from events in the source water or in the distribution system. ¶
(ii) Reduced monitoring from subparagraph (4)(i)(A)(i) of this rule is not allowed. ¶
(iii) Compliance requirements for chlorine and chloramines. ¶
(I) Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the water supplier as required by paragraph (4)(i)(A) of this rule. If the average covering any consecutive four quarter period exceeds the MRDL, the MRDL is exceeded and the water supplier must notify the public as required by OAR 333-061-0042(2)(b)(A), in addition to reporting to the Authority as required by OAR 333-061-0040.¶
(II) In cases where water suppliers switch between the use of chlorine and chloramines for residual disinfection at a water system during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted as required by OAR 333-061-0040(1) must clearly indicate which residual disinfectant was analyzed for each sample.¶
(B) Chlorine dioxide. ¶
(i) Routine monitoring. At water systems where chlorine dioxide is used for disinfection or oxidation, water suppliers must collect daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the water supplier must collect samples in the distribution system the following day at the locations required by subparagraph (4)(i)(B)(ii) of this rule, in addition to the sample required at the entrance to the distribution system. Compliance with this rule is achieved when daily samples are taken at the entrance to the distribution system and no two consecutive daily samples exceed the MRDL. ¶
(ii) Additional monitoring. On each day following a routine sample monitoring result that exceeds the MRDL, the water supplier is required to collect three chlorine dioxide distribution system samples. If chlorine dioxide or

chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (that is, no booster chlorination), the water supplier must collect three samples as close to the first customer as possible, at intervals of at least six hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (that is, booster chlorination), the water supplier must collect one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).¶
(iii) Chlorine dioxide monitoring may not be reduced from subparagraph (4)(i)(B)(ii) of this rule.¶
(iv) Compliance requirements for chlorine dioxide.¶
(I) Acute violations. Compliance must be based on consecutive daily samples collected by the water system as required by paragraph (4)(i)(B) of this rule. If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three samples taken in the distribution system exceed the MRDL, the water system is in violation of the MRDL and must take immediate corrective action to lower the level of chlorine dioxide below the MRDL and must notify the public pursuant to the procedures for acute health risks as required by OAR 333-061-0042(2)(a)(C) in addition to reporting to the Authority as required by OAR 333-061-0040. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the water system must notify the public of the violation in accordance with the provisions for acute violations as required by OAR 333-061-0042(2)(a)(C) in addition to reporting to the Authority as required by OAR 333-061-0040.¶
(II) Non-acute violations. Compliance must be based on consecutive daily samples collected by the system as required by paragraph (4)(i)(B) of this rule. If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the water system is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and will notify the public pursuant to the procedures for non-acute health risks specified by OAR 333-061-0042(2)(b)(A), in addition to reporting to the Authority as required by OAR 333-061-0040. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the water system must notify the public of the violation in accordance with the provisions for non-acute violations specified by OAR 333-061-0042(2)(b)(A) in addition to reporting to the Authority as required by OAR 333-061-0040.¶
(j) Additional requirements for purchasing water systems. Purchasing water systems that do not add a disinfectant but deliver water where a disinfectant (oxidant) has been added to the water supply at any point in the treatment process must comply with analytical and monitoring requirements for chlorine and chloramines as prescribed in subsection (4)(i) of this rule.¶
(k) Monitoring requirements for disinfection byproduct precursors (DBPP).¶
(A) Routine monitoring. At water systems where surface water or GWUDI sources are used and where conventional filtration treatment is used, monitoring must be conducted at each treatment plant for TOC no later than the point of combined filter effluent turbidity monitoring and representative of the treated water. Monitoring for TOC must be conducted in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is collected, all water suppliers must also measure alkalinity in the source water prior to any treatment. Water suppliers must collect one paired sample and one source water alkalinity sample per month per treatment plant at a time representative of normal operating conditions and influent water quality.¶
(B) Reduced monitoring. At water systems using surface water or GWUDI sources with an average treated water TOC of less than 2.0 mg/L for two consecutive years, or less than 1.0 mg/L for one year, monitoring may be reduced to one paired sample and one source water alkalinity sample per plant per quarter. The water system must revert to routine monitoring in the month following the quarter when the annual average treated water TOC is greater than or equal to 2.0 mg/L.¶
(C) Compliance must be determined as specified by OAR 333-061-0032(9)(e). Water suppliers may begin monitoring to determine whether Step 1 TOC removals can be met 12 months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any water system that does not monitor during this period, and then determines in the first 12 months after the compliance date that it is not able to meet the Step 1 requirements as specified in OAR 333-061-0032(9)(d)(B) and must therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed by OAR 333-061-0032(9)(d)(C) and is in violation. Water systems may apply for alternate minimum TOC removal (Step 2) requirements any time

after the compliance date. For systems required to meet step 1 TOC removals, if the value calculated under OAR 333-061-0032(9)(e)(A)(iv) is less than 1.00, the system is in violation of the treatment technique requirements and must notify the public pursuant to OAR 333-061-0042(2)(b)(A), in addition to reporting to the Authority pursuant to OAR 333-061-0040.¶
(l) Disinfection Profiling and Disinfection Benchmarking. For any community, NTNC, or TNC utilizing surface water or GWUDI sources where a significant change to the disinfection treatment process as defined by OAR 333-061-0060(1)(e)(A) through (1)(e)(D) is proposed, the water supplier must conduct disinfection profiling and benchmarking for Giardia lamblia and viruses. For any community or NTNC water system where surface water or GWUDI sources are used and where the running annual average greater than or equal to 0.064 mg/l for TTHM or 0.048 mg/l for HAA5, the water supplier must conduct disinfection profiling for Giardia lamblia.¶
(A) For water systems serving at least 10,000 people, water suppliers must conduct the disinfection profiling in accordance with the U.S. EPA Disinfection Profiling and Benchmarking Guidance Manual. The profile must be based on daily inactivation rate calculations over a period of 12 consecutive months. If chloramines, ozone, or chlorine dioxide is used as a primary disinfectant, the log inactivation for viruses must be calculated and an additional disinfection profile must be developed using a method approved by the Authority.¶
(B) At water systems serving less than 10,000 people, the disinfection profiling must be conducted in accordance with or the U.S. EPA LT1-ESWTR Disinfection Profiling and Benchmarking Technical Guidance Manual. The profile must be based on weekly inactivation rate calculations collected on the same calendar day over a period of 12 consecutive months. If chloramines, ozone, or chlorine dioxide are used as a primary disinfectant, the log inactivation for viruses must be calculated and an additional disinfection profile must be developed using a method approved by the Authority.¶
(C) At water systems using either a single or multiple points of disinfection, monitoring must be conducted according to the following parameters to determine total log inactivation for each disinfection segment:¶
(i) The temperature of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow;¶
(ii) The pH of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow for systems using chlorine;¶
(iii) The disinfectant contact time(s) ("T") during peak hourly flow; and¶
(iv) The residual disinfectant concentration(s) ("C") of the water before or at the first customer and prior to each additional point of disinfection during peak hourly flow.¶
(D) Water suppliers required to develop disinfection profiles as prescribed by OAR 333-061-0060(1)(e) must meet the requirements of subparagraphs (4)(l)(D)(i) through (iii) of this rule:¶
(i) Water systems must monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for Giardia lamblia and viruses. If water systems monitor more frequently, the monitoring frequency must be evenly spaced. Water systems that operate for fewer than 12 months per year must monitor weekly during the period of operation;¶
(ii) Water systems must determine log inactivation for Giardia lamblia through the entire plant, based on CT99.9 values in Tables 21 through 28 in OAR 333-061-0036(5) as applicable; and¶
(iii) Water systems must determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the Authority.¶
(E) Water suppliers must calculate the total inactivation ratio for Giardia lamblia as specified in this paragraph.¶
(i) Water systems using only one point of disinfectant application must determine the total inactivation ratio for the disinfection segment based on the methods specified in this paragraph.¶
(I) Water systems must determine one inactivation ratio (CTcalc/CT99.9) before or at the first customer during peak hourly flow; or¶
(II) Must determine successive (CTcalc/CT99.9) values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Water systems must calculate the total inactivation ratio by determining (CTcalc/CT99.9) for each sequence and then adding the (CTcalc/CT99.9) values together to determine (CTcalc/CT99.9).¶
(ii) For water systems where there is more than one point of disinfectant application before the first customer, water suppliers must determine the (CTcalc/CT99.9) value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The (CTcalc/CT99.9) value of each segment and (CTcalc/CT99.9) must be calculated using the method in sub-subparagraph (4)(l)(E)(i)(II) of this rule.¶
(iii) The system must determine the total log of inactivation by multiplying the value calculated in subparagraphs (4)(l)(E)(i) or (ii) of this rule by 3.0.¶
(F) In lieu of conducting new monitoring as prescribed by paragraph (4)(l)(C) of this rule, water suppliers may elect to meet the requirements of subparagraphs (4)(l)(F)(i) or (ii) of this rule as follows:¶
(i) For water systems that have at least one year of existing data that are substantially equivalent to data collected

in accordance with the provisions of this subsection may use these data to develop disinfection profiles as specified in this section if the water supplier has not made a significant change to treatment practices nor changed sources since the data were collected. Water suppliers may develop disinfection profiles using up to three years of existing data.¶
(ii) Water suppliers may use disinfection profile(s) developed as prescribed by this subsection in lieu of developing a new profile if the system has neither made a significant change to its treatment practice nor changed sources since the profile was developed. Water systems that have not developed a virus profile as prescribed by paragraph (4)(I)(G) of this rule must develop a virus profile using the same monitoring data on which the Giardia lamblia profile is based.¶
(G) Water suppliers must calculate the log of inactivation for viruses using a similar protocol as described in paragraph (4)(I)(D) of this rule, using a CT99.99 and a multiplication factor of 4.0.¶
(H) A water system subject to OAR 333-061-0060(1)(e) must calculate a disinfection benchmark using the procedures specified in subparagraphs (4)(I)(H)(i) and (ii) of this rule to calculate a disinfection benchmark.¶
(i) For each year of profiling data collected and calculated as prescribed by paragraphs (4)(I)(A) through (G) of this rule, systems must determine the lowest mean monthly level of both Giardia lamblia and virus inactivation. Water systems must determine the mean Giardia lamblia and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly Giardia lamblia and virus log inactivation by the number of values calculated for that month.¶
(ii) The disinfection benchmark is the lowest monthly mean value (for water systems with one year of profiling data) or the mean of the lowest monthly mean values (for water systems with more than one year of profiling data) of Giardia lamblia and virus log inactivation in each year of profiling data.¶
(I) Water systems must retain the disinfection profile data in graphic form, such as a spreadsheet, which must be available for review by the Authority as part of a sanitary survey or other field visit contact.¶
(5) Surface Water Treatment.¶
(a) At public water systems that use a surface water source that do not provide filtration treatment, water suppliers must monitor water quality as specified in this subsection. At water systems using GWUDI sources, the monitoring must begin no later than 6 months after the Authority identified the source as being GWUDI.¶
(A) Fecal coliform or total coliform density measurements as required by OAR 333-061-0032(2)(a)(A) must be performed on representative source water samples immediately prior to the first or only point of disinfectant application. The system must sample for fecal or total coliforms at the minimum frequency shown in Table 20 each week the system serves water to the public. These samples must be collected on separate days. Also one fecal or total coliform density measurement must be made every day the system serves water to the public when the turbidity of the source water exceeds 1 nephelometric turbidity units (NTU) (these samples count towards the weekly coliform sampling requirement) unless the Authority determines that the system, for logistical reasons outside of its control, cannot have the sample analyzed within 30 hours of collection.¶
(B) Turbidity measurements to determine compliance with OAR 333-061-0030(3)(a) must be performed on representative grab samples of source water immediately prior to the first or only point of disinfectant application every four hours (or more frequently) that the system serves water to the public. A public water system may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by the Authority. Systems using continuous turbidity monitoring must report the turbidity data to the Authority in the same manner that grab sample results are reported. The Authority will furnish report forms upon request.¶
(C) The total inactivation ratio for each day that the system is in operation must be determined based on the CT99.9 values in Tables 21 through 28. The parameters necessary to determine the total inactivation ratio must be monitored as follows:¶
(i) The temperature of the disinfected water must be measured at least once per day at each residual disinfectant concentration sampling point.¶
(ii) If the system uses chlorine, the pH of the disinfected water must be measured at least once per day at each chlorine residual disinfectant concentration sampling point.¶
(iii) The disinfectant contact time(s) ("T") in minutes must be determined for each day during peak hourly flow.¶
(iv) The residual disinfectant concentration(s) ("C") in mg/l before or at the first customer must be measured each day during peak hourly flow.¶
(v) If a system uses a disinfectant other than chlorine or ultraviolet light (UV), the system may demonstrate to the Authority, through the use of protocol approved by the Authority for on-site disinfection challenge studies or other information satisfactory to the Authority, that CT99.9 values other than those specified in the Tables 27 and 28 or other operational parameters are adequate to demonstrate that the system is achieving the minimum inactivation rates required by OAR 333-061-0032(3)(a).¶
(D) The total inactivation ratio must be calculated as follows:¶
(i) If the system uses only one point of disinfectant application, the system may determine the total inactivation

ratio based on either of the following two methods: ¶
(I) One inactivation ratio (CTcalc/CTrequired) is determined before or at the first customer during peak hourly flow and if the CTcalc/CTrequired is greater than or equal to 1.0, the Giardia lamblia inactivation requirement has been achieved; or¶
(II) Successive CTcalc/CTrequired values representing sequential inactivation ratios, are determined between the point of disinfection application and a point before or at the first customer during peak hourly flow. Under this alternative, the following method must be used to calculate the total inactivation ratio:¶
Step 1: Determine CTcalc/CTrequired for each sequence.¶
Step 2: Add the CTcalc/CTrequired values together.¶
Step 3: If the sum of successive CTcalc/CTrequired values is greater than or equal to 1.0, the Giardia lamblia inactivation requirement has been achieved.¶
(ii) If the system uses more than one point of disinfectant application before or at the first customer, the system must determine the CT value of each disinfection sequence immediately prior to the next point of disinfectant application during peak hourly flow. The CTcalc/CTrequired value of each sequence and CTcalc/CTrequired must be calculated using the methods in ~~sub-~~subparagraph (5)(a)(D)(i)(II) of this rule to determine if the system is in compliance with OAR 333-061-0032(3)(a) or (5)(a). ¶
(E) The residual disinfectant concentration of the water entering the distribution system must be monitored continuously, and the lowest value must be recorded each day. Water systems serving more than 3,300 people must have an auto-dial alarm or auto-shutoff for low chlorine when chlorine is used as a disinfectant. If there is a failure in the continuous monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment, and systems serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies prescribed in Table 29. The day's samples cannot be taken at the same time. The sampling intervals are subject to Authority review and approval. If at any time the residual disinfectant concentration falls below 0.2 mg/l in a system using grab sampling in lieu of continuous monitoring, the system must take a grab sample every four hours until the residual disinfectant concentration is > 0.2 mg/l.¶
(F) The residual disinfectant concentration must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled as specified in section (6) of this rule, except that the Authority may allow a public water system which uses both a surface water source or a groundwater source under the direct influence of surface water, and a groundwater source, to take disinfectant residual samples at points other than the total coliform sampling points if the Authority determines that such points are more representative of treated (disinfected) water quality within the distribution system. ¶
(b) A public water system that uses a surface water source or a groundwater source under the direct influence of surface water that does provide filtration treatment must monitor water quality as specified in this subsection when filtration treatment is installed.¶
(A) Turbidity: ¶
(i) Turbidity measurements as required by section OAR 333-061-0032(4) must be performed on representative samples of the system's filtered water, measured prior to any storage, every four hours (or more frequently) that the system serves water to the public. A public water system may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by the Authority.¶
(ii) Calibration of all turbidimeters must be performed according to manufacturer's specifications, but no less frequently than quarterly.¶
(iii) ~~W~~At water systems using conventional filtration, water suppliers must measure settled water turbidity every day.¶
(iv) Water systems using conventional or direct filtration must conduct turbidity profiles for individual filters every calendar quarter.¶
(v) Water systems using conventional or direct filtration without an operator onsite during treatment operations must have an auto-dial alarm or auto-shutoff for high turbidity.¶
(vi) For any systems using slow sand filtration or filtration treatment other than conventional treatment, direct filtration, or diatomaceous earth filtration, the Authority may reduce the sampling frequency to once per day if it determines that less frequent monitoring is sufficient to indicate effective filtration performance.¶
(vii) Systems using lime softening may acidify representative samples prior to analysis using a method approved by the Authority. ¶
(B) The actual CT value achieved must be calculated each day the treatment plant is in operation. The parameters necessary to determine the actual CT value must be monitored as follows: ¶
(i) The temperature of the disinfected water must be measured at least once per day at each residual disinfectant concentration sampling point as prescribed in subparagraph (5)(b)(B)(iv) of this rule.¶
(ii) If the system uses chlorine, the pH of the disinfected water must be measured at least once per day at each

chlorine residual disinfectant concentration sampling point.¶
(iii) The disinfectant contact time(s) ("T") in minutes must be determined for each day during peak hourly flow, based on results of a tracer study conducted according to OAR 333-061-0050(6)(a)(R), or other method approved by the Authority.¶
(iv) The residual disinfectant concentration(s) ("C") in mg/l before or at the first customer must be measured each day during peak hourly flow.¶
(v) If a system uses a disinfectant other than chlorine, the system may demonstrate to the Authority, through the use of protocol approved by the Authority for on-site disinfection challenge studies or other information satisfactory to the Authority, or other operational parameters are adequate to demonstrate that the system is achieving the minimum inactivation rates required by OAR 333-061-0032(5)(a).¶
(C) The inactivation ratio calculations as prescribed in paragraph (5)(a)(D) of this rule.¶
(D) Monitoring for the residual disinfectant concentration entering the distribution system shall be performed as prescribed in paragraph (5)(a)(E) of this rule.¶
(E) Monitoring for the residual disinfectant concentration in the distribution system shall be performed as prescribed in paragraph (5)(a)(F) of this rule.¶
(F) Water systems using membrane filtration must perform direct integrity testing on each filter canister at least daily, per OAR 333-061-0036(5)(d)(B).¶
(G) Water systems using cartridge filtration must maintain pressure gages before and after each filter, and water suppliers must replace filters according to the manufacturer's recommended pressure differential.¶
(c) Inactivation credit for water systems using a disinfectant other than chlorine for pathogen inactivation.¶
(A) Calculation of CT values.¶
(i) CT is the product of the disinfectant concentration (C, in milligrams per liter) and actual disinfectant contact time (T, in minutes). Systems with treatment credit for chlorine dioxide or ozone as prescribed by paragraphs (5)(c)(B) or (C) of this rule must calculate CT at least once per day, with both C and T measured during peak hourly flow as specified in paragraph (5)(b)(B) of this rule.¶
(ii) Systems with several disinfection segments in sequence must calculate CT for each segment where treatment credit is sought, where a disinfection segment is defined as a treatment unit process with a measurable disinfectant residual level and a liquid volume. If using this approach, water systems must add the Cryptosporidium CT values in each segment to determine the total CT for the treatment plant.¶
(B) CT values for chlorine dioxide and ozone.¶
(i) Systems receive the Cryptosporidium treatment credit listed in Table 30 by meeting the corresponding chlorine dioxide CT value for the applicable water temperature, as described in paragraph (5)(c)(A) of this rule.¶
(ii) Systems receive the Cryptosporidium treatment credit listed in Table 31 by meeting the corresponding ozone CT values for the applicable water temperature, as described in paragraph (5)(c)(A) of this rule.¶
(C) Site-specific study. The Authority may approve alternative chlorine dioxide or ozone CT values to those listed in Table 30 or Table 31 on a site-specific basis. The Authority must base this approval on a site-specific study conducted by a water system that follows an Authority approved protocol.¶
(D) Ultraviolet light. Systems receive Cryptosporidium, Giardia lamblia, and virus treatment credits for ultraviolet light (UV) reactors by achieving the corresponding UV dose values shown in subparagraph (5)(c)(D)(i) of this rule. Systems must validate and monitor UV reactors as described in OAR 333-061-0050(5)(k) and subparagraphs (5)(c)(D)(ii) and (iii) of this rule to demonstrate that they are achieving a particular UV dose value for treatment credit.¶
(i) UV dose table. The treatment credits listed in this table are for UV light at a wavelength of 254 nm as produced by a low pressure mercury vapor lamp. To receive treatment credit for other lamp types, systems must demonstrate an equivalent germicidal dose through reactor validation testing as specified in OAR 333-061-0050(5)(k). The UV dose values in Table 32 are applicable to post-filter applications of UV in filtered water systems, unfiltered water systems, and groundwater systems required to disinfect as prescribed by OAR 333-061-0032(6).¶
(ii) Water suppliers must monitor UV reactors according to this subparagraph.¶
(I) UV reactors must be monitored continuously to determine if the reactors are operating within validated conditions, as prescribed by OAR 333-061-0050(5)(k)(I)(i), including but not limited to UV intensity as measured by a UV sensor, flow rate, lamp status, and other parameters the Authority designates based on UV reactor operation.¶
(II) UV transmittance must be monitored based on the validation method for the UV reactor.¶
(III) The calibration of UV sensors must be verified at least once every month and sensors must be recalibrated according to the U.S. EPA UV Disinfection Guidance Manual as necessary.¶
(iii) Water suppliers must monitor the percentage of water delivered to the public that was treated within validated conditions for the required UV dose. It is a violation of this rule if less than 95 percent of water delivered within a calendar month was treated to within validated conditions, and a Tier 2 public notice must be issued as

prescribed by OAR 333-061-0042(3)(b). ¶
(d) Requirements for individual filter effluent turbidity monitoring.¶
(A) At water systems where conventional or direct filtration treatment is used for surface water or GWUDI sources, continuous turbidity monitoring must be conducted for each individual filter. ¶
(i) Water suppliers must calibrate turbidimeters using the procedure specified by the manufacturer.¶
(ii) Individual filter monitoring results must be recorded every 15 minutes. ¶
(iii) If there is a failure in the continuous turbidity monitoring equipment, the water supplier must conduct grab sampling every four hours until the continuous turbidity monitoring equipment is repaired and returned to service.¶
(I) At water systems serving at least 10,000 people, continuous turbidity monitoring equipment must be repaired within five working days.¶
(II) At water systems serving less than 10,000 people, continuous turbidity monitoring equipment must be repaired within 14 days.¶
(iv) If a water system's conventional or direct filtration treatment consists of two or fewer filters, continuous monitoring of the combined filter effluent turbidity may be substituted for continuous monitoring of individual filter effluent turbidity. For water systems serving less than 10,000 people, the recording and calibration requirements that apply to individual filters also apply when continuous monitoring of combined filter effluent turbidity is substituted for continuous monitoring of individual filter effluent turbidity. ¶
(B) Direct integrity testing for membrane filtration. Water systems must conduct direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded to the membrane filtration process, and that meets the requirements described in this paragraph. A direct integrity test is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches (that is, one or more leaks that could result in contamination of the filtrate). ¶
(i) The direct integrity test must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the water system for the purpose of integrity testing or other maintenance. ¶
(ii) The direct integrity method must have a resolution of three micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test. ¶
(iii) The direct integrity test must have a sensitivity sufficient to verify the log treatment credit awarded to the membrane filtration process by the Authority, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test. Sensitivity must be determined using the approach in either sub-subparagraphs (5)(d)(B)(iii)(I) or (II) of this rule as applicable to the type of direct integrity test the system uses. ¶
(I) For direct integrity tests that use an applied pressure or vacuum, the direct integrity test sensitivity must be calculated according to the following equation:¶
LRVDIT = LOG10 (Qp /(VCF x Qbreach)).¶
Where:¶
LRVDIT = the sensitivity of the direct integrity test;¶
Qp = total design filtrate flow from the membrane unit;¶
Qbreach = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured; and¶
VCF = volumetric concentration factor. The volumetric concentration factor is the ratio of the suspended solids concentration on the high pressure side of the membrane relative to that in the feed water.¶
(II) For direct integrity tests that use a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation:¶
LRVDIT = LOG10(Cf)-LOG10(Cp).¶
Where:¶
LRVDIT = the sensitivity of the direct integrity test;¶
Cf = the typical feed concentration of the marker used in the test; and¶
Cp = the filtrate concentration of the marker from an integral membrane unit.¶
(iv) Water systems must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the Authority. ¶
(v) If the result of a direct integrity test exceeds the control limit established under subparagraph (5)(d)(B)(iv) of this rule, the water system must remove the membrane unit from service. Water systems must conduct a direct integrity test to verify any repairs, and may return the membrane unit to service only if the direct integrity test is within the established control limit. ¶
(vi) Water systems must conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The Authority may approve less frequent testing, based on demonstrated process reliability, the use of multiple barriers effective for Cryptosporidium, or reliable process safeguards. ¶

(C) Indirect integrity monitoring for membrane filtration. Water systems must conduct continuous indirect integrity monitoring on each membrane unit according to the criteria specified in this paragraph. Indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A water system that implements continuous direct integrity testing of membrane units in accordance with the criteria specified in subparagraphs (5)(d)(B)(i) through (v) of this rule is not subject to the requirements for continuous indirect integrity monitoring. Water systems must submit a monthly report to the Authority summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.¶
(i) Unless the Authority approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.¶
(ii) Continuous monitoring must be conducted at a frequency of no less than once every 15 minutes.¶
(iii) Continuous monitoring must be separately conducted on each membrane unit.¶
(iv) If indirect integrity monitoring includes turbidity and the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (that is, two consecutive 15-minute readings above 0.15 NTU), direct integrity testing in accordance with subparagraphs (5)(d)(B)(i) through (v) of this rule must immediately be performed on the associated membrane unit.¶
(v) If indirect integrity monitoring includes an Authority-approved alternative parameter and if the alternative parameter exceeds an Authority approved control limit for a period greater than 15 minutes, direct integrity testing in accordance with subparagraphs (5)(d)(B)(i) through (v) of this rule must immediately be performed on the associated membrane unit.¶
(e) Source water monitoring. Wholesale water systems, as defined in OAR 333-061-0020(16~~1~~2), must comply with the requirements of this rule based on the population of the largest water system in the combined distribution system. Water systems required to provide filtration treatment must comply with the requirements of this rule whether or not the water system is currently operating filtration treatment. The requirements of this rule for unfiltered water systems only apply to those water systems that met and continue to meet the requirements of OAR 333-061-0032(2) and (3).¶
(A) Initial round. Water systems must conduct monitoring as prescribed by this paragraph, and following the schedule specified in paragraph (5)(e)(C) of this rule, unless the system meets the monitoring exemption criteria specified in paragraph (5)(e)(D) of this rule.¶
(i) Filtered water systems serving at least 10,000 people must sample their source water for Cryptosporidium, E. coli, and turbidity at least monthly for 24 months.¶
(ii) Unfiltered water systems serving at least 10,000 people must sample their source water for Cryptosporidium at least monthly for 24 months.¶
(iii) Filtered water systems serving less than 10,000 people must sample their source water for E. coli at least once every two weeks for 12 months. The E. coli monitoring specified in this subparagraph may be avoided if the system monitors for Cryptosporidium as prescribed in subparagraph (5)(e)(A)(iv) of this rule. The water system must notify the Authority no later than three months prior to the date the system is otherwise required to start E. coli monitoring under paragraph (5)(e)(C) of this rule.¶
(iv) Filtered water systems serving fewer than 10,000 people must sample their source water for Cryptosporidium at least twice per month for 12 months or at least monthly for 24 months if they meet one of the following, based on monitoring conducted in accordance with subparagraph (5)(e)(A)(iii) of this rule:¶
(I) The annual mean E. coli concentration, in the surface water source, is greater than 100 E. coli/100 mL;¶
(II) The water system does not conduct E. coli monitoring as described in subparagraph (5)(e)(A)(iii) of this rule; or¶
(III) Water systems using groundwater under the direct influence of surface water must comply with the requirements of this paragraph based on the E. coli level specified in sub-subparagraph (5)(e)(A)(iv)(I) of this rule.¶
(v) Unfiltered water systems serving fewer than 10,000 people must sample their source water for Cryptosporidium at least twice per month for 12 months or at least monthly for 24 months.¶
(vi) Water systems may sample more frequently than required under this section if the sampling frequency is evenly spaced throughout the monitoring period.¶
(vii) The Authority may approve monitoring for an indicator other than E. coli to comply with the monitoring prescribed by subparagraph (5)(e)(A)(iii) of this rule for filtered water systems serving fewer than 10,000 people. The Authority may approve an alternative to the E. coli concentrations that trigger Cryptosporidium monitoring as specified in sub-subparagraphs (5)(e)(A)(iv)(I) and (III) of this rule. The Authority's approval to the system will be in writing and will include the basis for the Authority's determination that the alternative indicator or trigger level will provide a more accurate identification of whether a water system will exceed the Bin 1 Cryptosporidium level specified in Table 8 in OAR 333-061-0032(4)(f)(F).¶
(B) Water systems must conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in paragraph (5)(e)(A) of this rule, and according to the

schedule in paragraph (5)(e)(C) of this rule, unless they meet the monitoring exemption criteria specified in paragraph (5)(e)(D) of this rule.¶
(C) Monitoring schedule. At water systems using a new surface water or GWUDI source, water suppliers must begin source water monitoring as required in paragraphs (5)(e)(A) and (B) of this rule at a schedule approved by the Authority and according to the requirements of subsection (5)(e) of this rule.¶
(i) The water supplier must also meet the bin classification and Cryptosporidium treatment requirements of OAR 333-061-0032 for the new water source at a schedule approved by the Authority.¶
(ii) The water supplier must begin a second round of source water monitoring no later than six years following determination of the mean Cryptosporidium level or initial bin classification as prescribed by OAR 333-061-0032(2) or (4) respectively, as applicable.¶
(D) Monitoring avoidance.¶
(i) Filtered water systems are not required to conduct source water monitoring as prescribed by this subsection if the system will provide a total of at least 5.5-log of treatment for Cryptosporidium, equivalent to meeting the treatment requirements of Bin 4 in OAR 333-061-0032(4)(g) and 333-061-0032(12) through (17).¶
(ii) Unfiltered water systems are not required to conduct source water monitoring as prescribed by this subsection if the system will provide a total of at least 3-log Cryptosporidium inactivation, equivalent to meeting the treatment requirements for unfiltered systems with a mean Cryptosporidium concentration of greater than 0.01 oocysts/L in OAR 333-061-0032(3)(e).¶
(iii) If a water system chooses to provide the level of treatment specified in subparagraph (5)(e)(D)(i) or (ii) of this rule, rather than conducting source water monitoring, the water system must notify the Authority in writing no later than the date the system is otherwise required to submit a sampling schedule for monitoring as prescribed by OAR 333-061-0036(5)(f)(A). A water system may choose to cease source water monitoring at any point after it has initiated monitoring if it notifies the Authority in writing that it will provide this level of treatment. Water systems must install and operate technologies to provide this level of treatment by the applicable treatment compliance date in OAR 333-061-0032(1)(a)(F).¶
(E) Seasonal plants. Systems with surface water or GWUDI treatment plants that operate for only part of the year must conduct source water monitoring in accordance with this subsection, but with the following modifications:¶
(i) Water systems must sample their source water only during the months that the plant is in use unless the Authority specifies another monitoring period based on plant operating practices.¶
(ii) Water systems with treatment plants that operate less than six months per year, and that monitor for Cryptosporidium, must collect at least six Cryptosporidium samples per year for two years of monitoring. Samples must be evenly spaced throughout the period the plant operates.¶
(F) Failure to collect any source water sample in accordance with the sampling requirements, schedule, sampling location, analytical method, approved laboratory, and reporting requirements of this section ~~(5) of this rule~~ is a monitoring violation.¶
(G) Grandfathering monitoring data. Systems may use monitoring data collected prior to the applicable monitoring start date in paragraph (5)(e)(C) of this rule to meet the initial source water monitoring requirements in paragraph (5)(e)(A) of this rule. Grandfathered data may substitute for an equivalent number of months at the end of the monitoring period. All data submitted under this paragraph must meet the requirements in subsection (5)(h) of this rule.¶
(f) Source water sampling schedules.¶
(A) Water systems required to conduct source water monitoring as prescribed in subsection (5)(e) of this rule must submit a sampling schedule that specifies the calendar dates when the system will collect each required sample.¶
(i) Water systems must submit sampling schedules to the Authority, no later than three months prior to the applicable date listed in paragraph (5)(e)(C) of this rule, for each round of required monitoring.¶
(ii) If the Authority does not respond to a water system regarding its sampling schedule, the system must sample at the reported schedule.¶
(B) Water systems must collect samples within a five-day period, starting two days before the scheduled sampling date and ending two days after. The five-day period applies to each of the dates indicated in the sampling schedule unless one of the following conditions applies:¶
(i) An extreme condition or situation exists that may pose danger to the sample collector or that cannot be avoided, and that prevents the water system from sampling in the scheduled five-day period. In this case, the water system must sample as close to the scheduled date as possible unless the Authority approves an alternative sampling date. The water system must submit an explanation for the delayed sampling date to the Authority concurrent with the submittal of the sample to the laboratory; or¶
(ii) A water system is unable to report a valid analytical result for the scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method requirements (including the quality control requirements), or the failure of an approved laboratory to analyze the sample.¶
(I) In this case the water system must collect a replacement sample as prescribed in sub-subparagraph

(5)(f)(B)(ii)(II) of this rule.¶
(II) The system must collect the replacement sample not later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date unless the water system demonstrates that collecting a replacement sample within this time frame is not feasible or the Authority approves an alternative re-sampling date. The system must submit an explanation for the delayed sampling date to the Authority concurrent with the submittal of the sample to the laboratory.¶
(iii) Water systems that fail to meet the criteria of paragraph (5)(f)(B) of this rule for any required source water sample must revise their sampling schedules to add dates for collecting all missed samples. Water systems must submit the revised sampling schedule to the Authority for approval prior to beginning collecting the missed samples.¶
(g) Source water sampling locations.¶
(A) Water systems required to conduct source water monitoring as prescribed in subsection (5)(e) of this rule must collect samples for each plant that treats a surface water or GWUDI source. Where multiple plants draw water from the same influent, such as the same pipe or intake, the Authority may approve one set of monitoring results to be used to satisfy the requirements for all treatment plants.¶
(B) Water systems must collect source water samples prior to chemical treatment, such as coagulants, oxidants and disinfectants, unless the Authority approves the system to collect a source water sample after chemical treatment if the Authority determines that collecting a sample prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.¶
(C) Water systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition.¶
(D) Bank filtration.¶
(i) Water systems that receive Cryptosporidium treatment credit for bank filtration as an alternate filtration technology as specified by OAR 333-061-0032(8) must collect source water samples in the surface water source prior to bank filtration.¶
(ii) Water systems that use bank filtration as pretreatment to a filtration plant must collect source water samples from the well, after bank filtration. Use of bank filtration during monitoring must be consistent with routine operational practice. Water systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration prescribed by OAR 333-061-0032(8).¶
(E) Multiple sources. Water systems with treatment plants that use multiple water sources, including multiple surface water sources and blended surface water and groundwater sources, must collect samples as specified in subparagraph (5)(g)(E)(i) or (ii) of this rule. The use of multiple sources during monitoring must be consistent with routine operational practice.¶
(i) If a sampling tap is available where the sources are combined prior to treatment, water systems must collect samples from this tap.¶
(ii) If a sampling tap where the sources are combined prior to treatment is not available, systems must collect samples at each source near the intake on the same day and must comply with either sub-subparagraph (5)(g)(E)(ii)(I) or (II) below for sample analysis.¶
(I) Water systems may composite samples from each source into one sample prior to analysis. The volume of sample from each source must be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.¶
(II) Water systems may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average must be calculated by multiplying the analysis result for each source by the fraction the source contributed to total plant flow at the time the sample was collected and then adding these values.¶
(F) Additional requirements. Water systems must submit a description of their sampling location(s) to the Authority at the same time as the sampling schedule required under subsection (5)(f) of this rule. This description must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including pretreatment, points of chemical treatment, and filter backwash recycle. If the Authority does not respond to a water system regarding sampling location(s), the system must sample at the reported location(s).¶
(h) Grandfathering previously collected data.¶
(A) Water systems may comply with the initial source water monitoring requirements of paragraph (5)(e)(A) of this rule by grandfathering sample results collected before the system is required to begin monitoring. To be grandfathered, the sample results and analysis must meet the criteria in this section and the Authority must approve the previously sampled data.¶
(i) A filtered water system may grandfather Cryptosporidium samples to meet the monitoring requirements of paragraph (5)(e)(A) of this rule when the system does not have corresponding E. coli and turbidity samples.¶

(ii) A water system that grandfathers Cryptosporidium samples is not required to collect the E. coli and turbidity samples when the system completes the requirements for Cryptosporidium monitoring under paragraph (5)(e)(A) of this rule.¶
(B) The analysis of grandfathered E. coli and Cryptosporidium samples must meet the analytical method and approved laboratory requirements of subsections (1)(a) and (1)(c) of this rule.¶
(C) The sampling location of grandfathered samples must meet the conditions specified in subsection (5)(g) of this rule.¶
(D) Grandfathered Cryptosporidium samples must have been collected no less frequently than each calendar month on a regular schedule, and no earlier than January 1999. Sample collection intervals may vary for the conditions specified in subparagraph (5)(f)(B)(i) through (ii) of this rule if the system provides documentation of the condition when reporting monitoring results.¶
(i) The Authority may approve grandfathering of previously collected data where there are time gaps in the sampling frequency if the water system conducts additional monitoring as specified by the Authority to ensure that the data used to comply with the initial source water monitoring requirements of paragraph (5)(e)(A) of this rule are seasonally representative and unbiased.¶
(ii) Water systems may grandfather previously collected data where the sampling frequency within each month varied. If the Cryptosporidium sampling frequency varied, water systems must follow the monthly averaging procedure in OAR 333-061-0032(2)(c)(B) or OAR-333-061-0032(4)(f)(E) as applicable, when calculating the bin classification for filtered water systems or the mean Cryptosporidium concentration for unfiltered water systems.¶
(E) Reporting monitoring results for grandfathering. Water systems that request to grandfather previously collected monitoring results must report the following information by the applicable dates listed in this paragraph.¶
(i) Water systems must report that they intend to submit previously collected monitoring. This report must specify the number of previously collected results the system will submit, the dates of the first and last sample, and whether a system will conduct additional source water monitoring to meet the requirements of paragraph (5)(e)(A) of this rule. Water systems must report this information no later than the date the sampling schedule is required as prescribed by subsection (5)(f) of this rule.¶
(ii) Water systems must report previously collected monitoring results for grandfathering, along with the associated documentation listed in sub-subparagraphs (5)(h)(E)(ii)(I) through (IV) of this rule, no later than two months after the applicable date listed in paragraph (5)(e)(C) of this rule.¶
(I) For each sample result, water systems must report the applicable data elements specified by OAR 333-061-0040(1)(o).¶
(II) Water systems must certify that the reported monitoring results include all results the system generated during the time period beginning with the first reported result and ending with the final reported result. This applies to samples that were collected from the sampling location specified for source water monitoring under this paragraph and analyzed in accordance with subsection (1)(a) of this rule.¶
(III) Water systems must certify that the samples were representative of a plant's source water(s) and that the source water(s) have not changed. Water systems must report a description of the sampling location(s), which must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including points of chemical addition and filter backwash recycle.¶
(IV) For Cryptosporidium samples, the laboratory or laboratories that analyzed the samples must provide a letter certifying that the quality control criteria in accordance with subsection (1)(a) of this rule were met for each sample batch associated with the reported results. Alternatively, the laboratory may provide bench sheets and sample examination report forms for each field, matrix spike, initial precision recovery (IPR), ongoing precision recovery (OPR), and method blank sample associated with the reported results.¶
(F) If the Authority determines that a previously collected data set submitted for grandfathering was generated during source water conditions that were not normal for the system, such as a drought, the Authority may disapprove the data. Alternatively, the Authority may approve the previously collected data if the water system reports additional source water monitoring data, as determined by the Authority, to ensure that the data set used under OAR 333-061-0032(4)(f) or 0032(2)(c) represents average source water conditions for the system.¶
(G) If a water system submits previously collected data that fully meets the number of samples required for initial source water monitoring required by paragraph (5)(e)(A) of this rule, and some of the data is rejected due to not meeting the requirements of this subsection, systems must conduct additional monitoring to replace rejected data on a schedule the Authority approves. Water systems are not required to begin this additional monitoring until two months after notification that data has been rejected and that additional monitoring is necessary.¶
(6) Coliform Bacteria and Microbiological Contaminants.¶
(a) General requirements for coliform bacteria sampling.¶
(A) Sample Handling Requirements and Sample Types.¶

(i) The standard sample volume required for analysis, regardless of analytical method used, is 100 ml.¶
(ii) Only the presence or absence of total coliforms and E. coli is required to be determined, not a determination of density.¶
(iii) Test medium incubation must be initiated within 30 hours of sample collection. Samples should be held below 10 deg. C during transit.¶
(iv) If water having residual chlorine (measured as free, combined, or total chlorine) is to be analyzed, sufficient sodium thiosulfate ($Na_2S_2O_3$) must be added to the sample bottle before sterilization to neutralize any residual chlorine in the water sample. Dechlorination procedures are addressed in Section 9060A.2 of Standard Methods for the Examination of Water and Wastewater (20th and 21st editions).¶
(v) There are three types of samples collected in the distribution system for coliform bacteria.¶
(I) Routine samples are collected to satisfy the monitoring requirements specified in this rule from established sampling locations according to a water system's coliform sampling plan. These samples are used to calculate compliance with the MCL for E. coli prescribed in OAR 333-061-0030(4) and with the coliform investigation triggers specified in OAR 333-061-0078.¶
(II) Repeat samples are collected according to subsection (6)(g) of this rule as a follow-up to a total coliform-positive routine sample and are used to calculate compliance with the MCL for E. coli prescribed in OAR 333-061-0030(4) and with the coliform investigation triggers specified in OAR 333-061-0078.¶
(III) Special samples are not considered representative of the water system and are outside the scope of normal water quality assurance and control procedures. Examples of when special samples may be collected include, but are not limited to, investigating user complaints, verifying disinfection after construction or repair and samples from sources not in service. Analyses of special samples must be made available to the Authority upon request and records of such analyses shall be maintained according to OAR 333-061-0040(2)(b).¶
(B) Water suppliers must comply with the repeat monitoring requirements and E. coli analytical requirements specified in subsection (6)(g) of this rule following any total coliform-positive sample collected according to subsections (6)(b) through (6)(f) of this rule.¶
(C) Water suppliers must determine whether a coliform investigation trigger as specified in OAR 333-061-0078(2) has been exceeded once all monitoring as required by subsections (6)(b) through (6)(g) of this rule has been completed for a calendar month.¶
(D) If a routine or repeat sample is total coliform-positive, the sample must be analyzed to determine if E. coli are present. If E. coli are present, the water supplier must notify the Authority by the end of the day when the water supplier is notified of the test result, unless the water supplier is notified of the result after the Authority office is closed, in which case the water supplier must notify the Authority before the end of the next business day.¶
(E) The Authority may, on a case-by-case basis, allow a water supplier to forgo E. coli testing on a total coliform-positive sample if that water supplier assumes that the total coliform-positive sample is E. coli-positive. Accordingly, the water supplier must notify the Authority as specified in paragraph (6)(a)(D) of this rule and take action appropriate for exceeding the MCL for E. coli as specified in OAR 333-061-0030(4).¶
(F) The Authority may invalidate a total coliform-positive sample only if the conditions specified in subparagraph (6)(a)(F)(i), (ii), or (iii) of this rule are met. A total coliform-positive sample invalidated according to this paragraph does not count toward meeting the minimum monitoring requirements of this rule.¶
(i) The laboratory establishes that improper sample analysis caused the total coliform-positive result.¶
(ii) The Authority, on the basis of the results of repeat samples collected as required by subsection (6)(g) of this rule, determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem in which coliform was present only in samples collected at a specific service connection within a public water system with more than one service connection. The Authority cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original tap are total coliform-negative (for example, the Authority cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the water system has only one service connection).¶
(iii) The Authority has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the water supplier must still collect all repeat samples required by subsection (6)(g) of this rule and use them to determine whether a coliform investigation trigger as specified in OAR 333-061-0078(2) has been exceeded. To invalidate a total coliform-positive sample under this paragraph, the decision and supporting rationale must be documented in writing, and approved and signed by the supervisor of the Authority official who recommended the decision. The written documentation must state the specific cause of the total coliform-positive sample, and what action the water supplier has taken, or will take, to correct this problem. The Authority will not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative. If the Authority invalidates a sample according to this subparagraph the written documentation will be made available to the U.S. EPA or the

public upon request. ¶
(G) A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (for example, the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth where there is continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete, or produces colonies too numerous to count where the total number of bacterial colonies exceeds 200 on a 47 mm diameter membrane filter with an analytical method using a membrane filter (for example, Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The water supplier must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Authority may waive the 24-hour time limit on a case-by-case basis. ¶
(H) A total coliform-positive sample invalidated according to paragraphs (6)(a)(F) or (G) of this rule does not count toward meeting the minimum monitoring requirements specified in this section. ¶
(I) Water suppliers must develop a written coliform sampling plan for every water system that they own or operate or for which they are responsible according to the criteria in this paragraph by March 31, 2016. The plan must identify sampling sites and a sample collection schedule that is representative of water throughout the distribution system. Water suppliers must collect total coliform samples according to the plan. Plans are subject to Authority review and revision. ¶
(i) Monitoring required by subsections (6)(b) through (6)(g) of this rule may take place at a customer's premises, dedicated sampling station, or other designated sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of subsection (6)(i) of this rule must be reflected in the coliform sampling plan. ¶
(ii) Samples must be collected at regular time intervals throughout the month, except that groundwater systems serving 4,900 or fewer people may collect all required samples on a single day if they are collected at different sites. ¶
(iii) Water suppliers must collect at least the minimum number of required samples every month even if the MCL for E. coli as specified in OAR 333-061-0030(4) was exceeded or a coliform investigation trigger as specified in OAR 333-061-0078(2) was exceeded. ¶
(iv) Water suppliers may use monitoring as a tool to assist in investigating problems whereby additional samples beyond the number required by this section may be collected to investigate potential problems in the distribution system. A water supplier collecting more routine samples than required in a month must include the results of the additional sampling in calculating whether a coliform investigation trigger as specified in OAR 333-061-0078(2) has been exceeded only if the samples are collected in accordance with an existing coliform sampling plan and are representative of water throughout the distribution system. ¶
(v) Water suppliers must identify repeat monitoring locations in the coliform sampling plan. At least one repeat sample must be collected from the sampling tap where the original total coliform-positive sample was collected, at least one repeat sample must be collected at a tap within five service connections upstream and at least one repeat sample must be collected at a tap within five service connections downstream of the original sampling site unless the provisions of sub-subparagraphs (6)(a)(I)(v)(I) or (6)(a)(I)(v)(II) of this rule are met. If a total coliform-positive sample is at the end of the distribution system, or one service connection away from the end of the distribution system, the Authority may allow an alternative sampling location in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sampling site. Except as provided for in sub-subparagraph (6)(a)(I)(v)(II) of this rule, at water systems where triggered source water monitoring is required according to paragraph (6)(i)(A), groundwater source samples must be collected in addition to repeat samples as required by subsection (6)(g) of this rule. ¶
(I) Water suppliers may propose repeat monitoring locations to the Authority that the water supplier believes to be representative of a pathway for contamination of the distribution system. A water supplier may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis in a standard operating procedure (SOP) in its coliform sampling plan. The water supplier must design its SOP to focus the repeat samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations. The Authority may modify the SOP or require alternative monitoring locations as needed. ¶
(II) For groundwater systems serving 1,000 people or less, repeat sampling locations may be proposed that differentiate potential source water and distribution system contamination (for example, by sampling at entry points to the distribution system). A water system with a single groundwater source and a single service connection may request to collect repeat samples at the location for triggered source water monitoring. The Authority may approve the request if the water supplier demonstrates that the coliform sampling plan remains

representative of water quality in the distribution system. If approved by the Authority, the sample result may be used to meet the monitoring requirements in both subsection (6)(g) and (6)(i) of this rule.¶
(III) Triggered source water monitoring locations as required by subsection (6)(i) of this rule must be identified in the plan in addition to the repeat samples required by subsection (6)(g) of this rule.¶
(IV) The Authority may review, revise, and approve, as appropriate, repeat sampling proposed by systems under sub-subparagraphs (6)(a)(I)(v)(I) and (II) of this rule. The water supplier must demonstrate that the coliform sampling plan remains representative of the water quality in the distribution system. The Authority may determine that monitoring at the entry point to the distribution system (especially for groundwater systems without disinfection) is effective to differentiate between potential source water and distribution system problems.¶
(b) At NTNC~~, TNC and state regulated~~ and TNC water systems using only groundwater as defined in OAR 333-061-0020(6~~7~~8) and serving 1,000 people or less, one routine sample must be collected for coliform bacteria every calendar quarter the water system provides water to the public. At seasonal water systems as defined in OAR 333-061-0020(1~~1~~820), monitoring must be conducted at least once every month the system is in operation.¶
(A) For the purpose of determining a water supplier's eligibility to continue or qualify for quarterly monitoring according to the provisions of subparagraphs (6)(b)(C)(iv) or (6)(b)(D)(ii) of this rule at a TNC, the Authority may elect to not consider monitoring violations according to paragraph (6)(p)(A) of this rule if the missed sample is collected no later than the end of the monitoring period following the monitoring period in which the sample was missed. The water supplier must collect the make-up sample in a different week than the routine sample for that monitoring period and should collect the sample as soon as possible during the monitoring period.¶
(B) Water suppliers must submit to a special monitoring evaluation during each sanitary survey as specified in OAR 333-061-0076 to review the status of a water system, including the distribution system, and determine whether the system is on an appropriate monitoring schedule. After the Authority has performed the special monitoring evaluation, it may modify the system's monitoring schedule, as necessary, or it may allow the system to stay on its existing monitoring schedule, consistent with the provisions of this subsection.¶
(C) Monitoring must be increased to monthly the month following any of the events identified in subparagraphs (6)(b)(C)(i) through (6)(b)(C)(iv) of this rule. Monthly monitoring must continue until the requirements in paragraph (6)(b)(D) of this rule are met. A water system prescribed monthly monitoring for reasons other than those identified in subparagraphs (6)(b)(C)(i) through (6)(b)(C)(iv) of this rule is not considered to be on increased monitoring for the purposes of this paragraph and will be restored to quarterly monitoring at the discretion of the Authority.¶
(i) One level 2 coliform investigation or two level 1 coliform investigations are triggered as specified in OAR 333-061-0078(2) at a water system in a rolling 12-month period.¶
(ii) The MCL for E. coli is exceeded at a water system.¶
(iii) A violation as specified in OAR 333-061-0078(5) occurs at a water system.¶
(iv) Two violations as specified in subsection (6)(p) of this rule occur, or one violation as specified in subsection (6)(p) of this rule occurs and one level 1 coliform investigation as prescribed by OAR 333-061-0078(2) is triggered during a rolling 12-month period for a water system.¶
(D) The Authority may reduce the monitoring frequency from monthly monitoring as specified in paragraph (6)(b)(C) of this rule to quarterly monitoring if the criteria specified in subparagraphs (6)(b)(D)(i) and (6)(b)(D)(ii) of this rule are met.¶
(i) A sanitary survey, level 2 coliform investigation or an equivalent site visit was completed by the Authority or another party authorized by the Authority within the previous 12 months, and the water system was found to be free of sanitary defects and to have a protected water source; and¶
(ii) The water supplier ensured the following criteria were met at the water system ~~for at least~~during the previous 12 ~~consecutive~~ months:¶
(I) No MCL exceedances as prescribed by OAR 333-061-0030(4)~~ or 40 CFR 141.63;~~,¶
(II) That all samples required by this rule ~~and 40 CFR 141.21~~ were collected and reported to the Authority~~;~~,¶
(III) No coliform investigation trigger exceedances as prescribed by OAR 333-061-0078(2)~~;~~, and¶
(IV) No coliform investigation violations as prescribed by OAR 333-061-0078(5).¶
(E) Additional routine monitoring the month following a total coliform-positive sample. At least three routine samples must be collected during the next month following one or more total coliform-positive samples at water systems prescribed quarterly monitoring. The Authority may waive this requirement if the conditions of subparagraphs (6)(b)(E)(i), (6)(b)(E)(ii), or (6)(b)(E)(iii) of this rule are met. Samples may either be collected at regular time intervals throughout the month or may be collected on a single day if samples are collected at different sites. The results from the analysis of additional routine samples must be used to determine if a coliform investigation trigger was exceeded as specified in OAR 333-061-0078(2).¶
(i) The Authority may waive the requirement to collect three routine samples as required by paragraph (6)(b)(E) of this rule if the Authority, or a party authorized by the Authority, performs a site visit before the end of the next

month in which the system provides water to the public. The site visit must be sufficiently detailed to allow the Authority to determine whether additional monitoring or any corrective action is needed. A representative of the water supplier may not perform this site visit, even if the representative is a party authorized by the Authority to perform sanitary surveys.¶
(ii) The Authority may waive the requirement to collect three routine samples as required by paragraph (6)(b)(E) of this rule if the Authority has determined why the sample was total coliform-positive and has established that the water supplier has corrected the problem or will correct the problem before the end of the next month in which the water system serves water to the public. In this case, the Authority must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by an Authority supervisor who recommends such a decision, and make this document available to the U.S. EPA and public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the water supplier has taken or will take to correct this problem.¶
(iii) The Authority will not waive the requirement to collect three additional routine samples the next month in which the system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. If the Authority determines that the water supplier has corrected the contamination problem before the set of repeat samples required by subsection (6)(g) of this rule is collected, and all repeat samples were total coliform-negative, the Authority may waive the requirement for additional routine monitoring the next month.¶
(c) At community water systems using only groundwater as defined in OAR 333-061-0020(6~~7~~8) serving 1,000 people or less, one routine sample must be collected for coliform bacteria every month.¶
(d) At water systems using surface water or GWUDI serving 1,000 people or less, one routine sample must be collected for coliform bacteria every month.¶
(e) At public water systems serving more than 1,000 people, the monitoring frequency for total coliform bacteria is based on the population served by the system, as specified in Table 33.¶
(f) At water systems using surface water or GWUDI without filtration treatment as specified in OAR 333-061-0032(2) and (3), at least one sample must be collected near the first service connection every day the turbidity level measured as specified in OAR 333-061-0036(5)(a)(B) exceeds 1 NTU. The sample must be analyzed for the presence of total coliform bacteria and must be collected within 24 hours of the first exceedance, unless the Authority determines that the water supplier, for logistical reasons beyond its control, cannot have the sample analyzed within 30 hours of collection and identifies an alternative sample collection schedule. Sample results from this coliform monitoring must be included in determining whether a coliform investigation trigger as specified in OAR 333-061-0078(2) was exceeded.¶
(g) If a sample collected as prescribed by subsections (6)(b) through (6)(f) of this rule is total coliform-positive, a set of repeat samples must be collected within 24 hours of being notified of the positive result. No fewer than three repeat samples must be collected for each total coliform-positive sample found.¶
(A) The Authority may extend the 24-hour limit on a case-by-case basis if a logistical problem beyond its control prevents a water supplier from collecting the repeat samples within 24 hours.¶
(B) All repeat samples must be collected on the same day, except that at water systems with only a single service connection the Authority may allow the required set of repeat samples to be collected over a three-day period, or the collection of a larger volume repeat sample(s) in one or more sample containers of any size as long as the total volume collected is at least 300 ml.¶
(C) An additional set of repeat samples must be collected if one or more repeat samples in the current set of repeat samples is total coliform-positive. The additional set of repeat samples must be collected within 24 hours of being notified of the positive result, unless the Authority extends the limit as specified in paragraph (6)(g)(A) of this rule. Water suppliers must continue to collect additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples or the water supplier determines that a coliform investigation trigger as specified in OAR 333-061-0078(2) was exceeded as a result of a repeat sample being total coliform-positive and notifies the Authority. If a trigger identified in OAR 333-061-0078(2) is exceeded as a result of a routine sample being total coliform-positive, water suppliers are required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.¶
(D) After a water supplier collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to be total coliform-positive, then the water supplier may count the subsequent sample(s) as a repeat sample instead of as a routine sample.¶
(E) Repeat samples collected at a groundwater source.¶
(i) If a repeat sample as specified in this subsection was collected at the location for triggered source water monitoring as specified in paragraph (6)(i)(A) of this rule and is E. coli-positive, the MCL for E. coli as specified in OAR 333-061-0030(4) was exceeded and the water supplier must also comply with subsection (6)(j) of this rule. If more than one repeat sample is collected at the monitoring location required for triggered source water monitoring, the water supplier may reduce the number of additional source water samples required by subsection

(6)(j) of this rule by the number of repeat samples taken at that location that were not E. coli-positive.¶
(ii) If more than one repeat sample is collected at the location for triggered source water monitoring as specified in paragraph (6)(i)(A) of this rule, and more than one repeat sample is E. coli-positive, the MCL for E. coli was exceeded and the water supplier must also comply with OAR 333-061-0032(6).¶
(iii) If all repeat samples collected at the location for triggered source water monitoring as specified in paragraph (6)(i)(A) of this rule are E. coli-negative and a repeat sample collected at a monitoring location other than one required for triggered source water monitoring is E. coli-positive, the MCL for E. coli was exceeded, but the water supplier is not required to comply with subsection (6)(j) of this rule.¶
(h) Sampling for additional pathogens may be required by the Authority when specific evidence indicates the possible presence of such organisms.¶
(i) Groundwater source sampling requirements:¶
(A) At least one sample must be collected from every groundwater source for which at least 4-log treatment of viruses is not applied before or at the first customer within 24 hours of notification of a total coliform-positive sample collected as prescribed by subsections (6)(b) through (6)(f) of this rule that is not invalidated according to paragraphs (6)(a)(F) or (G) of this rule.¶
(i) The sample must be collected from every groundwater source in use at the time the total coliform-positive sample was collected, except as provided by subparagraph (6)(i)(A)(ii) of this rule.¶
(ii) If approved by the Authority, the sampling required by this subsection may be conducted at a representative groundwater source or sources at water systems with more than one ground water source. If directed by the Authority, water suppliers must request approval of a triggered source water monitoring plan that identifies one or more ground water sources that are representative of each monitoring site in a system's coliform sampling plan according to paragraph (6)(a)(I) of this rule and that the water supplier intends to use for representative sampling under this paragraph.¶
(iii) The Authority may extend the 24-hour time limit for the collection of samples on a case-by-case basis if the water supplier cannot collect the sample(s) within 24 hours due to circumstances beyond its control. In the case of an extension, the Authority will specify how much time the water supplier has to collect the sample(s).¶
(iv) A water supplier is not required to comply with the source water monitoring requirements specified in this paragraph if either of the following conditions exists:¶
(I) The Authority determines, and documents in writing, that the total coliform-positive sample collected as prescribed by subsections (6)(b) through (6)(f) of this rule is caused by a distribution system deficiency; or¶
(II) The total coliform-positive sample collected as prescribed by subsections (6)(b) through (6)(f) of this rule is collected at a location that meets Authority criteria for distribution system conditions that will cause total coliform-positive samples.¶
(v) Groundwater source samples required by this subsection must be collected at a location prior to any treatment unless the Authority approves an alternative sampling location. If the water system's configuration does not allow for sampling at the groundwater source, the water system must collect a sample at an Authority-approved location representative of source water quality.¶
(B) Additional Requirements related to wholesale water systems that use groundwater sources without providing at least 4-log inactivation of viruses for each groundwater source and purchasing water systems.¶
(i) If a sample collected according to subsections (6)(b) through (6)(f) of this rule at a purchasing water system is total coliform-positive, the water supplier for that purchasing system must notify the water supplier for the wholesale system(s) within 24 hours of being notified of the total coliform-positive sample.¶
(ii) If the water supplier for a wholesale system receives notice that a sample collected according to subsections (6)(b) through (6)(f) of this rule at a purchasing water system it serves is total coliform-positive, the wholesaler must collect a sample from its groundwater source(s) as prescribed by paragraph (6)(i)(A) of this rule and have it analyzed for E. coli within 24 hours of notification.¶
(iii) If a sample collected according to paragraph (6)(i)(A) of this rule at a wholesale system is E. coli-positive, the water supplier must notify the water supplier(s) for all purchasing water systems served by the groundwater source of the E. coli-positive source water sample within 24 hours of being notified of the result. The water supplier for the wholesale system must also meet the requirements of subsection (6)(j) of this rule.¶
(j) Five additional samples must be collected from the same source within 24 hours of notification of an E. coli-positive sample collected as prescribed by paragraph (6)(i)(A) or (6)(k) of this rule at a groundwater source and not invalidated according to subsection (6)(l) of this rule if the Authority does not require corrective action as prescribed by OAR 333-061-0032(6).¶
(k) At water systems with groundwater sources where chlorine, UV, or another oxidant is used for disinfection, but where 4-log inactivation of viruses is not achieved, assessment monitoring must be conducted at every groundwater source to determine the potential for viral contamination.¶
(A) Assessment monitoring according to this subsection must include the collection of at least one sample from each groundwater source every year. The Authority may grant written approval to conduct monitoring at one or

more representative groundwater sources within a water system that draw water from the same hydrogeologic setting.¶
(B) A sample collected according to paragraph (6)(i)(A) of this rule or a sample collected for GWUDI determination according to OAR 333-061-0032(7) may be used to meet the requirements of this subsection.¶
(C) Additional Source Water Assessment Monitoring.¶
(i) The Authority may require additional source water assessment monitoring if at least one of the following conditions occur:¶
(I) At least one total coliform-positive sample was collected from the groundwater source;¶
(II) A groundwater source having been determined by the Authority to be susceptible to fecal contamination through a Source Water Assessment (or equivalent hydrogeologic assessment wherein susceptibility is defined as a result of a highly sensitive source due to aquifer characteristics, vadose zone characteristics, monitoring history, or well construction) and the presence of a fecal contaminant source within the two-year TOT zone, outreach area, or zone one area;¶
(III) A source that draws water from an aquifer that the Authority has identified as being fecally contaminated;¶
(IV) A determination by a source water assessment or equivalent hydrogeologic analysis that the groundwater source is highly sensitive, and that the source is located within an area that has a high density of underground injection control wells; or¶
(V) Other criteria at the discretion of the Authority.¶
(ii) Requirements for additional source water assessment monitoring include, but are not limited to:¶
(I) Collecting 12 consecutive monthly groundwater source samples for water systems that operate year-round, or monthly samples that represent each month the water system provides groundwater to the public for water systems that operate seasonally;¶
(II) Collecting a standard sample volume of at least 100 mL for E. coli analysis regardless of the analytical method used;¶
(III) Analysis of all samples for the presence of E. coli, using an analytical method as prescribed by section (1) of this rule;¶
(IV) Collecting samples at a location prior to any treatment unless the Authority approves a sampling location after treatment; and¶
(V) Collecting samples at the groundwater source, unless the water system's configuration does not allow for raw water sampling and the Authority approves an alternate sampling location that is representative of the water quality of that groundwater source.¶
(D) The Authority may require a groundwater source to be re-evaluated as prescribed by this subsection if geologic conditions, source pumping conditions, or fecal contaminant source conditions change over time.¶
(l) The Authority may invalidate an E. coli-positive groundwater source sample collected according to subsections (6)(i), (j) or (k) of this rule only under the following conditions:¶
(A) The water supplier or laboratory notifies the Authority in writing that improper sample analysis occurred; or¶
(B) The Authority determines and documents in writing that there is substantial evidence that an E. coli -positive sample is not related to source water quality.¶
(m) If the Authority invalidates an E. coli -positive groundwater source sample according to subsection (6)(l) of this rule, the water supplier must collect another source water sample as prescribed by subsection (6)(i) of this rule within 24 hours of being notified of the invalidation. The Authority 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 Authority must specify how much time the system has to collect the sample.¶
(n) The Authority may direct a water supplier to conduct source water assessment monitoring as prescribed by subsection (6)(k) of this rule when a new groundwater source is placed into service. Monitoring as prescribed by this subsection must begin before the groundwater source is used to provide water to the public.¶
(o) The Authority may require a water supplier to provide any existing information that will enable the Authority to perform an assessment to determine whether the groundwater system obtains water from a hydrogeologically sensitive aquifer.¶
(p) Monitoring violations.¶
(A) Failure to collect every required routine or additional routine sample in a compliance period is a violation of this rule.¶
(B) Failure to analyze for E. coli following a total coliform-positive routine sample is a violation of this rule.¶
(q) Every water system must undergo a sanitary survey at least every five years at a frequency determined by the authority. The Authority will review the results of each survey to determine whether the existing monitoring frequency is adequate and what additional measures, if any, the water supplier needs to undertake to improve drinking water quality.¶
(r) For any samples collected or analyzed for coliform bacteria on March 31, 2016 or earlier or for any repeat

samples collected or analyzed for coliform bacteria after March 31, 2016 in response to a positive sample collected on March 31, 2016 or earlier, the provisions of 40 CFR 141.21(b), (c), (e), (f) and (g) apply to processing and analysis of that sample.¶
(7) Radionuclides:¶
(a) Gross alpha particle activity, radium 226, radium 228, and uranium:¶
(A) Initial Monitoring. Community Water Systems without acceptable historical data, as defined below, must conduct initial monitoring to determine compliance with OAR 333-061-0030(5).¶
(i) At new water systems or systems using a new source, water suppliers must conduct initial monitoring in the first quarter of operation, followed by three consecutive quarterly samples.¶
(ii) The Authority may waive the final two quarters of the initial monitoring at an entry point if the results of the samples from the first two quarters are below the method detection limit.¶
(iii) Grandparenting of historical data. A system may use monitoring data from each source or entry point collected between June 2000 and December 8, 2003 to satisfy the initial monitoring requirements.¶
(iv) If the average of the initial monitoring results for a sampling point is above the MCL, the system must collect and analyze quarterly samples at the entry point until the system has results from four consecutive quarters that are at or below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the Authority.¶
(B) Reduced Monitoring. Radionuclide monitoring may be reduced to once every three years, once every six years, or once every nine years based on the following criteria:¶
(i) If the average of the initial monitoring result for each contaminant (gross alpha particle activity, radium-226, radium-228, and uranium) at a given entry point is below the detection limit, sampling for that contaminant may be reduced to once every nine years.¶
(ii) For gross alpha particle activity, combined radium 226 and radium 228, and uranium, if the average of the initial monitoring results is at or above the detection limit but at or below one-half the MCL, sampling for that contaminant may be reduced to once every six years.¶
(iii) For gross alpha particle activity, combined radium 226 and radium 228, and uranium, if the average of the initial monitoring results is above one-half the MCL but at or below the MCL, the system must collect one sample at that sampling point at least once every three years.¶
(iv) Systems must use the samples collected during the reduced monitoring period to determine the monitoring frequency for subsequent monitoring periods.¶
(v) If a system has a monitoring result that exceeds the MCL while on reduced monitoring, the system must collect and analyze quarterly samples at that entry point until the system has results from four consecutive quarters that are below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the Authority.¶
(vi) A water system with two or more wells that have been determined to constitute a "wellfield" as specified in subsection (1)(k) of this rule may reduce sampling to only those entry point(s) designated by the Authority.¶
(C) Compositing of samples. A system may composite up to four consecutive quarterly samples from a single entry point if the analysis is done within a year of the first sample. If the analytical result from the composited sample is greater than one-half the MCL, the Authority may direct the system to take additional quarterly samples before allowing the system to sample under a reduced monitoring schedule.¶
(D) Substitution of results.¶
(i) A gross alpha particle activity measurement may be substituted for the required radium-226 measurement if the gross alpha particle activity does not exceed 5 pCi/L.¶
(ii) A gross alpha particle activity measurement may be substituted for the required uranium measurement if the gross alpha particle activity does not exceed 15 pCi/L.¶
(iii) The gross alpha measurement shall have a confidence interval of 95 percent (1.65 where one-half is the standard deviation of the net counting rate of the sample) for radium-226 and uranium.¶
(iv) When a system uses a gross alpha particle activity measurement in lieu of a radium-226 or uranium measurement, the gross alpha particle activity analytical result will be used to determine the future monitoring frequency for radium-226 or uranium. If the gross alpha particle activity result is less than detection, half the method detection limit will be used to determine compliance and the future monitoring frequency.¶
(b) Beta particle and photon radioactivity:¶
(A) Community water systems designated by the Authority as "vulnerable" must sample for beta particle and photon radioactivity as follows. No waivers shall be granted:¶
(i) Quarterly samples for beta emitters and annual samples for tritium and strontium-90 must be taken at each entry point to the distribution system. Systems already designated by the state must continue to sample until the state removes the designation.¶
(ii) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sample point has a running annual average less than or equal to 50 pCi/l , sampling for contaminants prescribed in

subparagraph (7)(b)(A)(i) of this rule maybe reduced to once every three years.¶
(B) Community water systems designated by the Authority as "contaminated" by effluents from nuclear facilities and must sample for beta particle and photon radioactivity as follows. No waivers shall be granted.¶
(i) Systems must collect quarterly samples for beta emitters as detailed below and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system. Sampling must continue until the Authority removes the designation.¶
(ii) Quarterly monitoring for gross beta particle activity is based on the analysis of monthly samples or the analysis of a composite of three monthly samples.¶
(iii) For iodine-131, a composite of five consecutive daily samples shall be analyzed once each quarter. More frequent monitoring may be required if iodine-131 is detected.¶
(iv) Annual monitoring for strontium-90 and tritium shall be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples.¶
(v) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at an entry point has a running annual average less than or equal to 15 pCi/l, the Authority may reduce the frequency of monitoring for contaminants prescribed in subparagraph (7)(b)(B)(i) of this rule at that entry point to every three years.¶
(C) For systems in the vicinity of a nuclear facility, the Authority may allow the substitution of appropriate environmental surveillance data taken in conjunction with operation of a nuclear facility for direct monitoring of man-made radioactivity by the water supplier where such data is applicable to a particular community water system. In the event of a release, monitoring must be done at the water system's entry points.¶
(D) Systems may analyze for naturally occurring potassium-40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. Systems are allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/l) by a factor of 0.82.¶
(E) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the screening level, an analysis of the sample must be performed to identify the major radioactive constituents present in the sample and the appropriate doses must be calculated and summed to determine compliance with OAR 333-061-0030(5). Doses must also be calculated and combined for measured levels of tritium and strontium to determine compliance.¶
(F) Systems must monitor monthly at the entry point(s) which exceed the MCL listed in OAR 333-061-0030(5) beginning the month after the exceedance occurs. Systems must continue monthly monitoring until the system has established, by a rolling average of three monthly samples, that the MCL is being met. Systems who establish that the MCL is being met must return to quarterly monitoring until they meet the requirements set forth in subparagraph (7)(b)(A)(ii) or (7)(b)(B)(v) of this rule.¶
(c) General monitoring and compliance requirements for radionuclides.¶
(A) The Authority may require more frequent monitoring than specified in subsections (7)(a) and (b) of this rule or may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.¶
(B) Each system shall monitor at the time designated by the Authority during each compliance period. To determine compliance with 333-061-0030(5), averages of data shall be used and shall be rounded to the same number of significant figures as the MCL of the contaminant in question.¶
(C) Compliance.¶
(i) For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, then the system is out of compliance with the MCL.¶
(ii) For systems monitoring more than once per year, if any sample result will cause the running average to exceed the MCL at any entry point, the system is out of compliance with the MCL immediately.¶
(iii) Systems must include all samples taken and analyzed under the provisions of this section in determining compliance, even if that number is greater than the minimum required.¶
(iv) If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.¶
(v) If a sample is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 or uranium. In that case, if the gross alpha particle activity result is less than detection, one-half the detection limit will be used to calculate the annual average.¶
(D) The Authority has the discretion to delete results of obvious sampling or analytical errors.¶
(E) When the average annual MCL for radionuclides as specified in Table 5 in OAR 333-061-0030 is exceeded, the water supplier shall, within 48 hours, report the analysis results to the Authority as prescribed in OAR 333-061-0040 and initiate the public notification procedures prescribed in 333-061-0042(2)(b)(A).¶

(8) Secondary contaminants:¶
(a) The levels listed in Table 6 of OAR 333-061-0030 represent reasonable goals for drinking water quality, but routine sampling for these secondary contaminants is not required.¶
(b) The Authority may however, require sampling and analysis under the following circumstances:¶
(A) User complaints of taste, odor or staining of plumbing fixtures.¶
(B) Where treatment of the water is proposed and the levels of secondary contaminants are needed to determine the method and degree of treatment.¶
(C) Where levels of secondary contaminants are determined by the Authority to present an unreasonable risk to health.¶
(c) If the results of the analyses do not exceed levels for secondary contaminants, listed in Table 6 of OAR 333-061-0030, subsequent sampling and analysis shall be at the discretion of the Authority.¶
(d) If the results of the analyses indicate that the levels for secondary contaminants, listed in Table 6 of OAR 333-061-0030 are exceeded, the Authority shall determine whether the contaminant levels pose an unreasonable risk to health or interfere with the ability of a water treatment facility to produce a quality of water complying with the MCLs of these rules and specify follow-up actions to be taken.¶
(e) During the period while any measures called for in subsection (8)(d) of this rule are being implemented, the water supplier shall follow the procedures relating to variances and permits which are prescribed in OAR 333-061-0045.¶
(9) Monitoring of disinfectant residuals in the distribution system:¶
(a) All public water systems that add a disinfectant to the water supply at any point in the treatment process, or deliver water in which a disinfectant has been added to the water supply, must maintain a detectable disinfectant residual throughout the distribution system and shall measure and record the residual:¶
(A) At one or more representative points at a frequency that is sufficient to detect variations in chlorine demand and changes in water flow but in no case less often than twice per week; and¶
(B) At the same points in the distribution system and at the same times as total coliforms are sampled as prescribed by subsections (6)(b) through (6)(f) of this rule.¶
(b) The Authority may allow a water supplier to collect disinfectant residual samples as specified in paragraph (9)(a)(B) of this rule at points other than the total coliform sampling points at public water systems which use both a surface water source or GWUDI source and a groundwater source, if the Authority determines that such points are more representative of treated (disinfected) water quality within the distribution system. At water systems where surface water or GWUDI is used, the results of residual disinfectant concentration sampling conducted as prescribed by subsection (5)(a) of this rule for unfiltered systems or subsection (5)(b) of this rule for systems which filter, may be used in lieu of collecting separate samples.¶
(c) All public water systems that add chlorine for any purpose must ensure that the chlorine residual entering the distribution system after treatment is less than 4.0 mg/l.¶
(d) The Authority may waive the monitoring requirements specified in subsection (9)(a) of this rule for water systems that add chlorine for purposes such as the oxidation of metals or taste and odor control if a water system measures and records the residual daily and verifies that there is no remaining disinfectant residual at or before the first customer.¶
(e) Where chlorine is used as the disinfectant, the measurement of residual chlorine shall be by the N, N-diethyl-p-phenylenediamine (DPD) or other U.S. EPA-approved method in accordance with Standard Methods for the Examination of Water and Waste-water, and shall measure the free chlorine residual or total chlorine residual as applicable;¶
(f) The water supplier shall maintain a summary report of the residual disinfectant measurements and shall retain this summary report at a convenient location within or near the area served by the water system.¶
(10) Lead and copper monitoring at community and NTNC water systems:¶
(a) Site selection criteria for lead and copper monitoring in tap water.¶
(A) Water suppliers must complete a materials evaluation of the distribution system at every water system to which this section applies in order to identify a pool of targeted sampling sites that meet the requirements of this subsection. The sample sites identified must be sufficient to ensure the number of tap water samples required by subsection (10)(c) of this rule can be collected every monitoring period. All sample sites from which first draw samples are collected must be selected from this pool of targeted sampling sites. Sampling sites may not include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.¶
(B) Water suppliers must review the sources of information listed in this paragraph to identify a sufficient number of sampling sites but may consider additional information if approved by the Authority.¶
(i) All plumbing codes, permits, and records in the files of the building department(s) which indicate the plumbing materials that are installed within publicly and privately owned structures connected to the water distribution system; and¶
(ii) All existing water quality information, which includes the results of all prior analyses at the water system or

individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations.¶
(C) The sampling sites selected for a community water system's sampling pool must consist of buildings constructed as single-family residences that are used as either a residence or a place of business and that contain copper pipes with lead solder installed from January 1, 1983 through June 30, 1985 or are buildings served by lead pipes, lead goosenecks or similar appurtenances. When multiple-family residences comprise at least 20 percent of the structures served by a water system, the water supplier may include these types of structures in the sampling pool. These sample sites constitute tier 1 sampling sites.¶
(D) At community water systems with insufficient tier 1 sampling sites to satisfy the monitoring requirements in subsection (10)(c) of this rule, water suppliers must complete the sampling pool with sample sites at buildings, including multiple-family residences that contain copper pipes with lead solder installed from January 1, 1983 through June 30, 1985 or at buildings served by lead pipes, lead goosenecks or similar appurtenances. These sample sites constitute tier 2 sampling sites.¶
(E) At community water systems with insufficient tier 1 and tier 2 sampling sites, water suppliers must complete the sampling pool with sample sites at single family structures that contain copper pipes with lead solder installed before 1983. These sample sites constitute tier 3 sampling sites.¶
(F) At community water systems with insufficient tier 1, tier 2 and tier 3 sampling sites to satisfy the monitoring requirements in subsection (10)(c) of this rule, water suppliers must complete the sampling pool with representative sites throughout the distribution system at which the plumbing materials used at that site are commonly found at other sites served by the water system.¶
(G) The sampling sites selected for NTNC water systems must consist of buildings that contain copper pipes with lead solder installed from January 1, 1983 through June 30, 1985 or sample sites served by lead pipes, lead goosenecks or similar appurtenances. These sample sites constitute tier 1 sampling sites for NTNC water systems.¶
(H) At NTNC water systems with insufficient tier 1 sites, water suppliers must complete the sampling pool with sites that meet the criteria specified in paragraph (10)(a)(D) of this rule or if necessary, complete the sampling pool with sites served by copper pipes with lead solder installed before 1983. If additional sites are still needed to satisfy the monitoring requirements in subsection (10)(c) of this rule, the water supplier shall use representative sites throughout the distribution system with plumbing materials commonly found at other sites served by the water system.¶
(I) For any water system where the sampling pool does not consist exclusively of tier 1 sites, water suppliers must submit a letter to the Authority according to OAR 333-061-0040(1)(g)(A)(i) indicating why a review of the information in paragraph (10)(a)(B) of this rule was inadequate to locate a sufficient number of tier 1 sites. For community water systems which include tier 3 sampling sites in the sampling pool, water suppliers must indicate in such a letter why a sufficient number of tier 1 and tier 2 sampling sites could not be located.¶
(b) Sample collection methods for lead and copper monitoring in tap water.¶
(A) All tap water samples for lead and copper collected according to subsections (10)(a) through (e) of this rule must be first draw samples consisting of a one-liter sample collected from a tap where the water remained in plumbing pipes for at least six hours and must be collected without flushing the tap first. First-draw samples from residential housing must be collected from the cold-water kitchen tap or bathroom sink. First-draw samples from non-residential buildings must be collected at an interior tap from which water is typically drawn for consumption. First-draw samples may be collected by the water supplier or by residents but only after those residents were instructed of the sampling procedures specified in this paragraph. To avoid the risks associated with residents handling nitric acid, acid fixation of first draw samples may be done up to 14 days after a sample is collected. If a water supplier allows residents to perform sampling, the water supplier may not challenge the accuracy of sampling results based on alleged errors in sample collection.¶
(B) Water suppliers must collect each first-draw tap sample from the same sampling site from which a previous sample was collected. If a water supplier cannot gain access to a sampling site in order to collect a follow-up tap sample for any reason, the water supplier may collect the follow-up tap sample from another sampling site in the sampling pool as long as the new sample site meets the same targeting criteria and is within the proximity of the original site.¶
(c) Water suppliers must collect at least the number of samples indicated in Table 34~~,~~ during each monitoring period according to subsection (10)(d) of this rule. The sample sites selected for reduced monitoring must be representative of the sites identified as standard monitoring sampling sites.¶
(A) At water systems with fewer than five drinking water taps meeting the sample site criteria specified in subsection (10)(a) of this rule, water suppliers must collect at least one sample from each sampling site and must then collect additional samples on different days during the monitoring period to meet the required number of samples during the monitoring period.¶
(B) The Authority may allow water suppliers~~,~~ to collect a number of samples less than the number of sampling sites

specified in this subsection provided that at least one sample is collected at every tap that can be used for human consumption. The Authority must approve this reduction of the minimum number of samples in writing based on a request from the water supplier or onsite verification by the Authority. The Authority may specify sampling locations when a system is conducting reduced monitoring.¶
(d) Frequency of monitoring for lead and copper in tap water.¶
(A) At all water systems, water suppliers must conduct initial tap water monitoring during two consecutive six-month periods.¶
(i) At water systems serving 50,000 people or less, if sample results are at or below the lead and copper action levels during two consecutive six-month monitoring periods, water suppliers may reduce monitoring according to paragraph (10)(d)(D) of this rule.¶
(ii) At water systems serving 50,000 people or less, if sample results exceed the action level for lead or copper, water suppliers must implement corrosion control treatment according to OAR 333-061-0034(2) and monitor according to paragraphs (10)(d)(B) and (C) of this rule.¶
(B) Monitoring after installation of corrosion control and source water treatment.¶
(i) At any water system where optimal corrosion control treatment is installed according to OAR 333-061-0034(3), water suppliers must monitor during two consecutive six-month periods no later than 12 months after the deadline for installing treatment.¶
(ii) At any water system where source water treatment is installed according to OAR 333-061-0034(4), water suppliers must monitor during two consecutive six-month periods no later than 12 months after the deadline for installing treatment.¶
(C) After the Authority specifies water quality parameters for optimal corrosion control according to OAR 333-061-0034(3), water suppliers must monitor during each subsequent six-month monitoring period beginning on the date the Authority specifies the optimal water quality control parameters.¶
(D) Reduced monitoring:¶
(i) At water systems where sample results are at or below the lead and copper action levels during each of two consecutive six-month monitoring periods, water suppliers may reduce both the number of samples to the number specified in Table 34 for reduced monitoring sites in (10)(c) of this rule, and the monitoring frequency to once per year. In no case may the number of samples required be reduced below the minimum number specified in paragraph (10)(c)(B) of this rule or at least one sample per available tap. This monitoring must begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.¶
(I) At water systems with optimal corrosion control treatment, monitoring may be reduced only if the range of optimal water quality control parameters specified by the Authority are met and after written approval from the Authority.¶
(II) At water systems with optimal corrosion control treatment, the Authority shall review monitoring, treatment, and other relevant information submitted by the water supplier and notify the water supplier in writing when it determines the reduced monitoring may begin. The Authority shall review, and where appropriate, revise its determination when the water supplier submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.¶
(ii) At water systems where sample results are at or below the lead and copper action levels during three consecutive years of monitoring, water suppliers may reduce the monitoring frequency for lead and copper to once every three years.¶
(I) At water systems with optimal corrosion control treatment, monitoring may be reduced only if the range of optimal water quality control parameters specified by the Authority are met and after written approval from the Authority.¶
(II) The Authority shall review monitoring, treatment, and other relevant information submitted by the water supplier and shall notify the water supplier in writing when it determines monitoring once every three years may begin. The Authority shall review, and where appropriate, revise its determination when the water supplier submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.¶
(III) Monitoring conducted once every three years must be completed no later than every third calendar year.¶
(iii) At water systems where the required number of samples is reduced, water suppliers must collect the samples from representative sites included in the pool of targeted sampling sites identified according to subsection (10)(a) of this rule. At systems where monitoring is annual or less frequent, water suppliers must conduct the lead and copper tap sampling between June 1 and September 30, inclusive. For water suppliers collecting a reduced number of samples, the Authority may approve a different seasonal period for lead and copper tap water monitoring. Such a seasonal period shall be no longer than four consecutive months and must represent a time of normal operation, when the highest concentrations of lead are most likely to occur.¶
(I) At a NTNC water system which is not operated during the months of June through September and for which a period of normal operation is unknown where the highest concentrations of lead are most likely to occur, the

Authority shall designate a monitoring period that represents a time of normal operation for the water system. This monitoring shall begin during the period designated by the Authority in the calendar year immediately following the end of the monitoring period for which samples were collected at the water system.¶
(II) At community and NTNC water systems where monitoring is annual or less frequent and the Authority approved sample collection during the months of June through December, water suppliers must collect the next round of samples during a time period that ends no later than 21 months or 45 months respectively, after the previous round of sampling. Subsequent rounds of sampling must be collected annually or triennially.¶
(iv) At water systems subject to reduced monitoring and serving 50,000 people or less, if lead or copper samples exceed the action level, water suppliers must resume monitoring at the frequency specified in paragraph (10)(d)(A) of this rule and collect the number of samples specified for standard monitoring specified in subsection (10)(c) of this rule. Water suppliers must also monitor water quality parameters according to subsection (10)(f) of this rule during the period in which the lead or copper action level was exceeded.¶
(I) At water systems where monitoring was increased according to subparagraph (10)(d)(D)(iv) of this rule, water suppliers may resume annual tap water monitoring for lead and copper according to subparagraph (10)(d)(D)(i) of this rule at the reduced number of sampling sites after two subsequent consecutive six-month rounds of lead and copper sample results are at or below the applicable action levels. This annual monitoring must begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.¶
(II) Water suppliers may resume triennial monitoring for lead and copper in tap water at the reduced number of sampling sites after meeting the criteria specified in subparagraph (10)(d)(D)(ii) of this rule.¶
(v) At water systems subject to reduced monitoring, if sample results exceed the lead action level during any four-month monitoring period or if optimal water quality control parameters are not at or above the minimum values or within the range of values specified by the Authority for more than nine days in any six-month period as specified in paragraph (10)(f)(F), water suppliers must complete the actions specified in sub-subparagraphs (10(d)(D)(v)(I) through (III) of this rule:¶
(I) Resume monitoring at the frequency specified in paragraph (10)(d)(A) of this rule.¶
(II) Collect the number of samples specified for standard monitoring specified in subsection (10)(c) of this rule; and¶
(III) Resume monitoring for water quality parameters within the distribution system, if applicable, according to paragraph (10)(f)(C) of this rule.¶
(IV) This monitoring must begin no later than the six-month monitoring period beginning January 1 of the calendar year following the lead action level exceedance or water quality parameter excursion.¶
(vi) At water systems where monitoring was increased according to subparagraph (10)(d)(D)(v) of this rule, water suppliers may resume both reduced tap water monitoring for lead and copper and reduced water quality parameter monitoring within the distribution system if the Authority approves the monitoring reduction in writing and after two subsequent six-month rounds of lead and copper monitoring met the criteria specified in subparagraph (10)(d)(D)(i) of this rule.¶
(I) This annual monitoring must begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.¶
(II) At such water systems, water suppliers may resume reduced triennial monitoring for lead and copper in tap water after meeting the criteria specified in specified in subparagraph (10)(d)(D)(ii) of this rule. Water suppliers may also reduce water quality parameter distribution monitoring according to sub-subparagraphs (10)(f)(F)(vi)(I) and (II) of this rule.¶
(III) Water suppliers must demonstrate they have re-qualified for triennial monitoring for water quality parameters in distribution before beginning this monitoring.¶
(vii) At water systems where sample results are less than or equal to 0.005 mg/l for lead and 0.65 mg/l for copper when calculated according to OAR 333-061-0030(1) for two consecutive six-month monitoring periods, water suppliers may reduce the number of samples according to subsection (10)(c) of this rule and the sampling frequency to once every three calendar years.¶
(viii) At water systems subject to reduced monitoring according to paragraph (10)(d)(D) of this rule, water suppliers must notify the Authority in writing of any upcoming, long-term change to treatment practices or the addition of a new water source. The Authority shall review and approve the addition of the source or change in treatment practices before the project is implemented by the water supplier. The Authority may require the water supplier to resume standard monitoring or take other appropriate steps to evaluate water quality such as increased water quality parameter monitoring or re-evaluation of its corrosion control treatment.¶
(e) The results of any monitoring conducted in addition to the requirements of this section must be considered by the water supplier and by the Authority when determining whether an action level is exceeded or in making any determinations. The Authority may invalidate lead or copper tap water samples according to the criteria in this subsection.¶
(A) The Authority may invalidate a lead or copper tap water sample if at least one of the conditions specified in this

paragraph is met. The decision and the rationale for the decision shall be documented in writing by the Authority. A sample invalidated by the Authority does not count toward determining if the action level for lead or copper is exceeded or toward meeting the minimum monitoring requirements. Sample results may be invalidated if:¶
(i) The laboratory establishes that improper sample analysis caused erroneous results;¶
(ii) The sampling site did not meet the site selection criteria;¶
(iii) The sample container was damaged in transit; or¶
(iv) There is substantial reason to believe that the sample was subject to tampering.¶
(B) Water suppliers must report the results of all samples to the Authority and all supporting documentation for samples proposed to be invalidated.¶
(C) The Authority may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.¶
(D) Water suppliers must collect replacement samples for any samples invalidated if after the invalidation of one or more samples, the number of samples collected for the monitoring period does not meet the minimum requirements specified in subsection (10)(c) of this rule. Replacement samples must be collected as soon as possible, and in no case later than 20 days after the date the Authority invalidates the original sample. Replacement samples must be collected at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.¶
(f) Water suppliers must monitor water quality parameters as specified in paragraphs (10)(f)(D) through (J) of this rule as applicable at:¶
(A) Water systems serving more than 50,000 people;¶
(B) Water systems serving 50,000 people or less where the lead or copper action levels were exceeded; or¶
(C) Water systems where optimal corrosion control treatment is operated.¶
(D) Sample collection methods:¶
(i) Distribution samples must be representative of water quality throughout the distribution system taking into account the number of people served by the water system, different sources of water, different treatment methods employed at the system, and seasonal variability. Water quality parameter monitoring is not required to be conducted at taps targeted for lead and copper monitoring.¶
(ii) Entry point samples must be collected at locations representative of each source after treatment. If a water system draws water from more than one source and the sources are combined before distribution, water suppliers must monitor at an entry point to the distribution system during periods of normal operating conditions when water is representative of all sources being used.¶
(E) Number of samples:¶
(i) Water suppliers must collect two distribution samples for applicable water quality parameters during each monitoring period as specified in paragraphs (10)(f)(F) through (H) of this rule from the number of sites identified in Table 35.¶
(ii) Water suppliers must collect two samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in paragraph (10)(f)(F) of this rule except as provided in subparagraph (10)(f)(G)(iii) of this rule. During each monitoring period specified in paragraphs (10)(f)(G) through (I) of this rule, water suppliers must collect one sample for each applicable water quality parameter at each entry point to the distribution system.¶
(F) Water suppliers must monitor water quality parameters in the distribution system and at each entry point to the distribution system at water systems as prescribed by subparagraphs (10)(f)(F)(i) or (ii) of this rule. Monitoring must be conducted during each six-month monitoring period for the following parameters: pH, alkalinity, orthophosphate (when an inhibitor containing a phosphate compound is used), silica (when an inhibitor containing a silicate compound is used), calcium, conductivity, and water temperature. This monitoring must be conducted:¶
(i) At water systems serving 50,000 people or less, if sample results exceed the lead or copper action level; or¶
(ii) At water systems serving 50,000 people or more or where a water system grows to serve more than 50,000 people.¶
(G) At water systems where optimal corrosion control treatment is installed, water suppliers must monitor water quality parameters at the locations and frequencies specified in this paragraph during each six-month monitoring period as specified in paragraph (10)(d)(B) of this rule.¶
(i) At taps in the distribution system, two samples for: pH, alkalinity, orthophosphate (when an inhibitor containing a phosphate compound is used), silica (when an inhibitor containing a silicate compound is used), calcium (when calcium carbonate stabilization is used as part of corrosion control).¶
(ii) At each entry point to the distribution system, at least one sample for pH, no less frequently than every two weeks except as specified in subparagraph (10)(f)(G)(iii) of this rule. Monitoring must also include if applicable:¶
(I) The alkalinity concentration and the dosage rate of the chemical used to adjust alkalinity when alkalinity is adjusted as part of optimal corrosion control; or¶
(II) The concentration of orthophosphate or silica (whichever is applicable) and the dosage rate of the inhibitor

used when a corrosion inhibitor is used as part of optimal corrosion control.¶
(iii) At groundwater systems, water suppliers may limit entry point monitoring to those entry points that are representative of water quality and treatment conditions throughout the distribution system. If water from untreated ground water sources mixes with water from treated ground water sources, the water supplier must monitor water quality parameters both at representative entry points receiving treatment and no treatment. Water suppliers must provide the Authority written information identifying the selected entry points and documentation, including information about seasonal variability sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system, prior to any monitoring.¶
(H) Monitoring after the Authority specifies water quality parameters values for optimal corrosion control treatment.¶
(i) At water systems serving more than 50,000 people where the Authority specifies water quality parameter values for optimal corrosion control according to OAR 333-061-0034(3)(l), water suppliers must monitor the applicable water quality parameters specified in paragraph (10)(f)(G) of this rule every six months. Water suppliers must also determine compliance with the minimum optimal water quality parameter values set by the Authority every six months, beginning with the first six-month period on either January 1 or July 1, whichever comes first, after the Authority specifies the values. Compliance with the Authority-designated optimal water quality parameter values must be determined according to OAR 333-061-0034(3)(l).¶
(ii) At water systems serving 50,000 people or less where the Authority specifies water quality parameter values for optimal corrosion control according to OAR 333-061-0034(3)(l), water suppliers must monitor the applicable water quality parameters according to paragraphs (10)(f)(G) or (I) of this rule as appropriate. Water suppliers must also monitor water quality parameters during each six-month monitoring period where sample results exceed the action level for lead or copper.¶
(I) Reduced monitoring:¶
(i) At water systems where the range of water quality parameter values for optimal corrosion control treatment are met during two consecutive six-month monitoring periods conducted according to subsection (10)(d) of this rule, water suppliers may collect two distribution samples for the applicable water quality parameters at the reduced number of sites specified in Table 36 during each six-month monitoring period. The monitoring frequency at the entry point(s) to the distribution system must continue as specified in paragraph (10)(f)(G) of this rule.¶
(ii) At water systems where the range of water quality parameter values for optimal corrosion control treatment are met during every six-month monitoring period for three consecutive years, water suppliers may reduce the monitoring frequency for water quality parameters in distribution to annually. This monitoring must begin during the calendar year immediately following the end of the monitoring period in which the third consecutive year of six-month monitoring occurs.¶
(iii) At water systems where the range water quality parameter values for optimal corrosion control treatment are met during three consecutive years of annual monitoring, water suppliers may reduce the monitoring frequency for water quality parameters in distribution from annually to once every three years. This monitoring must begin no later than the third calendar year following the end of the monitoring period in which the third consecutive year of annual monitoring occurred.¶
(iv) Water suppliers may reduce the monitoring frequency for applicable water quality parameters in distribution to once every three years if able to demonstrate that the lead concentration in tap water is less than or equal to 0.005 mg/l, that the copper concentration in tap water is less than or equal to 0.65 mg/l, and that the range of water quality parameter values for optimal corrosion control treatment were met during two consecutive monitoring periods conducted according to subsection (10)(d) of this rule. Monitoring must be conducted at least once every third calendar year.¶
(v) Water suppliers monitoring annually must collect samples evenly throughout the year to reflect seasonal variability in water quality.¶
(vi) At water systems where reduced monitoring is conducted, water suppliers that fail to operate optimal corrosion control treatment within the range of values specified by the Authority according to OAR 333-061-0034(3)(l) for more than nine days during any six-month period must resume distribution monitoring at the number of locations and frequency prescribed by paragraph (10)(f)(H) of this rule. Water suppliers may resume annual monitoring for water quality parameters in distribution at the reduced number of sites after completing two subsequent consecutive six-month rounds of monitoring that meet the criteria specified in subparagraph (10)(f)(I)(i) of this rule.¶
(J) The results of any monitoring conducted in addition to the minimum requirements specified in this section shall be considered by the water supplier and the Authority in making any determinations.¶
(g) Monitoring requirements for lead and copper in source water.¶
(A) At water systems where the action level for either lead or copper is exceeded in tap water samples collected according to subsections (10)(a) through (e) of this rule, water suppliers must collect lead and copper source water samples as specified in this subsection.¶

(i) At groundwater systems, water suppliers must collect at least one sample at every entry point to the distribution system which is representative of each source after treatment unless conditions make a different sampling point more representative of each source or water treatment plant.¶
(ii) At surface water systems or water systems with a combination of groundwater and surface water sources, water suppliers must collect at least one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source, after treatment. Water suppliers must collect each sample at equivalent sampling points unless conditions make another sampling point more representative of each source or water treatment plant.¶
(iii) If a water system draws water from more than one source and the sources are combined before distribution, water suppliers must monitor at an entry point to the distribution system during periods when water is representative of all sources being used.¶
(B) Where the results of sampling indicate the maximum permissible source water level established in OAR 333-061-0034(4)(b)(D) is exceeded, the Authority may require one additional sample to be collected as soon as possible after the initial sample was collected (but not to exceed two weeks) at the same sampling point. If an Authority-required confirmation sample is collected, the results of the initial and confirmation samples must be averaged to determine compliance with the Authority-specified maximum permissible levels. Any sample value below the detection limit shall be considered to be zero. For lead, any value above the detection limit but below the practical quantitation level (PQL) of 0.005 mg/l shall either be considered as the measured value or be considered one-half the PQL (0.0025 mg/l). For copper, any value above the detection limit but below the PQL of 0.050 mg/l shall either be considered as the measured value or be considered one-half the PQL (0.025 mg/l).¶
(C) Water suppliers must collect one sample according to paragraph (10)(g)(A) of this rule no later than six months after the end of the monitoring period during which the lead or copper action level was exceeded. For monitoring periods that are annual or less frequent, the end of the monitoring period is September 30 of the calendar year in which the monitoring occurred, or if the Authority has established an alternate monitoring period, the last day of that period.¶
(D) At water systems where source water treatment was installed according to OAR 333-061-0034(4)(a)(C), water suppliers must collect at least one sample from each entry point to the distribution system during two consecutive six-month monitoring periods within 36 months after the Authority determines source water treatment is necessary.¶
(E) Monitoring frequency after the Authority specifies maximum permissible source water levels or determines that source water treatment is not needed.¶
(i) Water suppliers must monitor at the frequency specified in this paragraph in cases where the Authority specifies maximum permissible source water levels according to OAR 333-061-0034(4)(b)(D) or determines that source water treatment is not required according to OAR 333-061-0034(4)(b)(B).¶
(I) At water systems using only groundwater sources, water suppliers must collect samples once during the three-year compliance period in effect when the applicable Authority determination is made and thereafter water suppliers must collect samples once every third calendar year.¶
(II) At water systems using surface water or a combination of groundwater and surface water sources, water suppliers must collect samples once during each calendar year, with the first annual monitoring period beginning during the year in which the applicable Authority determination is made.¶
(ii) Water suppliers are not required to conduct source water monitoring if sample results are at or below the action level for lead and copper in tap water samples collected during the same monitoring period.¶
(F) Reduced monitoring frequency:¶
(i) At water systems using only groundwater sources, water suppliers may reduce monitoring for lead and copper in source water to once every nine-year compliance cycle, provided samples are collected no later than every ninth calendar year, if:¶
(I) The water supplier demonstrates that finished drinking water entering the distribution system has concentrations of lead and copper below the maximum permissible lead and copper concentrations specified by the Authority according to OAR 333-061-0034(4)(b)(D) during at least three consecutive compliance periods; or¶
(II) The Authority determines that source water treatment is not necessary and the water supplier demonstrates during at least three consecutive compliance periods that the concentration of lead in source water was less than or equal to 0.005 mg/l and that the concentration of copper in source water was less than or equal to 0.65 mg/l.¶
(ii) At water systems using surface water or a combination of groundwater and surface water, water suppliers may reduce monitoring for lead and copper in source water to once during each nine-year compliance cycle, provided that the samples are collected no later than every ninth calendar year, if:¶
(I) Water suppliers demonstrate that finished drinking water entering the distribution system has concentrations of lead and copper below the maximum permissible lead and copper concentrations specified by the Authority according to OAR 333-061-0034(4)(b)(D) for at least three consecutive years; or¶
(II) The Authority determines that source water treatment is not necessary and the water supplier demonstrates

during at least three consecutive years that the concentration of lead in source water was less than or equal to 0.005 mg/l and the concentration of copper in source water was less than or equal to 0.65 mg/l.¶
(iii) At water systems using a new source of water, water suppliers are not eligible for reduced monitoring for lead or copper until concentrations in samples collected from the new source during three consecutive monitoring periods are below the maximum permissible lead and copper concentrations specified by the Authority according to OAR 333-061-0034(4)(a)(E).¶
(h) Lead service line inventory requirements.¶
(A) Inventory requirements:¶
(i) Water suppliers must develop an inventory to identify the lead status of all public and private service lines connected to the public water distribution system. The inventory must:¶
(I) Utilize evidence-based methodologies as listed in subparagraph (10)(h)(A)(ii) of this rule;-¶
(II) Categorize each public and private service line as described in subparagraph (10)(h)(A)(iii) of this rule. Water suppliers are not required to physically verify the material composition (for example, copper or plastic) of a service line to identify its lead status in the inventory; and-¶
(III) Be submitted to the Authority no later than October 16, 2024, in a format approved by the Authority.¶
(ii) Water suppliers must use the Authority approved methodologies specified in sub-subparagraphs (10)(h)(A)(ii)(I) through (V) of this rule to categorize service lines before utilizing the methodology specified in sub-subparagraph (10)(h)(A)(ii)(VI).¶
(I) Water suppliers must review the following records or sources of information. All construction and plumbing codes, permits, and existing records or other documentation which indicate the service line materials used to connect structures to the distribution system. All water system records, including distribution system maps and drawings, historical records describing each service connection, meter installation records, historical capital improvement or master plans, and standard operating procedures. All inspections and records related to the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system.-¶
(II) Any piping installed after January 1, 1986 can be categorized as non-lead. If a water supplier has a documented construction standard established prior to that date that did not allow lead to be used for service lines, any service line installed after that date can be categorized as non-lead.¶
(III) Any service line with a diameter of two inches or greater can be categorized as non-lead.¶
(IV) Water suppliers may choose to have customers submit data or documentation identifying the lead status of their service line, from a location just inside their building. The water supplier must provide instructions to the building owner and must receive photo or other documentation clearly showing the service line material. When piping material is difficult to categorize visually, a scratch test, magnet test, or other verification must be conducted and documented.¶
(V) Each service line, or portion of the service line if jointly owned, may be excavated or exposed at one location such that the material can be identified, or the water supplier may inspect the service line as it enters the building.¶
(VI) If no lead service lines were identified using the methodologies listed in sub-subparagraphs (10)(h)(A)(ii)(I) through (V) of this rule, a random sampling of a portion of the remaining unknown service lines that provides a 95 percent confidence level must be physically inspected as specified in sub-subparagraph (10)(h)(A)(ii)(V) of this rule. If no lead service lines are found in the randomized pool, all remaining unknown service lines can be categorized as non-lead.¶
(iii) Each service line, or portion of the service line where ownership is split, must be categorized in the inventory in the following manner:¶
(I) "Lead" where the service line is made of lead.¶
(II) "Galvanized Requiring Replacement" where a galvanized service line is or was at any time downstream of a lead service line or is currently downstream of a "Lead Status Unknown" service line. If the water supplier is unable to demonstrate that the galvanized service line was never downstream of a lead service line, it must presume there was an upstream lead service line.-¶
(III) "Non-lead" where the service line is determined through an evidence-based record, method, or technique not to be lead or galvanized requiring replacement. The water system may classify the actual material of the service line (for example, plastic or copper) as an alternative to classifying it as "Non-lead."-¶
(IV) "Lead Status Unknown" where the service line material is not known to be lead, galvanized requiring replacement, or a non-lead service line, such as where there is no documented evidence supporting material classification.¶
(iv) Water suppliers must identify and update service line materials in the inventory as they are encountered during normal water system operations (including, but not limited to, checking service line materials when reading water meters or performing maintenance activities).¶
(v) If any service lines are categorized as lead, galvanized requiring replacement, or lead status unknown, the

inventory updates must be submitted at least at the same frequency as monitoring for lead and copper tap according to subsection (10)(d) of this rule, or annually, whichever is less frequent.¶
(B) For any lead pipes, goosenecks or similar appurtenances found within a public water distribution system, water suppliers must:¶
(i) Remove the component upon discovery; or¶
(ii) Include the component as part of a compliance schedule approved by the Authority according to OAR 333-061-0087(4).¶
(11) Monitoring requirements when 4-log treatment of viruses is provided at groundwater systems.¶
(a) At groundwater systems where at least 4-log treatment of viruses (using inactivation, removal or an Authority-approved combination of 4-log virus inactivation and removal) is provided before or at the first customer for a groundwater source, water suppliers must comply with the requirements of this subsection within 30 days of placing the groundwater source in service.¶
(A) The water supplier must notify the Authority in writing that it provides at least 4-log treatment of viruses. The notification must include engineering, operational, or other information as determined by the Authority necessary to evaluate the submission.¶
(B) Disinfection and filtration effectiveness and reliability must be monitored as specified in subsections (11)(b) and (c) of this rule.¶
(C) Groundwater source monitoring according to OAR 333-061-0036(6) must be conducted if 4-log treatment of viruses is subsequently discontinued for the source.¶
(b) Chemical Disinfection:¶
(A) At water systems serving more than 3,300 people, water suppliers must continuously monitor the residual disinfectant concentration using analytical methods as specified in OAR 333-061-0036(1) at a location approved by the Authority and must record the lowest residual disinfectant concentration each day water from the groundwater source is served to the public. The minimum residual disinfectant concentration determined by the Authority and according to Table 37, must be maintained every day water from the source is served to the public. If there is a failure in the continuous monitoring equipment, grab sampling must be conducted every four hours until continuous monitoring is restored. Water suppliers in all cases must resume continuous residual disinfectant monitoring within 14 days.¶
(B) At water systems serving 3,300 or fewer people, water suppliers must monitor the residual disinfectant concentration using analytical methods as specified in OAR 333-061-0036(1) at a location approved by the Authority and record the residual disinfection concentration each day that water from the groundwater source is served to the public. The minimum residual disinfectant concentration determined by the Authority and according to Table 37 must be maintained every day water from the source is served to the public. Daily grab samples must be collected during the hour of peak flow or at another time specified by the Authority. If any daily grab sample measurement falls below the minimum residual disinfectant concentration determined by the Authority, follow-up samples must be collected every four hours until the residual disinfectant concentration is restored to the Authority-determined level. Alternately, continuous monitoring may be conducted according to paragraph (11)(b)(A) of this rule.¶
(c) At water systems where UV is used, water suppliers must verify reactors are operating within validated conditions as prescribed by OAR 333-061-0050(5)(k) by monitoring at a location approved by the Authority every day water is served to the public.¶
(A) Water suppliers must determine UV dose every day by monitoring parameters designated by the Authority for reactor operation, which may include, but are not limited to:¶
(i) UV intensity as measured by a UV sensor;¶
(ii) Flow rate;¶
(iii) Lamp status; or¶
(iv) UV transmittance.¶
(B) Water suppliers must verify UV sensors are calibrated at least once every month.¶
(d) At water systems where membrane filtration is used to achieve at least 4-log removal of viruses, water suppliers must monitor and operate the membrane filtration process according to all Authority-specified monitoring and compliance requirements and must ensure:¶
(A) The membrane has an absolute molecular weight cut-off or an alternate parameter describing the exclusion characteristics of the membrane that can reliably achieve at least 4-log removal of viruses;¶
(B) The membrane process is operated according to Authority-specified compliance requirements; and¶
(C) The integrity of the membrane is intact as verified per OAR 333-061-0050(4)(c)(I).¶
(e) At water systems that use an Authority-approved alternative treatment to provide at least 4-log treatment of viruses (using inactivation, removal, or an Authority-approved combination of 4-log virus inactivation and removal) before or at the first customer, water suppliers must:¶
(A) Monitor the alternative treatment according to all Authority-specified monitoring requirements; and¶

(B) Operate the alternative treatment according to all compliance requirements that the Authority determines necessary to verify at least 4-log treatment of viruses.¶
(f) It is a violation of this rule if a water supplier fails to correct any disruption in treatment within four hours of determining the disruption is occurring at a groundwater system subject to the requirements of subsection (11)(b) of this rule where at least 4-log treatment of viruses (using inactivation, removal, or an Authority approved combination of 4-log virus inactivation and removal) is required before or at the first customer.
Statutory/Other Authority: ORS 448.131
Statutes/Other Implemented: ORS 448.131, 448.150, 448.273

RULE ATTACHMENTS MAY NOT SHOW CHANGES. PLEASE CONTACT AGENCY REGARDING CHANGES.

Table 14

A	B	C	Designation	Sample Location
Y	Y	Y	EP for wellfield	Most susceptible well Entry point
Y	Y	N	Wellfield	Entry point for most susceptible well
N	Y	Y	EP for wellfield	Entry point for wellfield
Y	N	Y	EP for wells (not a wellfield)	Entry point
N	N	Y	EP for wells (not a wellfield)	Entry point
Y	N	N	Separate (not a wellfield)	Each entry point separately
N	Y	N	Separate (not a wellfield)	Each entry point separately
N	N	N	Separate (not a wellfield)	Each entry point separately

Note: A: wells are within 2,500 feet of each other; B: wells are in the same and no other aquifer; C: wells have a common entry point to the distribution system and pump simultaneously.

Table 15	
Contaminant	Detection Limit (mg/l)
Alachlor	0.0002
Atrazine	0.0001
Benzo(a) pyrene	0.00002
Carbofuran	0.0009
Chlordane	0.0002
Dalapon	0.001
Di(2-ethylhexyl) adipate	0.0006
Di(2-ethylhexyl) phthalate	0.0006
Dibromochloropropane (DBCP)	0.00002
Dinoseb	0.0002
Dioxin (2,3,7,8-TCDD)	0.000000005
Diquat	0.0004
Endothall	0.009
Endrin	0.00001
Ethylene Dibromide (EDB)	0.00001
Glyphosate	0.006

Heptachlor	0.00004
Heptachlor Epoxide	0.00002
Hexachlorobenzene	0.0001
Hexachlorocyclopentadiene	0.0001
Lindane(BHC-g)	0.00002
Methoxychlor	0.0001
Oxamyl (Vydate)	0.002
Picloram	0.0001
Polychlorinated Biphenyls (PCBs), as Decachlorobiphenyl	0.0001
Pentachlorophenol	0.00004
Simazine	0.00007
Toxaphene	0.001
2,4-D	0.0001
2,4,5-TP (Silvex)	0.0002

Table 16

Source water type	Population and category	Monitoring periods and frequency of sampling	Distribution system monitoring locations				
			Total per monitoring period	Near entry points	Average residence time	High TTHM locations	High HAA5 locations
Surface water or GWUDI:	< 500 purchasing water systems	One (during peak historical month)[1]	2	1		1	
	< 500 non-purchasing water systems	One (during peak historical month)[1]	2			1	1
	500-3,300 purchasing water systems	four (every 90 days)	2	1		1	
	500-3,300 non-purchasing water systems	four (every 90 days)	2			1	1
	3,301-9,999	four (every 90 days)	4		1	2	1
	10,000-49,999	six (every 60 days)	8	1	2	3	2
	50,000-249,999	six (every 60 days)	16	3	4	5	4
	250,000-999,999	six (every 60 days)	24	4	6	8	6

	1,000,000-4,999,999	six (every 60 days)	32	6	8	10	8
	≥5,000,000	six (every 60 days)	40	8	10	12	10
Ground-water:	< 500 purchasing water systems	one (during peak historical month)[1]	2	1		1	
	< 500 non-purchasing water systems	one (during peak historical month)[1]	2			1	1
	500-9,999	four (every 90 days)	2			1	1
	10,000-99,999	four (every 90 days)	6	1	1	2	2
	100,000-499,999	four (every 90 days)	8	1	1	3	3
	≥500,000	four (every 90 days)	12	2	2	4	4

[1] Peak historical month refers to the month with the highest TTHM or HAA5 levels, or the month of warmest water temperature.

Table 17

Source water type	Population	Monitoring frequency [1]	Distribution system monitoring location		
			Total per monitoring period [2]	Highest TTHM locations	Highest HAA5 locations
Surface water systems or GWUDI	< 500	per year	2	1	1
	500-3,300	per quarter	2	1	1
	3,301-9,999	per quarter	2	1	1
	10,000-49,999	per quarter	4	2	2
	50,000-249,999	per quarter	8	4	4
	250,000-999,999	per quarter	12	6	6
	1,000,000-4,999,999	per quarter	16	8	8
	≥5,000,000	per quarter	20	10	10
Groundwater	< 500	per year	2	1	1
	500-9,999	per year	2	1	1
	10,000-99,999	per quarter	4	2	2
	100,000-499,999	per quarter	6	3	3

	≥500,000	per quarter	8	4	4

[1] All water systems must monitor during month of highest DBP concentrations.

[2] Water systems on quarterly monitoring must collect dual sample sets every 90 days at each monitoring location, except for surface water or groundwater under the direct influence of surface water systems serving 500-3,300. Groundwater systems serving 500-9,999 on annual monitoring must collect dual sample sets at each monitoring location. All other water systems on annual monitoring, and systems using surface water or groundwater under the direct influence of surface water serving 500-3,300 are required to collect individual TTHM and HAA5 samples at the locations with the highest TTHM and HAA5 concentrations. Systems using surface water or groundwater under the direct influence of surface water serving 500-3,300 may collect one dual sample set per monitoring period if the highest TTHM and HAA5 concentrations occur at the same location. For systems serving fewer than 500 people, only one location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location, and month.

Table 18

Source water type	Population size category	Monitoring Frequency [1]	Distribution system monitoring location total per monitoring period [2]
Surface water systems or GWUDI:	< 500	per year	2
	500-3,300	per quarter	2
	3,301-9,999	per quarter	2
	10,000-49,999	per quarter	4
	50,000-249,999	per quarter	8
	250,000-999,999	per quarter	12
	1,000,000-4,999,999	per quarter	16
	≥5,000,000	per quarter	20
Groundwater:	< 500	per year	2
	500-9,999	per year	2
	10,000-99,999	per quarter	4
	100,000-499,999	per quarter	6
	≥500,000	per quarter	8

[1] All systems must monitor during month of highest DBP concentrations.

[2] Water systems on quarterly monitoring must collect dual sample sets every 90 days at each monitoring location, except for surface water or groundwater under the direct influence of surface water systems serving 500-3,300. Groundwater systems serving 500-9,999 on annual monitoring must collect dual sample sets at each monitoring location. All other water systems on annual monitoring, and systems using surface water or groundwater under the direct influence of surface water serving 500-3,300 are required to collect individual TTHM and HAA5 samples at

the locations with the highest TTHM and HAA5 concentrations. Systems using surface water or groundwater under the direct influence of surface water serving 500-3,300 may collect one dual sample set per monitoring period if the highest TTHM and HAA5 concentrations occur at the same location. For systems serving fewer than 500 people, only one location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location, and month.

Table 19

Source water type	Population size category	Monitoring frequency [1]	Distribution system monitoring location per monitoring period
Surface water or GWUDI:	< 500		Monitoring may not be reduced.
	500-3,300	per year	One TTHM sample at the location and during the quarter with the highest TTHM single measurement, and one HAA5 sample at the location and during the quarter with the highest HAA5 single measurement; or one dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and during the same quarter.
	3,301-9,999	per year	2 dual sample sets, one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement.
	10,000-49,999	per quarter	2 dual sample sets, one each at the locations with the highest TTHM and highest HAA5 LRAAs.
	50,000-249,999	per quarter	4 dual sample sets at the locations with the two highest TTHM and two highest HAA5 LRAAs.
	250,000-999,999	per quarter	6 dual sample sets at the locations with the three highest TTHM and three highest HAA5 LRAAs.
	1,000,000-4,999,999	per quarter	8 dual sample sets at the locations with the four highest TTHM and four highest HAA5 LRAAs.
	≥5,000,000	per quarter	10 dual sample sets— at the locations with the five highest TTHM and five highest HAA5 LRAAs.
Groundwater:	< 500	every third year	One TTHM sample at the location and during the quarter with the highest TTHM single measurement, and one HAA5 sample at the location and during the quarter with the highest HAA5 single measurement; or one dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and during the same quarter.

	500-9,999	per year	One TTHM sample at the location and during the quarter with the highest TTHM single measurement, and one HAA5 sample at the location and during the quarter with the highest HAA5 single measurement; or one dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and during the same quarter.
	10,000-99,999	per year	2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement.
	100,000-499,999	per quarter	2 dual sample sets~~;~~ at the locations with the highest TTHM and highest HAA5 LRAAs.
	≥500,000	per quarter	4 dual sample sets at the locations with the two highest TTHM and two highest HAA5 LRAAs.

[1] Systems on quarterly monitoring must take dual sample sets every 90 days.

Table 20

Population Served:	Samples Per Week:
500 or less	1
501 to 3,300	2
3,301 to 10,000	3
10,001 to 25,000	4
More than 25,000.	5

Table 21

CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia Lamblia* Cysts by Free Chlorine at 0.5 ºC(33ºF) or Lower[1])

Free residual (mg/l)	pH						
	≤6.0	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**≤9.0**
≤0.4	137	163	195	237	277	329	390
0.6	141	168	200	239	286	342	407
0.8	145	172	205	246	295	354	422
1.0	148	176	210	253	304	365	437
1.2	152	180	215	259	313	376	451
1.4	155	184	221	266	321	387	464
1.6	157	189	226	273	329	397	477
1.8	162	193	231	279	338	407	489
2.0	165	197	236	286	345	417	500

2.2	169	201	242	297	353	426	511
2.4	172	205	247	298	361	435	522
2.6	175	209	252	304	368	444	533
2.8	178	213	257	310	375	452	543
3.0	181	217	261	316	382	460	552

[1] These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ values at the lower temperature and at the higher pH.

Table 22

CT Values ($CT_{99.9}$) Percent Inactivation of *Giardia Lamblia* Cysts by Free Chlorine at 5.0 ºC(41ºF)[1]							
Free residual (mg/l)	pH						
	≤6.0	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**≤9.0**
≤0.4	97	117	139	166	198	236	279
0.6	100	120	143	171	204	244	291
0.8	103	122	146	175	210	252	301
1.0	105	125	149	179	216	260	312
1.2	107	127	152	183	221	267	320
1.4	109	130	155	187	227	274	329
1.6	111	132	158	192	232	281	337
1.8	114	135	162	196	238	287	345
2.0	116	138	165	200	243	294	353
2.2	118	140	169	204	248	300	361
2.4	120	143	172	209	253	306	368
2.6	122	149	175	213	258	312	375
2.8	124	148	178	217	263	318	382
3.0	126	151	182	221	268	324	389

[1] These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature, and at the higher pH.

Table 23

CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia Lamblia* Cysts by Free Chlorine at 10.0 ºC(50ºF)[1]							
Free residual (mg/l)	pH						
	≤6.0	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**≤9.0**
≤0.4	73	88	104	125	149	177	209
0.6	75	90	107	128	153	183	218

0.8	78	92	110	131	158	189	226
1.0	79	94	112	134	162	195	234
1.2	80	95	114	137	166	200	240
1.4	82	98	116	140	170	206	247
1.6	83	99	119	144	174	211	253
1.8	86	101	122	147	179	215	259
2.0	87	104	124	150	182	221	265
2.2	89	105	127	153	186	225	271
2.4	90	107	129	157	190	230	276
2.6	92	110	131	160	194	234	281
2.8	93	111	134	163	197	239	287
3.0	95	113	137	166	201	243	292

[1] These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature, and at the higher pH.

Table 24

CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia Lamblia* Cysts by Free Chlorine at 15.0 ºC(59ºF)[1]							
Free residual (mg/l)	pH						
	≤6.0	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**≤9.0**
≤0.4	49	59	70	83	99	118	140
0.6	50	60	72	86	102	122	146
0.8	52	61	73	88	105	126	151
1.0	53	63	75	90	108	130	156
1.2	54	64	76	92	111	134	160
1.4	55	65	78	94	114	137	165
1.6	56	66	79	96	116	141	169
1.8	57	68	81	98	119	144	173
2.0	58	69	83	100	122	147	177
2.2	59	70	85	102	124	150	181
2.4	60	72	86	105	127	153	184
2.6	61	73	88	107	129	156	188
2.8	62	74	89	109	132	159	191
3.0	63	76	91	111	134	162	195

[1] These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at lower temperature, and at the higher pH.

Table 25

CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia Lamblia* Cysts

by Free Chlorine at 20 ºC(68ºF)[1]							
Free residual (mg/l)	pH						
	≤6.0	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**≤9.0**
≤0.4	36	44	52	62	74	89	105
0.6	38	45	54	64	77	92	109
0.8	39	46	55	66	79	95	113
1.0	39	47	56	67	81	98	117
1.2	40	48	57	69	83	100	120
1.4	41	49	58	70	85	103	123
1.6	42	50	59	72	87	105	126
1.8	43	51	61	74	89	108	129
2.0	44	52	62	75	91	110	132
2.2	44	53	63	77	93	113	135
2.4	45	54	65	78	95	115	138
2.6	46	55	66	80	97	117	141
2.8	47	56	67	81	99	118	143
3.0	47	57	68	83	101	122	146

[1] These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature, and at the higher pH.

Table 26

CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia Lamblia* Cysts by Free Chlorine at 25 ºC(77ºF)[1] and Higher							
Free residual (mg/l)	pH						
	≤6.0	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**≤9.0**
≤0.4	24	29	35	48	50	59	70
0.6	25	30	36	43	51	61	73
0.8	26	31	37	44	53	63	75
1.0	26	31	37	45	54	65	78
1.2	27	32	38	46	55	67	80
1.4	27	33	39	47	57	69	82
1.6	28	33	40	48	58	70	84
1.8	29	34	41	49	60	72	86
2.0	29	35	41	50	61	74	88
2.2	30	35	42	51	62	75	90
2.4	30	36	43	52	63	77	92
2.6	31	37	44	53	65	78	94
2.8	31	37	45	54	66	80	96
3.0	32	38	46	55	67	81	97

[1] These CT values achieve greater than a 99.99 percent inactivation of viruses. CT values between the indicated pH values may be determined by linear interpolation. CT values between

the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature, and at the higher pH.

Table 27

-CT Values ($CT_{99.9}$) Percent Inactivation of *Giardia Lamblia* Cysts by Chlorine Dioxide and Ozone[1]						
Temperature						
	<1ºC	5 ºC	10 ºC	15 ºC	20 ºC	>25 ºC
Chlorine dioxide	63	26	23	19	15	11
Ozone	2.9	1.9	1.4	0.95	0.72	0.48

[1] These CT values achieve greater than 99.99 percent inactivation of viruses. CT values between the indicated temperatures may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

Table 28

CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia Lamblia* Cysts by Chloramines[1]					
Temperature					
<1ºC	5 ºC	10 ºC	15 ºC	20 ºC	>25 ºC
3,800	2,200	1,850	1,500	1,100	750

[1] These values are for pH values of 6 to 9. These CT values may be assumed to achieve greater than 99.99 percent inactivation of viruses only if chlorine is added and mixed in the water prior to the addition of ammonia. If this condition is not met, the system must demonstrate, based on demonstration studies or other information, as approved by the Authority, that the system is achieving at least 99.99 percent inactivation of viruses. CT values between the indicated temperatures may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

Table 29	
Population	Samples per day
1 to 500	1
501 to 1,000	2
1,001 to 2,500	3
2,501 to 3,300	4

Table 30

CT Values (mg-min/L) for *Cryptosporidium* Inactivation by Chlorine Dioxide*

Log Credit	Water Temperature, Deg. C										
	≤0.5	1	2	3	5	7	10	15	20	25	30
0.25	159	153	140	128	107	90	69	45	29	19	12
0.5	319	305	279	256	214	180	138	89	58	38	24
1.0	637	610	558	511	429	360	277	179	116	75	49
1.5	956	915	838	767	643	539	415	268	174	113	73
2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
2.5	1594	1525	1396	1278	1072	899	691	447	289	188	122
3.0	1912	1830	1675	1534	1286	1079	830	536	347	226	147

*Systems may use this equation to determine log credit between the indicated values: Log credit = (0.001506 x (1.09116) (^{temp}) x CT.

Table 31
CT Values (mg-min/L) for *Cryptosporidium* Inactivation by Ozone*

Log Credit	Water Temperature, Deg. C										
	≤0.5	1	2	3	5	7	10	15	20	25	30
0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
2.0	48	46	42	38	32	26	20	12	7.8	4.9	3.1
2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9
3.0	72	69	63	57	47	39	30	19	12	7.4	4.7

*Systems may use this equation to determine log credit between the indicated values: Log credit = (0.0397 x (1.09757)(^{temp}) x CT.

Table 32
UV Dose Table for *Cryptosporidium, Giardia lamblia*, and Virus Inactivation Credit

Log Credit	*Cryptosporidium* UV dose (mJ/cm^2)	*Giardia Lamblia* UV dose (mJ/cm^2)	Virus UV dose (mJ/cm^2)
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163

4.0	22	22	186

Table 33 Total Coliform Monitoring Frequency at Public Water Systems Serving More Than 1,000 People			
Population served	Minimum number of routine samples per month	Population served	Minimum number of routine samples per month
1,001 to 2,500	2	70,001 to 83,000	80
2,501 to 3,300	3	83,001 to 96,000	90
3,301 to 4,100	4	96,001 to 130,000	100
4,101 to 4,900	5	130,001 to 220,000	120
4,901 to 5,800	6	220,001 to 320,000	150
5,801 to 6,700	7	320,001 to 450,000	180
6,701 to 7,600	8	450,001 to 600,000	210
7,601 to 8,500	9	600,001 to 780,000	240
8,501 to 12,900	10	780,001 to 970,000	270
12,901 to 17,200	15	970,001 to 1,230,000	300
17,201 to 21,500	20	1,230,001 to 1,520,000	330
21,501 to 25,000	25	1,520,001 to 1,850,000	360
25,001 to 33,000	30	1,850,001 to 2,270,000	390
33,001 to 41,000	40	2,270,001 to 3,020,000	420
41,001 to 50,000	50	3,020,001 to 3,960,000	450
50,001 to 59,000	60	3,960,001 or more	480
59,001 to 70,000	70		

Table 34		
Number of People Served by the Water System	Number of Standard Monitoring Sites	Number of Reduced Monitoring Sites
>100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
≤100	5	5
~~Number of People Served by the Water System~~	~~Number of Reduced Monitoring Sites~~	
~~>100,000~~	~~50~~	
~~10,001 to 100,000~~	~~30~~	
~~3,301 to 10,000~~	~~20~~	

~~501 to 3,300~~	~~10~~	
~~101 to 500~~	~~5~~	
~~≤100~~	~~5~~	

Table 35	
Number of people served by the water system	Number of sample locations
>100,000	25
10,001-100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
<100	1

Table 36	
Number of People Served by the Water System	Reduced Number of Sample Sites
>100,000	10
10,001-100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
<100	1

Table 37		
CT Values for 4-log Inactivation of Viruses (mg/L-minutes) [1, 2]		
Temperature in °C	pH = 6-9	pH = 10
0.5	12	90
5	8	60
10	6	45
15	4	30
20	3	22
25	2	15

1 - Adapted from Table E-7, Appendix E, Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources,1990.
2 - Basis for values given in Appendix F, Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources, 1990.

AMEND: 333-061-0040

RULE SUMMARY: Amend OAR 333-061-0040: The Reporting and Record Keeping rule will be amended to include reporting and recordkeeping requirements previously prescribed by OAR 333-061-0043, which aligns these requirements with the Oregon Health Authority's existing rule structure. The reporting and recordkeeping requirements are not changing.

CHANGES TO RULE:

333-061-0040
Reporting and Record Keeping ¶

(1) Reporting requirements:¶
(a) Any person who has reason to believe that his or her actions have led to contamination of a public water system shall report that fact immediately to the water supplier and the Oregon Health Authority (Authority).¶
(b) Laboratory Reporting:¶
(A) Analyses required by OAR 333-061-0036 and performed by an accredited laboratory as defined in OAR 333-061-0036(1)(b) must be reported on a form produced by the accredited laboratory. The laboratory analysis report must be submitted to the Authority within 10 days of the end of the month, or within 10 days of the end of the required monitoring period. ¶
(B) "Analytical run" means the process during which a set of analytical drinking water samples along with an appropriate number of blanks, matrix spikes, or quality control samples are analyzed according to National Environmental Laboratory Accreditation Conference requirements to determine the presence, absence, or concentration of a specific target analyte or analytes. An analytical run is complete when the instrument performing the sample analysis generates a report of the sample analysis. ¶
(C) Mandatory reporting requirements for primary laboratories as defined in OAR 333-061-0036(1)(b)(A). These laboratories must: ¶
(i) Validate the results of any sample analysis and report that analysis directly to the Authority and to the water supplier within 48 hours or two business days of completing the analytical run if the samples analysis:¶
(I) Exceeds the maximum contaminant level (MCL) for nitrate as specified in OAR 333-061-0030(1); or¶
(II) Is positive for coliform bacteria.¶
(ii) Report any sample analysis directly to the Authority and to the water supplier within 24 hours or on the next business day after validating a sample result that exceeds the MCL for any chemical analyte specified in OAR 333-061-0030 other than nitrate.¶
(iii) Report any sample analysis directly to the Authority and to the water supplier within 24 hours or on the next business day after obtaining a sample result from a subcontracted laboratory, if the sample analysis:¶
(I) Exceeds the MCL for nitrate as specified in OAR 333-061-0030(1) or is positive for coliform bacteria; or¶
(II) Exceeds the MCL for any chemical analyte specified in OAR 333-061-0030 other than nitrate upon validating the sample analysis.¶
(D) Mandatory reporting requirements for subcontracted laboratories as defined in OAR 333-061-0036(1)(b)(B). These laboratories must: ¶
(i) Validate the results of any sample analysis and report that analysis to their client laboratory within 48 hours or two business days of completing the analytical run if the analysis:¶
(I) Exceeds the MCL for nitrate as specified in OAR 333-061-0030(1); or¶
(II) Is positive for coliform bacteria.¶
(ii) Report any sample analysis to their client laboratory within 24 hours or on the next business day after validating a sample result that exceeds the MCL for any chemical analyte specified in OAR 333-061-0030 other than nitrate.¶
(c) Water suppliers must report the following events to the Authority within 24 hours or sooner as prescribed in this subsection.¶
(A) The detection of any substance or pathogenic organisms in the water that has caused or is likely to cause physical suffering or illness. ¶
(B) An exceedance of the MCL for E. coli, which must be reported to the Authority by the end of the day when the water supplier learns of the exceedance and which must be followed by public notice according to OAR 333-061-0042. ¶
(C) Notification of an E. coli-positive routine sample, which must be reported to the Authority according to by the end of the day when the water supplier learns of the result, unless the water supplier is notified of the result after the Authority office is closed, in which case the water supplier must notify the Authority before the end of the next business day. ¶

(D) Violation of a coliform investigation requirement as specified in OAR 333-061-0078(5), which must be followed by public notice according to OAR 333-061-0042.¶
(d) The water supplier using a surface water source or a groundwater source under direct influence of surface water which provides filtration treatment shall report monthly after filtration is installed to the Authority the results of any test, measurement or analysis required by OAR 333-061-0036(5)(b) of these rules within 10 days after the end of the month.¶
(A) All systems using surface water or groundwater under the direct influence of surface water shall consult with the Authority within 24 hours, after learning:¶
(i) That the turbidity exceeded 5 nephelometric turbidity units (NTU);¶
(ii) Of a waterborne disease outbreak potentially attributable to that water system;¶
(iii) That the disinfectant residual concentration in the water entering the distribution system fell below 0.2 mg/l and whether or not the residual was restored to at least 0.2 mg/l within four hours.¶
(B) In addition to the reporting and recordkeeping requirements in paragraph (1)(d)(A) of this rule, a public water system which provides conventional filtration treatment or direct filtration serving at least 10,000 people must report monthly to the Authority the information specified in subparagraphs (1)(d)(B)(i) and (ii) of this rule. Public water systems which provide filtration treatment other than conventional filtration treatment, direct filtration, slow sand filtration, and diatomaceous earth filtration, regardless of population served, must also meet the requirements of paragraph (1)(d)(A) of this rule and must report monthly to the Authority the information specified in subparagraph (1)(d)(B)(i) of this rule. For the purposes of this rule, filter profile means a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from start-up to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.¶
(i) Turbidity measurements as required by OAR 333-061-0036(5) must be reported within 10 days after the end of each month the system serves water to the public. Information that must be reported includes:¶
(I) The total number of filtered water turbidity measurements taken during the month;¶
(II) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified by OAR 333-061-0030(3)(b)(A) through (D);¶
(III) The date and value of any turbidity measurements taken during the month which exceed 1 NTU for systems using conventional filtration treatment or direct filtration, or which exceed the maximum level set by the Authority specified in OAR 333-061-0030(3)(b)(D).¶
(IV) The date and value of any turbidity measurements taken during the month which exceed 5 NTU for systems using slow sand filtration or diatomaceous earth filtration.¶
(ii) Water systems must maintain the results of individual filter monitoring for at least three years. Water systems must report that they have conducted individual filter turbidity monitoring within 10 days after the end of each month the system serves water to the public. Water systems must also report individual filter turbidity measurement results within 10 days after the end of each month the system serves water to the public only if measurements demonstrate one or more of the conditions in sub-subparagraphs (1)(d)(B)(ii)(I) through (IV) of this rule. Water systems that use lime softening may apply to the Authority for alternative exceedance levels for the levels specified in sub-subparagraphs (1)(d)(B)(ii)(I) through (IV) of this rule if the water system can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.¶
(I) For any individual filter that has a measured turbidity level of greater than 1 NTU in two consecutive measurements taken 15 minutes apart, the water system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the water system must either produce a filter profile for the filter within seven days of the exceedance (if the water system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.¶
(II) For any individual filter that has a measured turbidity level of greater than 0.5 NTU in two consecutive measurements taken 15 minutes apart at the end of the first four hours of continuous filter operation after the filter has been backwashed or otherwise taken offline, the system must report the filter number, the turbidity, and the date(s) on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within seven days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.¶
(III) For any individual filter that has a measured turbidity level of greater than 1 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months, the water system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the water system must conduct a self-assessment of the filter within 14 days of the exceedance and report that the self-assessment was conducted. The self-assessment must consist of at least the following

components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report.¶
(IV) For any individual filter that has a measured turbidity level of greater than 2 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months, the water system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the water system must arrange to have a comprehensive performance evaluation (CPE) by the Authority or a third party approved by the Authority conducted no later than 30 days following the exceedance and have the evaluation completed and submitted to the Authority no later than 90 days following the exceedance.¶
(iii) If at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the system must inform the Authority as soon as possible, but no later than the end of the next business day.¶
(iv) If at any time the turbidity in representative samples of filtered water exceed the maximum level set by the Authority as specified in OAR 333-061-0030(3)(b)(D) for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the water system must inform the Authority as soon as possible, but no later than the end of the next business day.¶
(C) In addition to the reporting and recordkeeping requirements in paragraph (1)(d)(A) of this rule, a public water system which provides conventional filtration treatment or direct filtration treatment serving less than 10,000 people must report monthly to the Authority the information specified in subparagraphs (1)(d)(B)(i) of this rule and the information specified in paragraph (1)(d)(D) of this rule. Public water systems which provide filtration treatment other than conventional filtration treatment, direct filtration, slow sand filtration, and diatomaceous earth filtration regardless of population served must also meet the requirements of paragraph (1)(d)(A) of this rule and must report monthly to the Authority the information specified in subparagraph (1)(d)(B)(i) of this rule.¶
(D) Water systems must maintain the results of individual filter monitoring for at least three years. Water systems must report that they have conducted individual filter turbidity monitoring within 10 days after the end of each month the system serves water to the public. Water systems must also report individual filter turbidity measurement results within 10 days after the end of each month the system serves water to the public only if measurements demonstrate one or more of the conditions in subparagraphs (1)(d)(D)(i) through (iii) of this rule. Water systems that use lime softening may apply to the Authority for alternative exceedance levels for the levels specified in subparagraphs (1)(d)(D)(i) through (iii) of this rule if the water system can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.¶
(i) If the turbidity of an individual filter (or the turbidity of the combined filter effluent (CFE) for systems with two or less filters that monitor CFE in lieu of individual filter monitoring) is greater than 1 NTU in two consecutive measurements taken 15 minutes apart, the water system must report to the Authority by the 10th day of the following month the filter number(s), the turbidity value(s) that exceeded 1 NTU, the corresponding date(s) of occurrence, and the cause (if known) for the elevated turbidity values. The Authority may request the water system produce a turbidity profile for the filter(s) in question.¶
(ii) If the turbidity of an individual filter (or the turbidity of the combined filter effluent (CFE) for systems with two or less filters that monitor CFE in lieu of individual filter monitoring) is greater than 1 NTU in two consecutive measurements taken 15 minutes apart for three consecutive months, the water system must conduct a filter self-assessment within 14 days of the date the turbidity exceeded 1 NTU during the third month, unless a CPE is performed in lieu of a filter self-assessment. Systems with two filters monitoring the CFE must conduct a filter self-assessment for both filters. The self-assessment must consist of the following components: assessment of filter performance; development of a filter profile as defined in paragraph (1)(d)(B) of this rule; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report. When a self-assessment is required, the water system must report the date the self-assessment was triggered, the date the self-assessment was completed, and the conclusion(s) of the self-assessment by the 10th of the following month or 14 days after the self-assessment was triggered only if the self-assessment was triggered during the last four days of the month.¶
(iii) If the turbidity of an individual filter (or the turbidity of the combined filter effluent (CFE) for systems with two or less filters that monitor CFE in lieu of individual filter monitoring) is greater than 2 NTU in two consecutive measurements taken 15 minutes apart for two consecutive months, the water system must report these turbidity results to the Authority by the 10th of the following month and arrange to have a CPE by the Authority or a third party approved by the Authority conducted within 60 days of the date the turbidity exceeded 2 NTU during the second month. The CPE report must be submitted to the Authority no later than 120 days following the date the turbidity exceeded 2 NTU during the second month. A CPE is not needed if the Authority or approved third party has conducted a CPE within the last 12 months or the Authority and the water system are jointly participating in an on-going Comprehensive Technical Assistance (CTA) project as part of the Composite Correction Program with the water system. When a CPE is required, the water system must report that a CPE is required and the date

that the CPE was triggered by the 10th day of the following month.¶
(e) The water supplier for water systems using a surface water source or a groundwater source under direct influence of a surface source which does not provide filtration treatment shall report according to subsection (1)(d) of this rule in addition to the requirements of this subsection. Monthly reporting must begin no later than six months after the Authority determines a source to be groundwater under the direct influence of surface water (GWUDI).¶
(A) Report to the Authority within 10 days after the end of each month, the results or analysis of: ¶
(i) Fecal coliform or total coliform bacteria test results on raw (untreated) source water.¶
(ii) Daily disinfection "CT" values including parameters such as pH measurements, temperature, and disinfectant residuals at the first customer used to compute the "CT" values.¶
(iii) Daily determinations using the "CT" values of the adequacy of disinfectant available for inactivation of Giardia lamblia or viruses as specified in OAR 333-061-0032(1)(a).¶
(B) Report to the Authority within 10 days after the end of each Federal Fiscal year (September 30), the results of: ¶
(i) The watershed control program requirements as specified in OAR 333-061-0032(2)(b)(B).¶
(ii) The on-site inspection summary requirements as specified in OAR 333-061-0032(2)(b)(C).¶
(f) Special reporting requirements for groundwater systems.¶
(A) Water suppliers monitoring disinfection effectiveness for groundwater systems according to OAR 333-061-0036(11) must notify the Authority any time the Authority-specified operating requirements are not met, including but not limited to, minimum residual disinfectant concentration, ultraviolet light (UV) reactor operation, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the specified criteria is not restored within four hours. The water supplier must notify the Authority as soon as possible, but in no case later than the end of the next business day. ¶
(B) Water suppliers must notify the Authority within 30 days of completing any corrective action as prescribed by OAR 333-061-0032(6). ¶
(C) At groundwater systems subject to the requirements of OAR 333-061-0036(6)(i), water suppliers must provide documentation to the Authority within 30 days that a total coliform-positive sample met Authority criteria for exceptions to triggered source water monitoring requirements because the total coliform-positive sample was attributed to distribution system conditions. ¶
(D) At groundwater systems where monitoring as prescribed by OAR 333-061-0036(11) is conducted, water suppliers must report the results of daily residual disinfectant concentration measurements or UV reactor operations at the entry point within 10 days after the end of each month. ¶
(g) All community and non-transient non-community (NTNC) public water systems shall report all the following information pertaining to lead and copper to the Authority in accordance with the requirements of this subsection.¶
(A) Except as provided in subparagraph (1)(h)(A)(vii) of this rule, a public water system shall report the information below for all tap water samples and for all water quality parameter samples within 10 days following the end of each applicable monitoring period. For monitoring periods with a duration less than six-months, the end of the monitoring period is the last date samples can be collected during that period. ¶
(i) The results of all tap samples for lead and copper including the location of each site and the criteria under which the site was selected for the system's sampling pool. With the exception of initial tap sampling, the system shall designate any site which was not sampled during previous monitoring periods, and include an explanation of why sampling sites have changed. By the applicable date specified in OAR 333-061-0036(10)(d)(A) for commencement of initial monitoring, each community water system which does not complete its targeted sampling pool meeting the criteria for tier 1 sampling sites shall send a letter to the Authority justifying its selection of tier 2 or tier 3 sampling sites. By the applicable date specified in OAR 333-061-0036(10)(d)(A) for commencement of initial monitoring, each NTNC water system which does not complete its sampling pool meeting the criteria for tier 1 sampling sites shall send a letter to the Authority justifying its selection of sampling sites.¶
(ii) A certification that each first draw sample collected by the water system is one-liter in volume and, to the best of their knowledge, has stood motionless in the service line, or in the interior plumbing of a sampling site, for at least six hours. Where residents collected samples, a certification that each tap sample collected by the residents was taken after the water system informed them of proper sampling procedures according to OAR 333-061-0036(10)(b).¶
(iii) The results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica, and the results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters according to OAR 333-061-0036(10)(f).¶
(iv) Each water system that requests that the Authority reduce the number and frequency of sampling shall provide the information required in OAR 333-061-0036(10)(d)(D).¶
(v) Documentation for each tap water lead and copper sample for which the water system requests invalidation.¶

(vi) The 90th percentile lead and copper tap water samples collected during each monitoring period.¶
(vii) A water system shall report the results of all water quality parameter samples collected for follow-up tap monitoring prescribed in OAR 333-061-0036(10)(f) during each six-month monitoring period within 10 days following the end of the monitoring period unless the Authority specifies a more frequent monitoring requirement.¶
(B) A water system shall report the sampling results for all source water samples collected for lead and copper within the first 10 days following the end of each source water monitoring period according to OAR 333-061-0036(10)(g). With the exception of the first round of source water sampling, the system shall specify any site which was not sampled during previous monitoring periods, and include an explanation of why the sampling point has changed. ¶
(C) Corrosion control treatment reporting requirements. By the applicable dates according to OAR 333-061-0034(2)(a) through (d), systems shall report the following information: for systems demonstrating that they have already optimized corrosion control, the information required in OAR 333-061-0034(2)(d)(B) or (C); for systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment according to OAR 333-061-0034(3)(a); for systems required to evaluate the effectiveness of corrosion control treatments, the information required in OAR 333-061-0034(3)(b) of these rules; for systems required to install optimal corrosion control designated by the Authority according to OAR 333-061-0034(3)(h), a letter certifying that the system has completed the installation. ¶
(D) Source water treatment reporting requirements. By the applicable dates according to OAR 333-061-0034(4)(a), systems shall report the following information to the Authority: the system's recommendation regarding source water treatment if required according to OAR 333-061-0034(4)(b)(A); for systems required to install source water treatment according to OAR 333-061-0034(4)(b)(B), a letter certifying that the system has completed the installation of the treatment designated by the Authority within 24 months after the Authority designated the treatment. ¶
(E) Public education program reporting requirements. ¶
(i) Any water system that is subject to the public education requirements in OAR 333-061-0034(5) shall, within 10 days after the end of each period in which the system is required to perform public education tasks in accordance with OAR 333-061-0034(5)(c), send written documentation to the Authority that contains:¶
(I) A demonstration that the system has delivered the public education materials that meet the content and delivery requirements specified in OAR 333-061-0034(5)(a) through (c); and¶
(II) A list of all the newspapers, radio stations, television stations, and facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.¶
(ii) Unless required by the Authority, a system that previously has submitted the information in sub-subparagraph (1)(g)(E)(i)(II) of this rule need not resubmit the information, as long as there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list submitted previously.¶
(iii) No later than three months following the end of the monitoring period, each system must mail a sample copy of the consumer notification of tap results to the Authority along with a certification that the notification has been distributed in a manner consistent with the requirements of OAR 333-061-0034(5)(e).¶
(F) Any system which collects sampling data in addition to that required by this subsection shall report the results to the Authority within the first 10 days following the end of the applicable monitoring period under OAR 333-061-0036(10) during which the samples are collected. ¶
(G) At a time specified by the Authority prior to the addition of a new source or any long-term change in water treatment, a water system deemed to have optimized corrosion control, or is subject to reduced monitoring, shall submit written documentation to the Authority describing the change or addition. The Authority must review and approve the addition or change before it is implemented by the water system. ¶
(H) Each ground water system that limits water quality parameter monitoring to a subset of entry points shall provide written correspondence to the Authority that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system. This correspondence must be submitted to the Authority prior to commencement of such monitoring. ¶
(h) The water supplier shall report to the Authority the results of any test, measurement or analysis required by these rules that is performed on site (for example, supplemental fluoride) by trained personnel within 10 days after the end of the month, except that reports which indicate that fluoride levels exceed 4.0 mg/l shall be reported within 48 hours:¶
(i) The water supplier shall submit to the Authority within 10 days after completing any public notification action as prescribed in OAR 333-061-0042 a representative copy of each type of notice distributed to the water users or made available to the public and the media along with certification that the system has fully complied with the

distribution and public notification requirements.¶
(j) Water systems required to sample for the contaminants listed in OAR 333-061-0036(4)(c) through (4)(e) or (4)(g) through (4)(k) must report the information listed in Tables 38 through 40 to the Authority. Water systems monitoring quarterly or more frequently must report to the Authority within 10 days after the end of each quarter in which samples were collected. Water systems required to sample less frequently than quarterly must report to the Authority within 10 days after the end of each monitoring period in which samples were collected. Water systems are required to submit the information listed in Tables 38 through 40, within 10 days of the end of any quarter in which monitoring is required.¶
(A) Disinfection byproducts. Water systems must report the information specified in Table 38.¶
(B) Disinfectants. Water systems must report the information specified in Table 39. ¶
(C) Disinfection byproduct precursors and enhanced coagulation or enhanced softening. Water systems must report the information specified in Table 40.¶
(D) The Authority may choose to perform calculations and determine whether the MCL was exceeded or the system is eligible for reduced monitoring in lieu of having the system report that information. ¶
(k) Systems using surface water or GWUDI sources must respond to the Authority within 45 days of receiving a sanitary survey report or CPE report that identifies significant deficiencies. The response must meet the criteria specified in OAR 333-061-0076(5)(a). Failure to report to the Authority requires a Tier 2 public notice as prescribed in OAR 333-061-0042(2)(b)(D).¶
(l) Reporting requirements related to triggered coliform investigations.¶
(A) Water suppliers required to conduct a level 1 coliform investigation as prescribed by OAR 333-061-0078 must submit a completed investigation report as prescribed by OAR 333-061-0078(3) to the Authority within 30 days of learning a trigger as specified in OAR 333-061-0078(2) was exceeded. Water suppliers subject to a level 2 coliform investigation as prescribed by OAR 333-061-0078(3) must ensure a completed investigation report is submitted to the Authority within 30 days of learning a trigger as specified in OAR 333-061-0078(2) was exceeded. ¶
(B) Water suppliers must report to the Authority the completion of every scheduled corrective action within 30 days for corrections not completed by the time the investigation report was reported to the Authority as specified in paragraph (1)(l)(A) of this rule. ¶
(m) Water suppliers that have failed to comply with a coliform monitoring requirement as prescribed by OAR 333-061-0036(6) must report the monitoring violation to the Authority within 10 days after the water supplier discovers the violation, and notify the public in accordance with OAR 333-061-0042.¶
(n) Water suppliers responsible for seasonal water systems must certify in a manner determined by the Authority, that an Authority-approved start-up procedure has been completed prior to serving water to the public. Water suppliers must submit the certification to the Authority prior to the seasonal water system opening for the season and serving water to the public.¶
(o) Reporting source water monitoring results for Cryptosporidium and E. coli collected in accordance with OAR 333-061-0036(5)(e). Water systems must report results from the source water monitoring no later than 10 days after the end of the first month following the month when the sample is collected as prescribed by this subsection.¶
(A) Water systems must report the following data elements for each Cryptosporidium analysis: public water system (PWS) ID, facility ID, sample collection date, sample type (field or matrix spike), sample volume filtered in Liters (to nearest 250 mL), whether 100 percent of the filtered volume was examined, and the number of oocysts counted. ¶
(i) For matrix spike samples, water systems must also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples.¶
(ii) For samples in which less than 10 L is filtered or less than 100 percent of the sample volume is examined, systems must also report the number of filters used and the packed pellet volume.¶
(iii) For samples in which less than 100 percent of sample volume is examined, systems must also report the volume of re-suspended concentrate and volume of this re-suspension processed through immunomagnetic separation.¶
(B) Water systems must report the following data elements for each E. coli analysis: PWS ID, facility ID, sample collection date, analytical method number, method type, source type (flowing stream, lake/reservoir, or GWUDI), E. coli/100 mL, and turbidity (if required). For the purposes of Cryptosporidium monitoring and reporting, lake/reservoir means a natural or man-made basin or hollow on the Earth's surface in which water collects or is stored that may or may not have a current or single direction of flow.¶
(p) Reporting requirements relating to Cryptosporidium protection.¶
(A) Water systems must report sampling schedules prescribed by OAR 333-061-0036(5)(f) and source water monitoring results in accordance with subsection (1)(p) of this rule unless they notify the Authority that they will not conduct source water monitoring due to meeting the criteria of OAR 333-061-0036(5)(e)(D).¶

(B) Filtered water systems must report their Cryptosporidium bin classification as described in OAR 333-061-0032(4)(f).¶
(C) Unfiltered water systems must report their mean source water Cryptosporidium level as described in OAR 333-061-0032(2)(c).¶
(D) Water systems must report disinfection profiles and benchmarks to the Authority as prescribed by OAR 333-061-0036(4)(l) and 333-061-0060(1)(e) prior to making a significant change in disinfection practice.¶
(E) Water systems must report to the Authority any microbial toolbox options as specified in Table 41 used to comply with treatment requirements under OAR 333-061-0032(2)(c), (3)(e) through (g), and (4)(g). Alternatively, the Authority may approve a water system to operate within required parameters for treatment credit rather than reporting monthly operational data for toolbox options.¶
(q) Water systems must report the use of uncovered finished water storage facilities to the Authority as described in OAR 333-061-0032(11).¶
(r) Water suppliers must report analyses of special samples for coliform bacteria to the Authority upon request.¶
(s) Reporting violations.¶
(A) Failure to report coliform sampling results as required by OAR 333-061-0036(6) after monitoring was properly conducted in a timely manner is a violation of this rule.¶
(B) Failure to submit a completed coliform investigation report form after conducting an investigation or failure to ensure a coliform investigation report is submitted following a level 2 coliform investigation is a violation of this rule.¶
(C) Failure to notify the Authority following an E. coli-positive sample as required by paragraph (1)(c)(C) of this rule is a violation of this rule.¶
(D) Failure to certify and report completion of an Authority-approved start-up procedure at a seasonal water system as required by subsection (1)(n) of this rule is a violation of this rule.¶
(t) No later than 10 days after water suppliers distribute consumer confidence reports to customers according to OAR 333-061-0043, water suppliers must submit a copy of each report to the Authority, including a certification that the report was distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the Authority.¶
(2) Record Maintenance by Water Suppliers:¶
(a) Water suppliers of public water systems shall retain records relating to the quality of the water produced and the condition of the physical components of the system. These records shall be kept at a convenient location within or near the area served by the water system;¶
(b) Records of microbiological analyses shall be kept for at least five years. Records of chemical analyses, secondary contaminants, turbidity, radioactive substances, and monitoring plans shall be kept for at least 10 years. Data may be transferred to tabular summaries provided the following information is included:¶
(A) Date, place and time of sampling, and the name of the person who collected the sample;¶
(B) Identification of the sample as to whether it was a routine finished water sample, repeat sample, raw water sample or special purpose sample;¶
(C) Date and time of the analysis, the laboratory and person performing the analysis; and,¶
(D) Analytical method used and results of the analysis.¶
(c) Records of actions taken to correct items of non-compliance shall be kept for at least three years after the last action taken with respect to the particular violation;¶
(d) Reports, summaries or communications on sanitary surveys shall be kept for at least 10 years;¶
(e) Records concerning variances or permits shall be kept for at least five years after the expiration of the variance or permit;¶
(f) Records of residual disinfectant measurements shall be kept for at least two years.¶
(g) All public water systems subject to the requirements of subsection (1)(g) of this rule shall retain the original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, Authority determinations, and any other information required for no fewer than 12 years.¶
(h) Copies of public notices issued pursuant to OAR 333-061-0042 and certifications made to the Authority must be kept for three years after issuance.¶
(i) For water systems using surface water or groundwater under the direct influence of surface water that use conventional filtration treatment or direct filtration treatment and that recycle spent filter backwash water, thickener, supernatant, or liquids from dewatering processes, water suppliers must collect and retain on file recycle flow information specified in paragraphs (2)(i)(A) through (F) of this rule for review and evaluation by the Authority:¶
(A) Copy of the recycle notification and information submitted to the Authority as required by OAR 333-061-0032(10);¶
(B) List of all recycle flows and the frequency with which they are returned;¶
(C) Average and maximum backwash flow rate through the filters and the average and maximum duration of the

filter backwash process in minutes;¶
(D) Typical filter run length and a written summary of how filter run length is determined;¶
(E) The type of treatment provided for the recycle flow;¶
(F) Data on the physical dimensions of the equalization or treatment units, typical and maximum hydraulic loading rates, type of treatment chemicals used and average dose and frequency of use, and frequency at which solids are removed, if applicable.¶
(j) Water suppliers must maintain the following information in their records relating to water systems using groundwater sources: ¶
(A) Documentation of corrective actions for a period of not less than 10 years;¶
(B) Documentation of notice to the public as prescribed by OAR 333-061-0042(8) for a period of not less than three years;¶
(C) Records of decisions made in accordance with OAR 333-061-0036(6)(i)(A)(iv) and records of invalidation of E. coli -positive groundwater source samples in accordance with OAR 333-061-0036(6)(l) for a period of not less than five years;¶
(D) For purchasing water systems, documentation of notification to the wholesale system(s) of total-coliform positive samples not invalidated in accordance under OAR 333-061-0036(6)(a)(F) for a period of not less than five years; and¶
(E) For any water system where compliance monitoring is required according to OAR 333-061-0036(11):¶
(i) Records of the Authority-specified minimum disinfectant residual for a period of not less than 10 years;¶
(ii) Records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the Authority-prescribed minimum residual disinfectant concentration for a period of more than four hours for a period of not less than five years; and¶
(iii) Records of Authority-specified compliance requirements for membrane filtration, parameters specified by the Authority for Authority-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 for a period of not less than five years.¶
(k) For systems required to compile a disinfection profile, the results of the profile (including raw data and analysis) must be kept indefinitely as well as the disinfection benchmark (including raw data and analysis) determined from the profile. ¶
(l) Recordkeeping requirements pertaining to Cryptosporidium protection. Water systems must keep: ¶
(A) Results from the source water monitoring prescribed by OAR 333-061-0036(5)(e) for three years after bin classification in accordance with OAR 333-061-0032(4)(f) for filtered systems, or determination of the mean Cryptosporidium level in accordance with OAR 333-061-0032(2)(c) for unfiltered systems for the particular round of monitoring.¶
(B) Any notification to the Authority that they will not conduct source water monitoring due to meeting the criteria specified in OAR 333-061-0036(5)(e)(D) for three years.¶
(C) The results of treatment monitoring associated with microbial toolbox options as prescribed by OAR 333-061-0032(13) through (17) and with uncovered finished water reservoirs in accordance with OAR 333-061-0032(11)(b), as applicable, for three years.¶
(m) IDSE reports (including Authority modifications) must be kept for at least 10 years. IDSE standard monitoring plans and IDSE system specific study plans must be retained at least as long as the IDSE report or any Authority modifications, whichever is longer. IDSE reports and any Authority modification must be made available for review by the Authority or the public. ¶
(n) Water systems must retain a complete copy of any 40/30 certification submitted to the U.S. EPA for 10 years after the date the certification was submitted. The certification, all data upon which the certification is based, and any U.S. EPA notification must be available for review by the Authority or the public. ¶
(o) Water suppliers must maintain any coliform investigation form, regardless of who conducts the investigation, and documentation of corrective actions completed as a result of those investigations, or other available summary documentation of the sanitary defects and corrective actions taken as specified in OAR 333-061-0078 for Authority review. This record must be maintained for a period not less than five years after completion of the coliform investigation or corrective action, whichever is later. ¶
(p) Water suppliers must maintain a record of any repeat sample collected that meets Authority criteria for an extension of the 24-hour period for collecting repeat samples as provided for in OAR 333-061-0036(6)(g).¶
(q) Water suppliers must retain copies of consumer confidence reports required according to OAR 333-061-0043 for at least three years.
Statutory/Other Authority: ORS 448.131
Statutes/Other Implemented: ORS 448.273, ORS 448.150

RULE ATTACHMENTS MAY NOT SHOW CHANGES. PLEASE CONTACT AGENCY REGARDING CHANGES.

333-061-0040
Reporting and Record Keeping

Table 38

For water systems where:	Water suppliers must report:[1]
TTHM and HAA5 monitoring occurs according to OAR 333-061-0036(4)(c)(A) or (4)(d).	The number of samples taken during the last quarter; The date and results of each sample taken during the last quarter; The arithmetic average of quarterly results for the last four quarters for each monitoring location (LRAA), beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter; If the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters; Whether the MCL was violated at any monitoring location; and Any operational evaluation levels that were exceeded during the quarter and, if so, the location, date, and calculated TTHM and HAA5 levels.
Chlorite monitoring occurs according to OAR 333-061-0036(4)(g).	The number of entry point samples taken each month for the last 3 months; The location, date, and result of each sample both entry point and distribution system taken during the last quarter; For each month in the reporting period, the arithmetic average of all samples taken in each of the three sample sets taken in the distribution system; and Whether the MCL was violated as determined in OAR 333-061-0036(4)(g) including which month and how many times it was violated each month.
Bromate monitoring occurs according to OAR 333-061-0036(4)(h).	The number of samples taken during the last quarter; The location, date, and result of each sample taken during the last quarter; The arithmetic average of the monthly arithmetic averages of all samples taken in the last year; Whether the MCL was violated as determined in OAR 333-061-0036(4)(h).

[1]The Authority may choose to perform calculations and determine whether the MCL was violated, in lieu of having the system report that information.

Table 39

For water systems where:	Water suppliers must report:[1]
Chlorine or chloramines monitoring according to OAR 333-061-0036(4)(i)(A).	(1) The number of samples taken during each month of the last quarter. (2) The monthly arithmetic average of all samples taken in each month for the last 12 months. (3) The arithmetic average of all monthly averages for the last 12 months. (4) Whether the MRDL was violated as determined in OAR 333-061-0036(4)(i).
Chlorine dioxide monitoring according to OAR 333-061-0036(4)(i)(B).	(1) The dates, results, and locations of samples taken during the last quarter. (2) Whether the MRDL was violated as determined in OAR 333-061-0036(4)(i). (3) Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or non-acute.

[1]The Authority may choose to perform calculations and determine whether the MRDL was violated, in lieu of having the system report that information.

Table 40

Water systems which	Must Report [1]
Monitor monthly or quarterly for TOC as required by OAR 333-061-0036(4)(k) and are required to meet the enhanced coagulation or enhanced softening requirements as required by OAR 333-061-0032(10)(d)(B) or (C).	The number of paired (source water and treated water) samples taken during the last quarter; The location, date, and results of each paired sample and associated alkalinity taken during the last quarter; For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal; Calculations for determining compliance with the TOC percent removal requirements, as specified by OAR 333-061-0032(10)(e)(A); and Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements as specified in OAR 333-061-0032(10)(d) for the last four quarters.

Monitor monthly or quarterly for TOC as required by OAR 333-061-0036(4)(k) and meeting one or more of the alternative compliance criteria specified by OAR 333-061-0032(10)(c)(A) or (B).	The alternative compliance criterion that the system is using; The number of paired samples taken during the last quarter; The location, date, and result of each paired sample and associated alkalinity taken during the last quarter; The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion specified in OAR 333-061-0032(10)(c)(A)(i) or (iii) or of treated water TOC for systems meeting the criteria specified in OAR 333-061-0032 (10)(c)(A)(ii); The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criteria specified in OAR 333-061-0032(10)(c)(A)(v) or of treated water SUVA for systems meeting the criteria specified in OAR 333-061-0032(10)(c)(A)(vi); The running annual average of source water alkalinity for systems meeting the criterion specified in OAR 333-061-0032(10)(c)(A)(iii) and of treated water alkalinity for systems meeting the criterion specified in OAR 333-061-0032(10)(c)(B)(i); The running annual average for both TTHM and HAA5 for systems meeting the criteria specified in OAR 333-061-0032(10)(c)(A)(iii) or (iv); The running annual average of the amount of magnesium hardness removal (as $CaCO_3$, in mg/L) for systems meeting the criteria specified in OAR 333-061-0032(10)(c)(B)(ii); and Whether the system is in compliance with the particular alternative compliance criteria specified in OAR 333-061-0032(10)(c)(A) or (B).
Surface water or groundwater under the direct influence of surface water systems seeking to qualify for or remain on reduced TTHM/HAA5 monitoring must report the following source water TOC information for each treatment plant that treats surface water or groundwater under the direct influence of surface water to the	The number of source water TOC samples taken each month during last quarter; The date and result of each sample taken during last quarter; The quarterly average of monthly samples taken during last quarter or the result of the quarterly sample; The running annual average (RAA) of quarterly averages from the past four quarters; and

Authority within 10 days of the end of any quarter in which monitoring is required:	Whether the RAA exceeded 4.0 mg/L.

[1]The Authority may choose to perform calculations and determine whether the MCL was violated, in lieu of having the system report that information.

Table 41
Microbial Toolbox Reporting Requirements

Toolbox Option	Systems must submit the following information	On the following schedule*
Watershed control program	Notice of intention to develop a new or continue an existing watershed control program	No later than two years before the applicable treatment compliance date.
	Watershed control plan	No later than one year before the applicable treatment compliance date.
	Annual watershed control program status report	Every 12 months, beginning one year after the applicable treatment compliance date.
	Watershed sanitary survey report	For a community water system, every three years beginning three years after the applicable treatment compliance date. For non-community systems, every 5 years beginning five years after the applicable treatment compliance date.
Alternative source / intake management	Verification the system has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results	No later than the applicable compliance date.
Presedimentation	Monthly verification of the following: continuous basin operation; treatment of 100% of the flow; continuous addition of a coagulant; and at least 0.5-log mean reduction of influent turbidity or compliance with alternate Authority approved criteria.	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date.

Two-stage lime softening	Monthly verification of the following: chemical addition and hardness precipitation occurred in two separate and sequential softening stages prior to filtration; and both stages treated 100% of the plant flow.	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date.
Bank Filtration	1. Initial demonstration of an unconsolidated, predominantly sandy aquifer with a setback distance of at least 25 feet for 0.5 log credit, or 50 feet for 1.0 log credit 2. A report listing the result and assessing the cause if the monthly average of daily max turbidity is greater than 1 NTU.	1. No later than the applicable treatment compliance date. 2. Within 30 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date.
Combined filter performance	Monthly verification of combined filter effluent (CFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of the 4 hour CFE measurements taken each month.	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date.
Individual filter performance	Monthly verification of the following: Individual filter effluent (IFE) turbidity levels less than or equal to 0.15 NTU in at least 95% of samples each month in each filter; and no IFE turbidity greater than 0.3 NTU in two consecutive readings 15 minutes apart.	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date.
Demonstration of performance	1. Results from testing, following an Authority approved protocol. 2. Monthly verification of operation within conditions of Authority approval for demonstration of performance credit.	1. No later than the applicable treatment compliance date. 2. Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date.
Bag filters and cartridge filters	1. Demonstration that the process meets the definition of bag or cartridge filtration, and that removal efficiency established through challenge testing meets the	1. No later than the applicable treatment compliance date.

	criteria specified in OAR 333-061-0050(4)(c)(J). 2. Monthly verification that 100% of plant flow was filtered.	2. Within ten days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date.
Membrane Filtration	1. Results of verification testing demonstrating that removal efficiency established through challenge testing meets the criteria in OAR 333-061-0050(4)(c)(I); and the integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline. 2. Monthly report summarizing all direct integrity tests above the control limit; and any turbidity or alternative Authority approved indirect integrity monitoring results triggering direct integrity testing (and the corrective action that was taken), if applicable.	1. No later than the applicable treatment compliance date. 2. Within ten days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date.

Second stage filtration	Monthly verification that 100% of flow was filtered through both stages and that first stage was preceded by coagulation step.	Within ten days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date.
Slow sand filtration (as secondary filter)	Monthly verification that both a slow sand filter and a preceding separate stage of filtration treated 100% of flow.	Within ten days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date.
Chlorine Dioxide	Summary of CT values for each day as described in OAR 333-061-0036(5)(c).	Within ten days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date.
Ozone	Summary of CT values for each day as described in OAR 333-061-0036(5)(c).	Within ten days following the month in which monitoring was conducted, beginning on the

		applicable treatment compliance date.
UV	Validation test results demonstrating operating conditions that achieve required UV dose. Monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose as specified in OAR 333-061-0036(5)(c)(D).	No later than the applicable treatment compliance date. Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date.

* Compliance dates are specified in OAR 333-061-0032(1)(a)(F)

AMEND: 333-061-0043

RULE SUMMARY: Amend OAR 333-061-0043: The Consumer Confidence Reports rule will be amended to include federal rule revisions, including amendments to the contents within Table 42 in this rule. Consumer confidence reports are annual reports to be delivered to consumers served by community water systems, and where consumers are informed about the source of their water, water treatment processes, drinking water quality and violations assigned to the public water system. These amendments are generally intended to improve readability and consumer's access to the reports.

CHANGES TO RULE:

333-061-0043
Consumer Confidence Reports ¶

This rule establishes the minimum requirements for the content of annual reports that ~~community water systems must deliver to their customers. These reports must contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner. For the purpose of this rule, customers are defined as billing units or service connections to which water is delivered by a community water system.¶~~
~~(1) Delivery deadlines:¶~~
~~(a) Community water systems must deliver their reports by July 1, annually. The report must contain data collected during, or prior to, the previous calendar year;¶~~
~~(b) A new community water system must deliver its first report by July 1 of the year after its first full calendar year in operation and annually thereafter;¶~~
~~(c) A community water system that sells water to another community water system must deliver the applicable information to the buyer system:¶~~
~~(A) No later than April 1, annually; or¶~~
~~(B) On a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties.¶~~
~~(2) Content of the Reports:¶~~
~~(a) Each community water system must provide to its customers an annual report that contains the information specified in sections (2), (3), (4), and (5) of this rule;¶~~
~~(b) Each report must identify the source(s) of the water delivered by the community water system by providing information on:¶~~
~~(A) The type of water: for example, surface water, ground water; and¶~~
~~(B) The commonly used name (if any) and location of the body (or bodies) of water.¶~~
~~(c) If a source water assessment has been completed, the report must notify consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant potential sources of contamination in the drinking water protection area (DWPA) if they have readily available information. Where a system has received a source water assessment from the Oregon Health Authority (Authority), the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the Authority or written by the operator;¶~~
~~(d) Each report must contain the following definitions:¶~~
~~(A) Maximum contaminant level goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety;¶~~
~~(B) Maximum contaminant level or MCL means the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.¶~~
~~(C) Variance: A system operating under a variance as prescribed in OAR 333-061-0045 must include the following definition in its report: Variances: State permission not to meet an MCL or a treatment technique under certain conditions;¶~~
~~(D) Treatment Technique or Action Level: A system which has a detection for a contaminant for which the U.S. EPA has set a treatment technique or an action level must include one or both of the following definitions as applicable:¶~~
~~(i) Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water;¶~~
~~(ii) Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.¶~~
~~(E) Maximum Residual Disinfectant Level Goal or MRDLG: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to~~

control microbial contaminants.¶
(F) Maximum Residual Disinfectant Level or MRDL: The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.¶
(3) Detected Contaminants:¶
(a) The following information must be included in each report for contaminants subject to mandatory monitoring (except Cryptosporidium). Detected means at or above the detection level prescribed by each U.S. EPA approved analytical method set forth in 40 CFR 141:¶
(A) Contaminants and disinfection by-products subject to an MCL, action level, MRDL, or treatment technique (regulated contaminants); and¶
(B) Unregulated contaminants for which monitoring is required.¶
(b) The data relating to these contaminants must be displayed in one table or in several adjacent tables. Any additional monitoring results which a community water system chooses to include in its report must be displayed separately.¶
(c) The data must be derived from data collected to comply with state monitoring and analytical requirements during the calendar year except that where a system is allowed to monitor for regulated contaminants less often than once a year, the table(s) must include the date and results of the most recent sampling and the report must include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulation. Data from unregulated contaminant monitoring must only be included if the detection occurred in the calendar year of the report. No data older than five years need be included.¶
(d) For detected regulated contaminants (listed in Table 42 of this rule), the table(s) in the report must contain:¶
(A) The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in Table 42);¶
(B) The MCLG for that contaminant expressed in the same units as the MCL;¶
(C) If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report must include the definitions for treatment technique or action level, as appropriate, specified in paragraph (2)(d)(D) of this rule;¶
(D) For contaminants subject to an MCL, except turbidity and total coliforms and E. coli, the highest contaminant level used to determine compliance with these rules and the range of detected levels, as follows:¶
(i) When compliance with the MCL is determined annually or less frequently: the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL;¶
(ii) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a monitoring location: the highest average at any of the monitoring locations and the range of all monitoring locations must be expressed in the same unit of measure as the MCL. For the MCL for total trihalomethanes (TTHM) and haloacetic acids (five) (HAA5) as specified by OAR 333-061-0030(2)(b), water systems must include the highest locational running annual average (LRAA) for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same unit of measure as the MCL. If more than one location exceeds the MCL for TTHM or HAA5, the water system must include the LRAAs for all locations that exceed the MCL;¶
(iii) When compliance with the MCL is determined on a system wide basis by calculating a running annual average of all samples at all monitoring locations: the average and range of detections must be expressed in the same units as the MCL. The water system is required to include individual sample results for an Initial Distribution System Evaluation (IDSE) conducted in accordance with OAR 333-061-0036(4)(b) when determining the range of TTHM and HAA5 results to be reported in the annual consumer confidence report for the calendar year that the IDSE samples were taken;¶
(iv) When rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Table 42 of this rule.¶
(e) Turbidity:¶
(A) When it is reported pursuant to OAR 333-061-0030(3)(a), 333-061-0032(2), and 333-061-0036(5)(a): the highest monthly value. The report should include an explanation of the reasons for measuring turbidity. This includes water systems currently without filtration treatment, but required to install filtration through a Notice of Violation and Remedial Order.¶
(B) When it is reported pursuant to OAR 333-061-0030(3): The highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in OAR 333-061-0030(3) for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity.¶
(f) Lead and copper: the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level and the lead-specific information as prescribed in subsection (4)(c) of this rule.¶
(g) For E. coli: the total number of positive samples.¶
(h) Reports that contain information regarding level 1 or level 2 coliform investigations required as specified in OAR 333-061-0078 must include the following definitions as applicable:¶
(A) "Level 1 Coliform Investigation" means a study of the water system to identify potential problems and

determine (if possible) why total coliform bacteria have been found in our water system.¶
(B) "Level 2 Coliform Investigation" means a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred or why total coliform bacteria have been found in our water system on multiple occasions.¶
(i) The likely source(s) of detected contaminants to the best of the operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the operator. If the operator lacks specific information on the likely source, the report must include one or more of the typical sources for that contaminant listed in Table 43 which are most applicable to the system.¶
(j) If a community water system distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table should contain a separate column for each service area and the report should identify each separate distribution system. Alternatively, systems could produce separate reports tailored to include data for each service area.¶
(k) The table(s) must clearly identify any data indicating violations of MCLs, MRDLs, or treatment techniques and the report must contain a clear and readily understandable explanation of the violation, the length of the violation, the potential adverse health effects, and actions taken by the system to address the violation. To describe the potential health effects, the system must use the relevant language in Table 43 of this rule.¶
(l) For detected unregulated contaminants for which monitoring is required (except Cryptosporidium), the table(s) must contain the average and range at which the contaminant was detected. The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.¶
(m) Information on Cryptosporidium, radon, and other contaminants:¶
(A) If the system has performed any monitoring for Cryptosporidium, which indicates that Cryptosporidium may be present in the source water or the finished water, the report must include:¶
(i) A summary of the results of the monitoring, and¶
(ii) An explanation of the significance of the results.¶
(B) If the system has performed any monitoring for radon which indicates that radon may be present in the finished water, the report must include:¶
(i) The results of the monitoring; and¶
(ii) An explanation of the significance of the results.¶
(C) If the system has performed additional monitoring which indicates the presence of other contaminants in the finished water, the system is strongly encouraged to report any results which may indicate a health concern. To determine if results may indicate a health concern, the U.S. EPA recommends that systems find out if the U.S. EPA has proposed a National Primary Drinking Water Regulation or issued a health advisory for that contaminant by calling the Safe Drinking Water Hotline (800-426-4791). The U.S. EPA considers detects above a proposed MCL or health advisory level to indicate possible health concerns. For such contaminants, the U.S. EPA recommends that the report include:¶
(i) The results of the monitoring; and¶
(ii) An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.¶
(n) Compliance with OAR 333-061: In addition to subsection (3)(j) of this rule, the report must note any violation that occurred during the year covered by the report of a requirement listed below, and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation.¶
(A) Monitoring and reporting of compliance data;¶
(B) Filtration and disinfection prescribed by OAR 333-061-0032: For systems which have failed to install adequate filtration or disinfection equipment or processes which constitutes a violation or have an equipment failure constituting a violation, the report must include the following language as part of the explanation of potential adverse health effects: Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches;¶
(C) Lead and copper control requirements: For systems which fail to take one or more actions prescribed by OAR 333-061-0034 the report must include the applicable language in Table 43 of this rule for lead, copper, or both;¶
(D) Treatment techniques for Acrylamide and Epichlorohydrin: For systems which violate the requirements of OAR 333-061-0030(7), the report must include the relevant health effects language in Table 43 of this rule.¶
(E) Recordkeeping of compliance data;¶
(F) Special monitoring requirements prescribed by OAR 333-061-0036(2)(e) and for unregulated contaminants as required by the U.S. EPA;¶
(G) Violation of the terms of a variance, administrative order or judicial order.¶
(o) Variances: If a system is operating under the terms of a variance as prescribed in OAR 333-061-0045, the

report must contain:¶
(A) An explanation of the reasons for the variance;¶
(B) The date on which the variance was issued;¶
(C) A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance; and¶
(D) A notice of any opportunity for public input in the review, or renewal, of the variance.¶
(p) Additional information:¶
(A) The report must contain a brief explanation regarding contaminants which may reasonably be expected to be found in drinking water including bottled water. This explanation may include the language in subparagraphs (3)(p)(A)(i), (ii) and (iii) of this rule, or systems may use their own comparable language. The report also must include the language of subparagraph (3)(p)(A)(iv) of this rule.¶
(i) The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity;¶
(ii) Contaminants that may be present in source water include:¶
(I) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;¶
(II) Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;¶
(III) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;¶
(IV) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems;¶
(V) Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.¶
(iii) In order to ensure that tap water is safe to drink, the U.S. EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health;¶
(iv) Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).¶
(B) The report must include the telephone number of the owner, operator, or designee of the community water system as a source of additional information concerning the report;¶
(C) In communities with a large proportion of non-English speaking residents the report must contain information in the appropriate language(s) regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language;¶
(D) The report must include information (for example, time and place of regularly scheduled board meetings) about opportunities for public participation in decisions that may affect the quality of the water;¶
(E) Water suppliers may include such additional information as deemed necessary for public education consistent with, and not detracting from, the purpose of the report.¶
(4) Required additional health information:¶
(a) All reports must prominently display the following language: ¶
Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).¶
(b) A system which detects nitrate at levels above 5 mg/l, but does not exceed the MCL:¶
(A) Must include a short informational statement about the impacts of nitrate on children using language such as: Nitrate in drinking water at levels above 10 mg/l is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your

health care provider.¶
(B) May write its own educational statement, but only in consultation with the Authority.¶
(c) Every report must include the following lead-specific information:¶
(A) A short informational statement about the lead in drinking water and its effects on children. The statement must include the following information: ¶
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. {NAME OF WATER UTILITY} is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.¶
(B) The water system may write its own educational statement, but only in consultation with the Authority.¶
(d) Requirements related to coliform investigations.¶
(A) A water supplier required to complete level one or level two coliform investigations that are not due to an exceedance of the MCL for E. coli must include in the report the text found in subparagraphs (4)(d)(A)(i) through (iii) of this rule as appropriate, replacing the language in brackets with system specific information as appropriate.¶
(i) Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct investigation(s) to identify problems and to correct any problems that were found during these investigation(s).¶
(ii) During the past year we were required to conduct [INSERT NUMBER OF LEVEL 1 COLIFORM INVESTIGATIONS] level 1 coliform investigation(s). [INSERT NUMBER OF LEVEL 1 COLIFORM INVESTIGATIONS] level 1 coliform investigation (s) were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.¶
(iii) During the past year [INSERT NUMBER OF LEVEL 2 COLIFORM INVESTIGATIONS] level 2 coliform investigations were required to be completed for our water system. [INSERT NUMBER OF LEVEL 2 COLIFORM INVESTIGATIONS] level 2 coliform investigations were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.¶
(B) Water suppliers required to complete a level 2 coliform investigation due to an exceedance of the MCL for E. coli must include in the report the text found in subparagraphs (4)(d)(B)(i) and (ii) of this rule as appropriate, replacing the language in brackets with system specific information as appropriate.¶
(i) E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found E. coli bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct investigation(s) to identify problems and to correct any problems that were found during these investigations.¶
(ii) We were required to complete a level 2 coliform investigation because we found E. coli in our water system. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.¶
(C) Water suppliers that failed to complete a required coliform investigation or correct all identified sanitary defects must include one or both of the following statements, as appropriate:¶
(i) During the past year, we failed to conduct the required coliform investigation(s).¶
(ii) During the past year, we failed to correct all sanitary defects that were identified during a coliform investigation as required.¶
(D) If E. coli is detected at a water system and the MCL for E. coli was exceeded, in addition to including the information as required by section (3) of this rule, the water supplier must include one or more of the statements specified in subparagraphs (4)(d)(D)(i) through (iv) of this rule as appropriate to describe any noncompliance:¶
(i) We had an E. coli-positive repeat sample following a total coliform-positive routine sample.¶
(ii) We had a total coliform-positive repeat sample following an E. coli-positive routine sample.¶
(iii) We failed to collect all required repeat samples following an E. coli-positive routine sample.¶
(iv) We failed to test for E. coli when a repeat sample tested positive for total coliform.¶
(E) If E. coli is detected at a water system but the MCL for E. coli was not exceeded, in addition to completing the

~~table(s) as specified in section (3) of this rule, a water supplier may include a statement that explains that although E. coli was detected, the MCL for E. coli was not exceeded at the water system.¶~~
~~(5) Special requirements for groundwater systems:¶~~
~~(a) Any groundwater system that receives notification of a significant deficiency that is not corrected at the time of the next report, or of an E. coli-positive groundwater source sample that was not invalidated in accordance OAR 333-061-0036(6)(l) must inform its customers in the next report. The water system must continue to inform the public annually until the Authority determines that the particular significant deficiency is corrected or that the fecal contamination in the groundwater source is addressed in accordance with OAR 333-061-0032(6). Each report must include the following elements:¶~~
~~(A) The nature of the particular significant deficiency or the source of the fecal contamination (if the source is known), and the date the significant deficiency was identified by the Authority or the dates of the E. coli-positive groundwater source samples;¶~~
~~(B) If the fecal contamination in the groundwater source has been addressed as prescribed by OAR 333-061-0032(6) and the date of such action;¶~~
~~(C) The Authority-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed for any significant deficiency or fecal contamination in the groundwater source that has not been addressed as prescribed by OAR 333-061-0032(6); and¶~~
~~(D) The potential health effects language specified in OAR 333-061-0042(11)(d)(A) if the system received notice of a E. coli-positive groundwater source sample that was not invalidated by the Authority in accordance with OAR 333-061-0036(6)(l).¶~~
~~(b) The Authority may require a water system with significant deficiencies that have been corrected before the next report is issued to inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction in accordance with subsection (5)(a) of this rule.¶~~
~~(6) Report delivery and recordkeeping:¶~~
~~(a) Except as provided in subsection (6)(g) of this rule, each community water system must mail or otherwise directly deliver one copy of the report to each customer.¶~~
~~(b) Water suppliers must make a good faith effort to reach consumers who do not get water bills, using means recommended by the Authority. The U.S. EPA expects that an adequate good faith effort will be tailored to the consumers who are served by the system but are not bill-paying customers, such as renters or workers. A good faith effort to reach consumers would include a mix of methods appropriate to the particular system such as: Posting the reports on the Internet; mailing to postal patrons in metropolitan areas; advertising the availability of the report in the news media; publication in a local newspaper; posting in public places such as cafeterias or lunch rooms of public buildings; delivery of multiple copies for distribution by singularly-billed customers such as apartment buildings or large private employers; delivery to community organizations.¶~~
~~(c) No later than the date the system is required to distribute the report to its customers, each community water system must mail a copy of the report to the Authority, followed within three months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the Authority.¶~~
~~(d) No later than the date the system is required to distribute the report to its customers, each community water system must deliver the report to any other agency or clearinghouse identified by the Authority.¶~~
~~(e) Each community water system must make its reports available to the public upon request.¶~~
~~(f) Each community water system serving 100,000 or more persons must post its current year's report to a publicly-accessible site on the Internet.¶~~
~~(g) The Governor of a State or their designee, can waive the requirement of subsection (6)(a) of this rule for community water systems serving fewer than 10,000 persons.¶~~
~~(A) Such systems must:¶~~
~~(i) Publish the reports in one or more local newspapers serving the area in which the system is located;¶~~
~~(ii) Inform the customers that the reports will not be mailed, either in the newspapers in which the reports are published or by other means approved by the Authority; and¶~~
~~(iii) Make the reports available to the public upon request.¶~~
~~(B) Systems serving 500 or fewer persons may forego the requirements of subparagraphs (6)(g)(A)(i) and (ii) of this rule if they provide notice at least once per year to their customers by mail, door-to-door delivery or by posting in an appropriate location that the report is available upon request.¶~~
~~(h) Any system subject to this rule must retain copies of its consumer confidence report for no less than five years~~water suppliers must deliver to their customers at community water systems. These reports must contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner. For the purposes of this rule, customers are defined as billing units or service connections to which water is delivered by a community water system; and consumers are defined as people served by the water system, including customers, and people

that do not receive a bill.¶
(1) Report delivery.¶
(a) Water suppliers must deliver their reports by July 1, every year. Reports must contain data collected during, or prior to, the previous calendar year. ¶
(b) For water systems serving 10,000 or more people, water suppliers must deliver the report twice every calendar year, beginning January 1, 2027. ¶
(A) The first report must be delivered by July 1 and include data collected during, or prior to, the previous calendar year.¶
(B) The second report must be delivered by December 31 and include, if applicable, the additional information specified in subsection (2)(e) of this rule.¶
(c) For new water systems, water suppliers must deliver the first report by July 1 following the first full calendar year of operation and by July 1 every year thereafter.¶
(d) For water suppliers that sell water to a community water system, the water supplier must deliver the applicable information specified in section (2) of this rule to the purchasing water supplier:¶
(A) No later than April 1, annually; or¶
(B) On a date mutually agreed upon by the seller and the purchaser, and included in a contract between the parties.¶
(C) For water systems at which reports are required biannually, the water supplier must provide the applicable information required in section (2) of this rule to the purchasing water supplier, no later than October 1, 2027, and annually thereafter, or a date mutually agreed upon by the seller and the purchaser, included in a contract between the parties.¶
(e) Except as provided in subsection (1)(j) of this rule, water suppliers must directly deliver a copy of the report to each customer using one of the forms of delivery listed in paragraphs (1)(e)(A), (B) or (C) of this rule.¶
(A) Mailing or hand delivering a paper copy of the report.¶
(B) Providing the report electronically by:¶
(i) Mailing a notification that the report is available on a website via a direct link; or¶
(ii) Sending by electronic mail, a direct link or electronic version of the report.¶
(iii) Water suppliers using the electronic delivery methods listed in subparagraphs (1)(e)(B)(i) or (ii) of this rule must provide a paper copy of the report to any customer upon request. The notification method must prominently display directions for requesting such copy.¶
(iv) For water suppliers that choose to electronically deliver the reports by posting the report to a website and providing a notification either by mail or electronic mail:¶
(I) The report must be publicly available on the website at the time notification is made;¶
(II) Notifications must prominently display the link and include an explanation about the nature of the link; and¶
(III) Water suppliers may use a webpage to display the information required by sections (3), (4) and (6) of this rule.¶
(IV) Water suppliers using a publicly available website to provide reports must maintain public access to each report for at least three years.¶
(C) Another direct delivery method approved in writing by the Oregon Health Authority (Authority).¶
(f) Water suppliers must make a good faith effort to reach consumers who do not get water bills, using means recommended by the Authority. The United States Environmental Protection Agency (U.S. EPA) expects that an adequate good faith effort will be tailored to the consumers who are served by the system but are not bill-paying customers, such as renters or workers. A good faith effort to reach consumers includes a mix of methods appropriate to the particular system such as but not limited to: posting the reports on the Internet; mailing reports or postcards with links to the reports to all service addresses or postal customers; using an opt in notification system to send electronic mail or text message with links to the reports to interested consumers; advertising the availability of the report in the news media and on social media; publication in a local newspaper or newsletter; posting a copy of the report or notice of availability with links (or equivalent, such as Quick Response (QR) codes) in public places such as cafeterias or lunch rooms of public buildings; delivery of multiple copies for distribution by single-biller customers such as apartment buildings or large private employers; delivery to community organizations; and holding a public meeting to educate consumers about the reports. ¶
(A) Where a water supplier is aware that it serves a substantial number of non-bill paying consumers, the water supplier is encouraged to directly deliver the reports or notices of availability of the reports to service addresses.¶
(B) Where a water supplier is aware of a substantial number of bill-paying consumers without access to electronic forms of the report, the water supplier should use at least one non-electronic form of delivery.¶
(g) No later than the date the water supplier is required to distribute the report to its customers, water suppliers must deliver the report to any other agency or clearinghouse identified by the Authority. ¶
(h) Water suppliers must make reports available to the public upon request. Water suppliers should make a reasonable effort to provide the reports in an accessible format to anyone who requests an accommodation.¶

(i) For water systems serving 50,000 or more persons, water suppliers must post the current year's report to a publicly accessible site on the internet. ¶
(j) The Governor of Oregon or their designee, can waive the requirement of subsection (1)(a) of this rule for water systems serving fewer than 10,000 persons. ¶
(A) For such systems, water suppliers must:¶
(i) Publish the reports in one or more local newspapers serving the area in which the system is located;¶
(ii) Inform the customers that the reports will not be mailed, either in the newspapers in which the reports are published or by other means approved by the Authority; and¶
(iii) Make the reports available to the public upon request.¶
(B) For water systems serving 500 or fewer persons, water suppliers may forego the requirements of subparagraphs (1)(j)(A)(i) and (ii) of this rule if they provide notice at least once per year to their customers by mail, door-to-door delivery or by posting in an appropriate location that the report is available upon request.¶
(k) For water systems serving 100,000 or more persons, water suppliers must develop a plan for providing assistance to consumers with limited English proficiency. The water supplier must evaluate the languages spoken by persons with limited English proficiency served by the water system, and the water supplier's anticipated approach to address translation needs. The first plan must be provided to the Authority with the first report in 2027. Plans must be evaluated annually and updated as necessary and reported with the certification prescribed by OAR 333-061-0040(1)(t).¶
(2) Content of the Reports:¶
(a) The annual reports must include the information specified in sections (2) through (5) of this rule and include a summary as specified in section (6) of this rule. ¶
(b) Each report must identify the source(s) of the water delivered by the water system by providing information on: ¶
(A) The type of water: for example, surface water, groundwater; and¶
(B) The commonly used name (if any) and location of the body (or bodies) of water.¶
(c) If a source water assessment has been completed, the report must notify consumers of the availability of this information and the means to obtain it. In addition, water suppliers are encouraged to highlight in the report significant potential sources of contamination in the drinking water protection area (DWPA) if they have readily available information. Where a system has received a source water assessment from the Authority, the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the Authority or written by the water supplier; ¶
(d) Each report must include the following definitions: ¶
(A) Contaminant: Any physical, chemical, biological, or radiological substance or matter in water.¶
(B) Maximum contaminant level or MCL means the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the maximum contaminant level goals (MCLGs) as feasible using the best available treatment technology.¶
(C) Maximum contaminant level goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.¶
(D) Maximum Residual Disinfectant Level Goal or MRDLG: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.¶
(E) Maximum Residual Disinfectant Level or MRDL: The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.¶
(F) Treatment Technique or Action Level: A system which has a detection for a contaminant for which the U.S. EPA has set a treatment technique or an action level must include one or both of the following definitions as applicable:¶
(i) Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water;¶
(ii) Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water supplier must follow.¶
(G) Variance: A system operating under a variance as prescribed in OAR 333-061-0045 must include the following definition in its report: Variances: State permission not to meet an MCL or a treatment technique under certain conditions.¶
(H) The following definitions must be used if the terms listed below are used in the report unless the water supplier obtains written approval from the Authority to use an alternate definition:¶
(i) Pesticide: generally, any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest.¶
(ii) Herbicide: Any chemical(s) used to control undesirable vegetation.¶
(e) For water systems where a second report is required by December 31 as prescribed by subsection (1)(b) of this rule, water suppliers must include information regarding monitoring, violations and action level exceedances that

occurred between January 1 and June 30 of the current calendar year, or where monitoring results were received according to the federal Unregulated Contaminant Monitoring Rule (UCMR) in CFR 141.40. The second report must include, if applicable, the information specified in paragraphs (2)(e)(A) through (E) of this rule.¶
(A) A brief description of the nature of the six-month update and biannual delivery.¶
(B) If the water system received a violation of a maximum contaminant level (MCL), maximum residual disinfectant level (MRDL) or a treatment technique violation, the update must include the applicable contaminant information and a readily understandable explanation of the violation including: the length of the violation, the potential adverse health effects, actions taken by the water supplier to address the violation, and timeframe the water supplier expects to complete those actions. To describe the potential health effects, the water supplier must use the relevant language specified in section (3) of this rule.¶
(C) If the water system received any other violation.¶
(D) If the lead action level was exceeded at the water system, water suppliers must include the information specified in subsections (3)(f) and (3)(p) of this rule.¶
(E) For water systems where monitoring results were received according to the UCMR and a water supplier becomes aware of results for samples collected during the reporting year but did not include the results in the report distributed by July 1, the water supplier must include the average and range at which the contaminant was detected, a brief explanation of the reasons for monitoring for unregulated contaminants such as: unregulated contaminant monitoring helps to determine where certain contaminants occur and whether the United States Environmental Protection Agency (U.S. EPA) should consider regulating those contaminants in the future or the water supplier may use an alternative educational statement in the report if approved by the Oregon Health Authority (Authority).¶
(f) For water systems where a lead service line inventory was required as prescribed by OAR 333-061-0036(10)(h), the report must notify consumers that complete lead tap sampling data is available for review and must include information on how to access the data.¶
(A) The report must include a statement that a service line inventory (including inventories where the publicly accessible inventory consists of a written statement that there are no lead, galvanized requiring replacement, or lead status unknown service lines, known lead connectors or connectors of unknown material) has been prepared and include instructions to access the publicly accessible service line inventory. If the service line inventory is available online, the report must include the direct link to the inventory.¶
(B) For water systems with lead, galvanized requiring replacement, or lead status unknown service lines in the system's inventory, the report must include information about how to obtain a copy of the service line replacement plan or a direct link to the plan if the water supplier is required to make the service line replacement plan available online.¶
(C) The report must contain a plainly worded explanation of corrosion control efforts at the water system according to OAR 333-061-0034. Corrosion control efforts consist of treatment (for example, pH adjustment, alkalinity adjustment, or corrosion inhibitor addition) and other efforts contributing to the control of the corrosivity of water (for example, monitoring to assess the corrosivity of water). The water supplier may use one of the templates provided in subparagraph (2)(f)(C)(i) or (ii) of this rule, or use their own explanation that includes equivalent information.¶
(i) For water systems with Authority designated optimal corrosion control treatment:¶
(I) Corrosion of pipes, plumbing fittings, and fixtures may cause lead and copper to enter drinking water. To assess corrosion of lead and copper, [name of water supplier] conducts tap sampling for lead and copper at selected sites [insert frequency at which water supplier conducts tap sampling]. [name of water supplier] treats water using [identify treatment method] to control corrosion, which was designated as the optimal corrosion control treatment by the Authority. To ensure the treatment is operating effectively, [name of water supplier] monitors water quality parameters set by the Authority [insert frequency at which water supplier conducts water quality parameter monitoring].¶
(II) If applicable add: [name of water supplier] is currently conducting a study of corrosion control to determine if any changes to treatment methods are needed to minimize the corrosivity of the water.¶
(ii) For water systems without Authority designated optimal corrosion control treatment:¶
(I) Corrosion of pipes, plumbing fittings and fixtures may cause metals, including lead and copper, to enter drinking water. To assess corrosion of lead and copper, [name of water supplier] conducts tap sampling for lead and copper at selected sites [insert frequency at which system conducts tap sampling].¶
(II) If applicable, add: [name of water supplier] treats water using [identify treatment method] to control corrosion.¶
(III) If applicable add: [name of water supplier] is currently conducting a study of corrosion control to determine if any changes to treatment methods are needed to minimize the corrosivity of the water.¶
(D) The report must include a statement that the water supplier is required to sample for lead in schools and licensed child care facilities as requested by the facility and that directs the public to contact their school or child

care facility for further information about potential sampling results.¶
(3) Detected Contaminants:¶
(a) The following information must be included in each report for contaminants subject to mandatory monitoring (except Cryptosporidium). Detected means at or above the detection level prescribed by each U.S. EPA approved analytical method set forth in 40 CFR 141: ¶
(A) Contaminants and disinfection by-products subject to an MCL, action level, MRDL, or treatment technique (regulated contaminants); and¶
(B) Unregulated contaminants for which monitoring is required.¶
(b) The data relating to these contaminants must be presented in the reports in a manner that is clear and understandable for consumers. For example, the data may be displayed in one table or in several adjacent tables. Any additional monitoring results which a water supplier chooses to include in the report must be displayed separately. ¶
(c) The data must be derived from data collected to comply with state monitoring and analytical requirements during the calendar year except that where a water supplier is allowed to monitor for regulated contaminants less often than once a year, the table(s) must include the date and results of the most recent sampling and the report must include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulation. Data from unregulated contaminant monitoring must only be included if the detection occurred in the calendar year of the report. No data older than five years need be included. ¶
(d) For detected regulated contaminants (listed in Table 42 of this rule), the table(s) in the report must contain: ¶
(A) The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in Table 42);¶
(B) The MCLG for that contaminant expressed in the same units as the MCL;¶
(C) If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report must include the definitions for treatment technique or action level, as appropriate, specified in paragraph (2)(d)(D) of this rule;¶
(D) For contaminants subject to an MCL, except turbidity and E. coli, the highest contaminant level used to determine compliance with these rules and the range of detected levels, as follows:¶
(i) When compliance with the MCL is determined annually or less frequently: the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL;¶
(ii) When compliance with the MCL is determined by calculating a running annual average of all samples taken at a monitoring location: the highest average at any of the monitoring locations and the range of all monitoring locations must be expressed in the same unit of measure as the MCL. For the MCL for total trihalomethanes (TTHM) and haloacetic acids (five) (HAA5) as specified by OAR 333-061-0030(2)(b), water suppliers must include the highest locational running annual average (LRAA) for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same unit of measure as the MCL. If more than one location exceeds the MCL for TTHM or HAA5, the water supplier must include the LRAAs for all locations that exceed the MCL;¶
(iii) When compliance with the MCL is determined on a system wide basis by calculating a running annual average of all samples at all monitoring locations: the average and range of detections must be expressed in the same units as the MCL. The water supplier is required to include individual sample results for an initial distribution system evaluation (IDSE) conducted in accordance with OAR 333-061-0036(4)(b) when determining the range of TTHM and HAA5 results to be reported in the annual consumer confidence report for the calendar year that the IDSE samples were taken;¶
(iv) When rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Table 42 of this rule.¶
(e) Turbidity: ¶
(A) When it is reported pursuant to OAR 333-061-0030(3)(a), 333-061-0032(2), and 333-061-0036(5)(a): the highest monthly value. The report should include an explanation of the reasons for measuring turbidity. This includes water systems currently without filtration treatment, but required to install filtration through a Notice of Violation and Remedial Order.¶
(B) When it is reported pursuant to OAR 333-061-0030(3): The highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in OAR 333-061-0030(3) for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity.¶
(f) Lead and copper: the 90th percentile value of the most recent round(s) of sampling and the number of sampling sites exceeding the action level, the range of tap sampling results and the lead-specific information as prescribed in subsection (4)(d) of this rule. ¶
(g) For E. coli: the total number of positive samples. ¶
(h) Reports that contain information regarding level 1 or level 2 coliform investigations required as specified in OAR 333-061-0078 must include the following definitions as applicable: ¶
(A) "Level 1 Coliform Investigation" means a study of the water system to identify potential problems and

determine (if possible) why total coliform bacteria have been found in our water system.¶
(B) "Level 2 Coliform Investigation" means a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred or why total coliform bacteria have been found in our water system on multiple occasions.¶
(i) The likely source(s) of detected contaminants to the best of the operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the operator. If the operator lacks specific information on the likely source, the report must include one or more of the typical sources for that contaminant listed in Table 43 which are most applicable to the system.¶
(j) If a water supplier distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table should contain a separate column for each service area and the report should identify each separate distribution system. Alternatively, water suppliers could produce separate reports tailored to include data for each service area. ¶
(k) The table(s) must clearly identify any data indicating violations of MCLs, MRDLs, or treatment techniques and the report must contain a clear and readily understandable explanation of the violation, the length of the violation, the potential adverse health effects, and actions taken by the water supplier to address the violation. To describe the potential health effects, the water supplier must use the relevant language in Table 43 of this rule. ¶
(l) For detected unregulated contaminants for which monitoring is required, the reports must present the average and range at which the contaminant was detected. The report must include a brief explanation of the reasons for monitoring for unregulated contaminants such as:¶
(A) Unregulated contaminant monitoring helps the U.S. EPA to determine where certain contaminants occur and whether the Agency should consider regulating those contaminants in the future.¶
(B) Water suppliers may use an alternative educational statement in the report if approved by the Authority..¶
(m) Information on Cryptosporidium, radon, and other contaminants: ¶
(A) If the water supplier has performed any monitoring for Cryptosporidium, which indicates that Cryptosporidium may be present in the source water or the finished water, the report must include:¶
(i) A summary of the results of the monitoring, and¶
(ii) An explanation of the significance of the results.¶
(B) If the water supplier has performed any monitoring for radon which indicates that radon may be present in the finished water, the report must include:¶
(i) The results of the monitoring; and¶
(ii) An explanation of the significance of the results.¶
(C) If the water supplier has performed additional monitoring which indicates the presence of other contaminants in the finished water, the water supplier is strongly encouraged to report any results which may indicate a health concern. To determine if results may indicate a health concern, the U.S. EPA recommends that water suppliers find out if the U.S. EPA has proposed a National Primary Drinking Water Regulation or issued a health advisory for that contaminant by calling the Safe Drinking Water Hotline (800-426-4791). The U.S. EPA considers detects above a proposed MCL or health advisory level to indicate possible health concerns. For such contaminants, the U.S. EPA recommends that the report include:¶
(i) The results of the monitoring; and¶
(ii) An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.¶
(n) Compliance with OAR chapter 333, division061: In addition to subsection (3)(j) of this rule, the report must note any violation that occurred during the year covered by the report of a requirement listed below, and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the water supplier has taken to correct the violation. ¶
(A) Monitoring and reporting of compliance data;¶
(B) Filtration and disinfection prescribed by OAR 333-061-0032: For water suppliers which have failed to install adequate filtration or disinfection equipment or processes which constitutes a violation or have an equipment failure constituting a violation, the report must include the following language as part of the explanation of potential adverse health effects: Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches;¶
(C) Lead and copper control requirements: For water supplier which fail to take one or more actions prescribed by OAR 333-061-0034 the report must include the applicable language in Table 43 of this rule for lead, copper, or both;¶
(D) Treatment techniques for Acrylamide and Epichlorohydrin: For water systems where the requirements of OAR 333-061-0030(7) were violated, the report must include the relevant health effects language in Table 43 of this rule.¶

(E) Recordkeeping of compliance data;¶
(F) Special monitoring requirements prescribed by OAR 333-061-0036(2)(e) and for unregulated contaminants as required by the U.S. EPA;¶
(G) Violation of the terms of a variance, administrative order or judicial order.¶
(o) Variances: If a water system is operated under the terms of a variance as prescribed in OAR 333-061-0045, the report must contain: ¶
(A) An explanation of the reasons for the variance;¶
(B) The date on which the variance was issued;¶
(C) A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance; and¶
(D) A notice of any opportunity for public input in the review, or renewal, of the variance.¶
(p) For water systems where the lead action level specified in OAR 333-061-0030(1) is exceeded, the detected contaminant data section must clearly identify the exceedance, whether any corrective action has been required by the Authority during the monitoring period covered by the report. The report must include a clear and readily understandable explanation of the exceedance, the steps consumers can take to reduce their exposure to lead in drinking water, and a description of any corrective actions the water supplier has or will take to address the exceedance. ¶
(q) Additional information: ¶
(A) The report must contain a brief explanation regarding contaminants which may reasonably be expected to be found in drinking water including bottled water. This explanation may include the language in subparagraphs (3)(q)(A)(i), (ii) and (iii) of this rule, or water suppliers may use their own comparable language. The report also must include the language of subparagraph (3)(q)(A)(iv) of this rule.¶
(i) The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity;¶
(ii) Contaminants that may be present in source water include:¶
(I) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;¶
(II) Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;¶
(III) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;¶
(IV) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems;¶
(V) Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.¶
(iii) In order to ensure that tap water is safe to drink, the U.S. EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health;¶
(iv) Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).¶
(B) The report must include the telephone number of the owner, operator, or designee of the water system as a source of additional information concerning the report;¶
(C) In communities with a large proportion of non-English speaking residents the report must contain information in the appropriate language(s) regarding the importance of the report or contain a telephone number or address where such residents may contact the water supplier to obtain a translated copy of the report or assistance in the appropriate language;¶
(D) The report must include information (for example, time and place of regularly scheduled board meetings) about opportunities for public participation in decisions that may affect the quality of the water;¶
(E) Water suppliers may include such additional information as deemed necessary for public education consistent with, and not detracting from, the purpose of the report.¶
(4) Required additional health information:¶
(a) All reports must prominently display the following language: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with

cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791). ¶
(b) For water systems where arsenic is detected at concentrations above 0.005 mg/l and up to and including 0.010 mg/L: ¶
(A) Water suppliers must include in its report a short informational statement about arsenic, using language such as: Arsenic is known to cause cancer in humans. Arsenic also may cause other health effects such as skin damage and circulatory problems. [NAME OF WATER SYSTEM] meets the arsenic drinking water standard, also known as a maximum contaminant level (MCL); however, you should know that the MCL for arsenic balances the scientific community's understanding of arsenic-related health effects and the cost of removing arsenic from drinking water. The highest concentration of arsenic found in [YEAR] was [INSERT MAX ARSENIC LEVEL per section (3) of this rule] parts per billion.¶
(B) Water suppliers may use an alternative educational statement in the report if approved by the Authority.¶
(c) For water systems where nitrate is detected at concentrations above 5 mg/l, but where concentrations do not exceed the MCL: ¶
(A) Water suppliers must include a short informational statement about the impacts of nitrate on children using language such as: Even though [NAME OF WATER SYSTEM] meets the nitrate drinking water standard, also known as a maximum contaminant level (MCL), if you are caring for an infant and using tap water to prepare formula, you may want to use alternate sources of water or ask for advice from your health care provider. Nitrate levels above 10 ppm pose a particularly high health concern for infants under six months of age and can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness. Symptoms of serious illness include shortness of breath and blueness of the skin, known as "blue baby syndrome." Nitrate levels in drinking water can increase for short periods of time due to high levels of rainfall or agricultural activity, therefore we test for nitrate [INSERT APPLICABLE SAMPLING FREQUENCY]. The highest level for nitrate found during [YEAR] was [INSERT MAX NITRATE LEVEL per section (3) of this rule] parts per million.¶
(B) Water suppliers may use an alternative educational statement in the report if approved by the Authority.¶
(d) Every report must include the following lead-specific information: ¶
(A) A short informational statement about the lead in drinking water and its effects on children. Lead can cause serious health effects in people of all ages, especially pregnant people, infants (both formula-fed and breastfed), and young children. Lead in drinking water is primarily from materials and parts used in service lines and in home plumbing. [INSERT NAME OF WATER SYSTEM] is responsible for providing high quality drinking water and removing lead pipes but cannot control the variety of materials used in the plumbing in your home. Because lead levels may vary over time, lead exposure is possible even when your tap sampling results do not detect lead at one point in time. You can help protect yourself and your family by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Using a filter, certified by an American National Standards Institute accredited certifier to reduce lead, is effective in reducing lead exposures. Follow the instructions provided with the filter to ensure the filter is used properly. Use only cold water for drinking, cooking, and making baby formula. Boiling water does not remove lead from water. Before using tap water for drinking, cooking, or making baby formula, flush your pipes for several minutes. You can do this by running your tap, taking a shower, doing laundry or a load of dishes. If you have a lead service line or galvanized requiring replacement service line, you may need to flush your pipes for a longer period. If you are concerned about lead in your water and wish to have your water tested, contact [INSERT NAME OF WATER SYSTEM and CONTACT INFORMATION]. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at https://www.epa.gov/safewater/lead.¶
(B) Water suppliers may use an alternative educational statement in the report if approved by the Authority.¶
(e) Requirements related to coliform investigations. ¶
(A) A water supplier required to complete level one or level two coliform investigations that are not due to an exceedance of the MCL for E. coli must include in the report the text found in subparagraphs (4)(e)(A)(i) through (iii) of this rule as appropriate, replacing the language in brackets with system specific information as appropriate.¶
(i) Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct investigation(s) to identify problems and to correct any problems that were found during these investigation(s).¶
(ii) During the past year we were required to conduct [INSERT NUMBER OF LEVEL 1 COLIFORM INVESTIGATIONS] level 1 coliform investigation(s). [INSERT NUMBER OF LEVEL 1 COLIFORM

INVESTIGATIONS] level 1 coliform investigation (s) were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.¶
(iii) During the past year [INSERT NUMBER OF LEVEL 2 COLIFORM INVESTIGATIONS] level 2 coliform investigations were required to be completed for our water system. [INSERT NUMBER OF LEVEL 2 COLIFORM INVESTIGATIONS] level 2 coliform investigations were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.¶
(B) Water suppliers required to complete a level 2 coliform investigation due to an exceedance of the MCL for E. coli must include in the report the text found in subparagraphs (4)(e)(B)(i) and (ii) of this rule as appropriate, replacing the language in brackets with system specific information as appropriate.¶
(i) E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found E. coli bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct investigation(s) to identify problems and to correct any problems that were found during these investigations.¶
(ii) We were required to complete a level 2 coliform investigation because we found E. coli in our water system. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.¶
(C) Water suppliers that failed to complete a required coliform investigation or correct all identified sanitary defects must include one or both of the following statements, as appropriate:¶
(i) During the past year, we failed to conduct the required coliform investigation(s).¶
(ii) During the past year, we failed to correct all sanitary defects that were identified during a coliform investigation as required.¶
(D) If E. coli is detected at a water system and the MCL for E. coli was exceeded, in addition to including the information as required by section (3) of this rule, the water supplier must include one or more of the statements specified in subparagraphs (4)(e)(D)(i) through (iv) of this rule as appropriate to describe any noncompliance:¶
(i) We had an E. coli-positive repeat sample following a total coliform-positive routine sample.¶
(ii) We had a total coliform-positive repeat sample following an E. coli-positive routine sample.¶
(iii) We failed to collect all required repeat samples following an E. coli-positive routine sample.¶
(iv) We failed to test for E. coli when a repeat sample tested positive for total coliform.¶
(E) If E. coli is detected at a water system but the MCL for E. coli was not exceeded, in addition to completing the table(s) as specified in section (3) of this rule, a water supplier may include a statement that explains that although E. coli was detected, the MCL for E. coli was not exceeded at the water system.¶
(5) Special requirements for groundwater systems:¶
(a) Any water supplier that receives notification of a significant deficiency that is not corrected at the time of the next report, or of an E. coli-positive groundwater source sample that was not invalidated in accordance OAR 333-061-0036(6)(l) must inform its customers in the next report. The water supplier must continue to inform the public annually until the Authority determines that the particular significant deficiency is corrected or that the fecal contamination in the groundwater source is addressed in accordance with OAR 333-061-0032(6). Each report must include the following elements: ¶
(A) The nature of the particular significant deficiency or the source of the fecal contamination (if the source is known), and the date the significant deficiency was identified by the Authority or the dates of the E. coli-positive groundwater source samples;¶
(B) If the fecal contamination in the groundwater source has been addressed as prescribed by OAR 333-061-0032(6) and the date of such action;¶
(C) The Authority-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed for any significant deficiency or fecal contamination in the groundwater source that has not been addressed as prescribed by OAR 333-061-0032(6); and¶
(D) The potential health effects language specified in OAR 333-061-0042(11)(d)(A) if the water supplier received notice of a E. coli-positive groundwater source sample that was not invalidated by the Authority in accordance with OAR 333-061-0036(6)(l).¶
(b) The Authority may require a water supplier where significant deficiencies were corrected before the next report is issued to inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction in accordance with subsection (5)(a) of this rule. ¶
(6) Summary of Report Contents.¶
(a) Each report must include a summary displayed prominently at the beginning of the report, including a brief description of the nature of the report.¶

(b) Water suppliers must include, at a minimum, the following information in the summary:¶
(A) Summary of violations and compliance information included in the report as required by subsections (3)(k), (3)(n), (3)(p) and (4)(e) and section (5) of this rule.¶
(B) Contact information for owner, operator, or public representative for the water system as a source of additional information concerning the report.¶
(c) If applicable, water suppliers must include the following in the summary:¶
(A) For water suppliers using electronic delivery methods described in subsection (6)(a) of this rule, the summary must include directions for consumers to request a paper copy of the report.¶
(B) For systems subject to subsection (6)(i) of this rule because they serve a large proportion of consumers with limited English proficiency, the summary must include information where consumers may obtain a translated copy of the report, or get assistance in the appropriate language(s).¶
(C) For water suppliers using the report to also meet the public notification requirements of OAR 333-061-0042, the summary must specify that it is also serving to provide public notification about one or more violations or situations, provide a brief statement about the nature of the notice(s), and a brief description of how to locate the notice(s) in the report.¶
(d) The summary should be written in plain language and may use infographics.¶
(e) For water systems where a six-month update is required with the second report according to subsection (1)(b) of this rule, the summary should include a brief description of the nature of the report and update, noting the availability of new information for the current year (between January and June).¶
(f) The report summary must include the following standard language in italics to encourage the distribution of the report to all persons served: Please share this information with anyone who drinks this water (or their guardians), especially those who may not have received this report directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this report in a public place or distributing copies by hand, mail, email, or another method.
Statutory/Other Authority: ORS 448.131
Statutes/Other Implemented: ORS 448.273

RULE ATTACHMENTS MAY NOT SHOW CHANGES. PLEASE CONTACT AGENCY REGARDING CHANGES.

Table 42
~~Converting~~ MCL Compliance Values For Consumer Confidence Reports

Contaminant	MCL in Compliance units (mg/L)	Multiply by	MCL CCR units	MCLG in CCR units
Microbiological Contaminants				
~~Total Coliform bacteria (until March 31, 2016)~~	~~MCL (systems that collect 40 or more samples per month) 5% of monthly samples are positive; (systems that collect fewer than 40 samples per month)1 positive monthly sample.~~	~~-----~~	~~MCL (systems that collect 40 or more samples per month) 5% of monthly samples are positive; (systems that collect fewer than 40 samples per month) 1 positive monthly sample.~~	~~0~~
Total Coliform bacteria ~~(beginning April 1, 2016)~~	TT	------	TT	N/A
~~Fecal coliform and *E. coli* (until March 31, 2016)~~	~~0~~	~~-----~~	~~0~~	~~0~~
E. coli ~~(beginning April 1, 2016)~~	Routine and repeat samples are total coliform-positive and either is *E. coli*-positive or the water supplier fails to collect repeat samples following *E. coli*-positive routine sample or system fails to analyze total coliform-positive repeat sample for *E. coli*.	------	Routine and repeat samples are total coliform-positive and either is *E. coli*-positive or the water supplier fails to collect repeat samples following *E. coli*-positive routine sample or system fails to analyze total coliform-positive repeat sample for *E. coli*.	0
Turbidity	------	------	TT (NTU)	n/a
Radioactive Contaminants				
Beta/photon emitters	4 mrem/yr	------	4 mrem/yr	0
Alpha emitters	15 pCi/l	------	15 pCi/l	0
Combined radium	5 pCi/l	------	5 pCi/l	0

Uranium	30 ug/l	------	30 ug/l	0

Inorganic Contaminants

Antimony	0.006	1,000	6ppb	6
Arsenic	0.010	1,000	10 ppb	0
Asbestos	7 MFL	------	7 MFL	7
Barium	2	------	2 ppm	2
Beryllium	0.004	1,000	4 ppb	4
Cadmium	0.005	1,000	5 ppb	5
Chromium	0.1	1,000	100 ppb	100
Copper	AL = 1.3	------	AL = 1.3 ppm	1.3
Cyanide	0.2	1,000	200 ppb	200
Fluoride	4	------	4 ppm	4
Lead	AL = 0.015	1,000	AL = 15 ppb	0
Mercury (inorganic)	0.002	1,000	2 ppb	2
Nitrate (as Nitrogen)	10	------	10 ppm	10
Nitrite (as Nitrogen)	1	------	1 ppm	1
Selenium	0.05	1,000	50 ppb	50
Thallium	0.002	1,000	2 ppb	0.5

Synthetic Organic Contaminants including Pesticides and Herbicides

2,4-D	0.07	1,000	70 ppb	70
2,4,5-TP (Silvex)	0.05	1,000	50 ppb	50
Acrylamide	------	------	TT	0
Alachlor	0.002	1,000	2 ppb	0
Atrazine	0.003	1,000	3 ppb	3
Benzo(a) pyrene (PAH)	0.0002	1,000,000	200 ppt	0
Carbofuran	0.04	1,000	40 ppb	40
Chlordane	0.002	1,000	2 ppb	0
Dalapon	0.2	1,000	200 ppb	200
Di(2-ethylhexyl) adipate	0.4	1,000	400 ppb	400
Di(2-ethylhexyl) phthalate	0.006	1,000	6 ppb	0
Dibromochloropropane	0.0002	1,000,000	200 ppt	0
Dinoseb	0.007	1,000	7 ppb	7
Diquat	0.02	1,000	20 ppb	20
Dioxin (2,3,7,8-TCDD)	0.00000003	1,000,000,000	30 ppq	0
Endothall	0.1	1,000	100 ppb	100
Endrin	0.002	1,000	2 ppb	2
Epichlorohydrin	------	------	TT	0
Ethylene dibromide	0.00005	1,000,000	50 ppt	0
Glyphosate	0.7	1,000	700 ppb	700

Heptachlor	0.0004	1,000,000	400 ppt	0
Heptachlor epoxide	0.0002	1,000,000	200 ppt	0
Hexachlorobenzene	0.001	1,000	1 ppb	0
Hexachlorocyclo- pentadiene	0.05	1,000	50 ppb	50
Lindane	0.0002	1,000,000	200 ppt	200
Methoxychlor	0.04	1,000	40 ppb	40
Oxamyl (Vydate)	0.2	1,000	200 ppb	200
PCBs (polychlorinated (biphenyls)	0.0005	1,000,000	500 ppt	0
Pentachlorohpenol	0.001	1,000	1 ppb	0
Picloram	0.5	1,000	500 ppb	500
Simazine	0.004	1,000	4 ppb	4
Toxaphene	0.003	1,000	3 ppb	0

Volatile Organic Contaminants

Benzene	0.005	1,000	5 ppb	0
Carbon Tetrachloride	0.005	1,000	5 ppb	0
Chlorobenzene	0.1	1,000	100 ppb	100
o-Dichlorobenzene	0.6	1,000	600 ppb	600
p-Dichlorobenzene	0.075	1,000	75 ppb	75
1,2-Dichloroethane	0.005	1,000	5 ppb	0
1,1-Dichloroethylene	0.007	1,000	7 ppb	7
cis-1,2-Dichloroethylene	0.07	1,000	70 ppb	70
trans-1,2-Dichloroethylene	0.1	1,000	100 ppb	100
Dichloromethane	0.005	1,000	5 ppb	0
1,2-Dichloropropane	0.005	1,000	5 ppb	0
Ethylbenzene	0.7	1,000	700 ppb	700
Styrene	0.1	1,000	100 ppb	100
Tetrachloroethylene	0.005	1,000	5 ppb	0
1,2,4-Trichlorobenzene	0.07	1,000	70 ppb	70
1,1,1-Trichloroethane	0.2	1,000	200 ppb	200
1,1,2-Trichloroethane	0.005	1,000	5 ppb	3
Trichloroethylene	0.005	1,000	5 ppb	0
Toluene	1	------	1 ppm	1
Vinyl Chloride	0.002	1,000	2 ppb	0
Xylenes	10	------	10 ppm	10

Disinfection Byproducts, Byproduct Precursors, and Disinfectant Residuals

TTHMs (Total Trihalomethanes	.080	1,000	80 ppb	NA
Haloacetic Acids (HAA)	060	1,000	60 ppb	NA
Bromate	010	1,000	10 ppb	0
Chlorite	1	---------	1 ppm	0.8

Chlorine	MRDL= 4.0	---------	MRDL= 4.0 ppm	4 (MRDLG)
Chloramines	MRDL= 4.0	---------	MRDL= 4.0 ppm	4 (MRDLG)
Chlorine Dioxide	MRDL =0.8	1,000	MRDL= 800 ppb	800(MRDLG)
Total Organic Carbon (TOC)	TT	---------	TT	NA

Key:
AL=Action Level
GWR=Ground Water Rule
MCL=Maximum Contaminant Level
MCLG=Maximum Contaminant Level Goal
MFL=million fibers per liter
mrem/year=Millirems per year (a measure of the radiation absorbed by the body)
NTU=Nephelometric Turbidity Units
pCi/l=picocuries per liter (a measure of radioactivity)
ppm=parts per million or milligrams/liter (mg/l)
ppb=parts per billion or micrograms/liter (ug/l)
ppt=parts per trillion or nanograms/liter
ppq=parts per quadrillion, or picograms/liter
TT=Treatment Technique

Table 43

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
Microbiological Contaminants				
Total Coliform Bacteria	TT	N/A	Naturally present in the environment.	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				occurs, we are required to conduct investigation(s) to identify problems and to correct any problems that were found during these investigations.
E. coli	Routine and repeat samples are total coliform-positive and either is *E. coli*-positive or system fails to take repeat samples following *E. coli*-positive routine sample or system fails to analyze total coliform-positive repeat sample for *E. coli*.	0	Human and animal fecal waste.	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems.
Turbidity	TT	n/a	Soil runoff.	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease causing organisms. These

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
Radioactive Contaminants				
Beta/photon emitters (mrem/yr)	4	0	Decay of natural and man-made deposits.	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Alpha emitters (pCi/l)	15	0	Erosion of natural deposits.	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Combined radium (pCi/l)	5	0	Erosion of natural deposits.	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium (ug/l)	30	0	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have an

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				increased risk of getting cancer and kidney toxicity.
Inorganic Contaminants				
Antimony (ppb)	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder.	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
Arsenic (ppb)	10	0	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
Asbestos (MFL)	7	7	Decay of asbestos cement water mains; Erosion of natural deposits.	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
Barium (ppm)	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
Beryllium (ppb)	4	4	Discharge from metal refineries and coal-burning factories; Discharge from	Some people who drink water containing beryllium well in excess of the MCL over many

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
			electrical, aerospace, and defense industries.	years could develop intestinal lesions.
Cadmium (ppb)	5	5	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; runoff from waste batteries and paints.	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
Chromium (ppb)	100	100	Discharge from steel and pulp mills; Erosion of natural deposits.	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
Copper (ppm)	AL=1.3	1.3	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives.	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Cyanide (ppb)	200	200	Discharge from steel/metal factories; Discharge from	Some people who drink water containing cyanide well in excess of the MCL over many years could

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
			plastic and fertilizer factories.	experience nerve damage or problems with their thyroid.
Fluoride (ppm)	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
Lead (ppb)	AL=15	0	Corrosion of household plumbing systems; Erosion of natural deposits.	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
Mercury (inorganic)(ppb)	2	2	Erosion of natural deposits; Discharge from	Some people who drink water containing inorganic mercury well in

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
			refineries and factories; Runoff from landfills; Runoff from cropland.	excess of the MCL over many years could experience kidney damage.
Nitrate (as Nitrogen)(ppm)	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.	Infants below the age of 6 months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Nitrite (as Nitrogen)(ppm)	1	1	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.	Infants below the age of 6 months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Selenium (ppb)	50	50	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
Thallium (ppb)	2	0.5	Leaching from ore-processing sites; Discharge from electronics,	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss,

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
			glass, and drug factories.	changes in their blood, or problems with their kidneys, intestines, or liver.
Synthetic Organic Contaminants including Pesticides and Herbicides				
2,4-D (ppb)	70	70	Runoff from herbicide used on row crops.	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
2,4,5-TP [Silvex](ppb)	50	50	Residue of banned herbicide.	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
Acrylamide	TT	0	Added to water during sewage/ wastewater treatment.	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
Alachlor (ppb)	2	0	Runoff from herbicide used on row crops.	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
Atrazine (ppb)	3	3	Runoff from herbicide used on row crops.	Some people who drink water containing atrazine well in excess of the MCL

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				over many years could experience problems with their cardiovascular system or reproductive difficulties.
Benzo(a) pyrene [PAH] (nanograms/l)	200	0	Leaching from linings of water storage tanks and distribution lines.	Some people who drink water containing benzo(a) pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Carbofuran (ppb)	40	40	Leaching of soil fumigant used on rice and alfalfa.	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
Chlordane (ppb)	2	0	Residue of banned termiticide.	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver, or nervous system, and may have an increased risk of getting cancer.
Dalapon (ppb)	200	200	Runoff from herbicide used on rights of way.	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
Di(2-ethylhexyl) adipate (ppb)	400	400	Discharge from chemical factories.	Some people who drink water containing di-(2-

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				ethylhexyl) adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement or possible reproductive difficulties.
Di(2-ethylhexyl) phthalate (ppb)	6	0	Discharge from rubber and chemical factories.	Some people who drink water containing di-(2-ethylhexyl) phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
Dibromochloro-propane (DBCP)(ppt)	200	0	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards.	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Dinoseb (ppb)	7	7	Runoff from herbicide used on soybeans and vegetables.	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
Diquat (ppb)	20	20	Runoff from herbicide use.	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
Dioxin [2,3,7,8-TCDD] (ppq)	30	0	Emissions from waste incineration and other	Some people who drink water containing dioxin in excess of the MCL over

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
			combustion; Discharge from chemical factories.	many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Endothall (ppb)	100	100	Runoff from herbicide use.	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
Endrin (ppb)	2	2	Residue of banned insecticide.	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
Epichlorohydrin	TT	0	Discharge from industrial chemical factories; An impurity of some water treatment chemicals.	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.
Ethylene dibromide (ppt)	50	0	Discharge from petroleum refineries.	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
Glyphosate (ppb)	700	700	Runoff from herbicide use.	Some people who drink water containing glyphosate in excess of the MCL over many years

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				could experience problems with their kidneys or reproductive difficulties.
Heptachlor (ppt)	400	0	Residue of banned termiticide.	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
Heptachlor epoxide (ppt)	200	0	Breakdown of heptachlor.	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene (ppb)	1	0	Discharge from metal refineries and agricultural chemical factories.	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
Hexachlorocyclopentadiene (ppb)	50	50	Discharge from chemical factories.	Some people who drink water containing hexachlorocyclo-pentadiene well in excess of the MCL over many years could experience

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				problems with their stomach or kidneys.
Lindane (ppt)	200	200	Runoff/leaching from insecticide used on cattle, lumber, gardens.	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
Methoxychlor (ppb)	40	40	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock.	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
Oxamyl [Vydate](ppb)	200	200	Runoff/leaching from insecticide used on apples, potatoes and tomatoes.	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
PCBs [Polychlorinated biphenyls] (ppt)	500	0	Runoff from landfills; Discharge of waste chemicals.	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
Pentachlorophenol (ppb)	1	0	Discharge from wood preserving factories.	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				may have an increased risk of getting cancer.
Picloram (ppb)	500	500	Herbicide runoff.	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
Simazine (ppb)	4	4	Herbicide runoff.	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
Toxaphene (ppb)	3	0	Runoff/leaching from insecticide used on cotton and cattle.	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their thyroid, kidneys, or liver and may have an increased risk of getting cancer.
Volatile Organic Contaminants				
Benzene (ppb)	5	0	Discharge from factories; Leaching from gas storage tanks and landfills.	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
Carbon tetrachloride (ppb)	5	0	Discharge from chemical plants and other	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
			industrial activities.	and may have an increased risk of getting cancer.
Chlorobenzene (ppb)	100	100	Discharge from chemical and agricultural chemical factories.	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their kidneys or liver.
o-Dichlorobenzene (ppb)	600	600	Discharge from industrial chemical factories.	Some people who drink water containing *o*-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
p-Dichlorobenzene (ppb)	75	75	Discharge from industrial chemical factories.	Some people who drink water containing *p*-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
1,2-Dichloroethane (ppb)	5	0	Discharge from industrial chemical factories.	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
1,1-Dichloroethylene (ppb)	7	7	Discharge from industrial chemical factories.	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
cis-1,2-Dichloroethylene (ppb)	70	70	Discharge from industrial chemical factories.	Some people who drink water containing *cis*-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
trans-1,2-Dichloroethylene (ppb)	100	100	Discharge from industrial chemical factories.	Some people who drink water containing *trans*-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
Dichloromethane (ppb)	5	0	Discharge from pharmaceutical and chemical factories.	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
1,2-Dichloropropane (ppb)	5	0	Discharge from industrial chemical factories.	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
Ethylbenzene (ppb)	700	700	Discharge from petroleum refineries.	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
Styrene (ppb)	100	100	Discharge from rubber and plastic factories;	Some people who drink water containing styrene well in excess of the MCL over many years could

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
			Leaching from landfills.	have problems with their liver, kidneys, or circulatory system.
Tetrachloroethylene (ppb)	5	0	Discharge from factories and dry cleaners.	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
1,2,4-Trichlorobenzene (ppb)	70	70	Discharge from textile-finishing factories.	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
1,1,1-Trichloroethane (ppb)	200	200	Discharge from metal degreasing sites and other factories.	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
1,1,2-Trichloroethane (ppb)	5	3	Discharge from industrial chemical factories.	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
Trichloroethylene (ppb)	5	0	Discharge from metal degreasing sites and other factories.	Some people who drink water containing trichloroethylene in excess of the MCL over

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				many years could experience problems with their liver and may have an increased risk of getting cancer.
Toluene (ppm)	1	1	Discharge from petroleum factories.	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
Vinyl Chloride (ppb)	2	0	Leaching from PVC piping; Discharge from plastics factories.	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
Xylenes (ppm)	10	10	Discharge from petroleum factories; Discharge from chemical factories.	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.
Disinfection Byproducts, Byproduct Precursors, and Disinfectant Residuals				
Total trihalomethanes (TTHMs)(ppb)	80	N/A	Byproduct of drinking water disinfection	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer
Haloacetic Acids (HAA) (ppb)	60	N/A	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				of the MCL over many years may have an increased risk of getting cancer.
Bromate (ppb)	10	0	Byproduct of drinking water disinfection	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
Chlorite (ppm)	1	0.8	Byproduct of drinking water disinfection	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Chlorine (ppm)	MRDL =4.0	MRDLG = 4	Water additive used to control microbes	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
Chloramines (ppm)	MRDL =4.0	MRDLG = 4	Water additive used to control microbes	Some people who use water containing chloramines well in excess of the MRDL could experience irritating

Regulated Contaminant Information				
Contaminant (units)	MCL	MCLG	Major Sources in Drinking Water	Health Effects Language
				effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
Chlorine dioxide (ppb)	*MRDL=800*	*MRDLG=800*	Water additive used to control microbes	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.
Total Organic Carbon (TOC) (ppm)	TT	None	Naturally present in the environment	Total Organic Carbon (TOC) has no health effects, however, TOC provides a medium for the formation of disinfection byproducts (DBPs). These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Key:
AL=Action Level
MCL=Maximum Contaminant Level
MCLG=Maximum Contaminant Level Goal
MFL=million fibers per liter
mrem/year=millirems per year (a measure of radiation absorbed by the body)
NTU=Nephelometric Turbidity Units
pCi/l=picocuries per liter (a measure of radioactivity)
ppm=parts per million, or milligrams per liter (mg/l)
ppb=parts per billion, or micrograms per liter (ug/l)
ppt=parts per trillion, or nanograms per liter
ppq=parts per quadrillion, or picograms per liter
TT=Treatment Technique

AMEND: 333-061-0061

RULE SUMMARY: Amend OAR 333-061-0061: The Capacity Requirements for Public Water Systems rule will be amended to remove the requirement for capacity assessment at new transient non-community water systems.

CHANGES TO RULE:

333-061-0061
Capacity Requirements for Public Water Systems ¶

(1) Water system capacity is defined as the technical, managerial, and financial capability of ~~the~~a water supplier and water system necessary to plan for, achieve, and maintain compliance with applicable drinking water standards.¶
(2) Capacity requirements for new public water systems.¶
(a) Any new community~~, NTNC, or~~ or non-transient non-community (NTNC) public water system must meet the applicable requirements in this rule prior to serving drinking water to the public. The owner of such water system shall submit evidence of meeting all applicable requirements to the ~~Authority~~Oregon Health Authority (Authority) for review and shall commence operation only after Authority approval. This rule does not apply to water systems that were built and operating prior to October 1, 1999.¶
(b) Requirements for Technical Capacity.¶
(A) The water system must comply with the local land use requirements of OAR 333-061-0062, including submission to the Authority of evidence of approval by the local land use authority.¶
(B) The water system must comply with plan submission and review requirements of OAR 333-061-0060, and plans submitted must comply with construction standards in OAR 333-061-0050.¶
(C) The owner of a new water system must demonstrate a valid water right permit as required and prescribed by the Oregon Water Resources Department (ORS chapter 537).¶
(D) The water system must submit initial water quality test results demonstrating compliance with applicable maximum contaminant levels (MCLs) (OAR 333-061-0030), and applicable treatment requirements and performance standards (OAR 333-061-0032 and 0034).¶
(E) Community water systems shall have water use meters installed at all service connections.¶
(F) Community water systems with 300 or more service connections or serving more than 1,000 people shall have a master plan meeting the requirements of OAR 333-061-0060(5).¶
(c) Requirements for Managerial Capacity.¶
(A) Community and NTNC water systems must employ or contract for the services of a certified operator as required by OAR 333-061-0225.¶
(B) Community water systems within areas of Oregon where ~~S~~state or ~~F~~federally listed sensitive, threatened or endangered fish species are located, shall consult with the Oregon Water Resources ~~Authority. If required by the Oregon Water Resources Department~~Department (OWRD). If required by OWRD, community water systems shall have water management and conservation plans meeting the requirements of O~~regon Water Resources Department~~WRD according to OAR 690-086-0010 through 0920.¶
(d) Requirements for Financial Capacity. The water system must establish a water rate structure and billing procedure, or alternate financial plan, to assure that funds are collected and available to meet the anticipated operation, maintenance, and replacement costs of the water system.¶
(3) Capacity requirements for public water systems applying for a loan from the Drinking Water State Revolving Loan Fund.¶
(a) All public water systems qualifying for a Drinking Water State Revolving Fund loan must receive a capacity assessment for technical and managerial capacity from the Authority, and financial capacity from the Oregon ~~Economic & Community~~Business Development Department through the loan application process, prior to contract execution.¶
(b) All deficiencies identified in the capacity assessment must be corrected such that:¶
(A) Those deficiencies identified in the capacity assessment as major deficiencies must be corrected prior to contract execution. Major deficiencies include but are not limited to the following:¶
(i) Under technical capacity, major infrastructure deficiencies identified in the sanitary survey and not corrected as a part of this project or identified as a deficiency under paragraph (E) of this subsection; or¶
(ii) Under managerial capacity, no certified operator and no contract or agreement for operator services from another water system or management agency; or¶
(iii) Under financial capacity, inappropriate financial statements, lack of a capital financing program, or an inadequate rate structure to cover necessary system operation, debt service, or capital replacement.¶
(B) Those deficiencies identified in the capacity assessment as loan conditions must be corrected as a part of the contract prior to contract completion or on a schedule set or approved and tracked by the Authority or its

designee. Loan condition deficiencies are deficiencies which may take considerable staff or contractor time and possibly some funding to correct. Loan condition deficiencies include but are not limited to the following:¶
(i) Under technical capacity, inadequate or no water rights, incomplete installation of water use meters, incomplete or no engineering drawings of the water system, out-of-date or no master plan, or incomplete or no plan review on prior construction projects; or¶
(ii) Under managerial capacity, having an operator at a lower level than required in responsible charge of the water system, no written emergency response plan, no written water conservation program if required by ~~the Water Resources Department under~~OWRD according to OAR 690-086-0010 through 690-086-0920, no written water system operations manual, or no cross connection program.¶
(C) Those deficiencies identified in the capacity assessment as short term deficiencies must be corrected prior to contract completion and will be tracked by the Authority. Short term deficiencies are deficiencies which can be quickly corrected with additional staff attention. Short term deficiencies include but are not limited to the following:¶
(i) Under technical capacity, water quality monitoring is incomplete, no coliform sample plan or site map, or no written water quality monitoring plan; or¶
(ii) Under managerial capacity, no annual cross connection summary report if required, or no consumer confidence report if required.¶
(D) Those deficiencies identified in the capacity assessment as corrected with the project will be considered by the Authority as corrected with contract completion.¶
(E) All other deficiencies identified in the capacity assessment must be identified and established as a future construction project in the water system master plan, feasibility study, or other such document in order to be considered by the Authority as corrected in the future.¶
(c) Funding to correct a deficiency identified as a loan condition under paragraph (b)(B) of this section may be included as part of the project contract under the Drinking Water State Revolving Fund, if that part of the project to correct the deficiency qualifies under the terms of the Drinking Water State Revolving Fund.¶
(4) All community~~, NTNC~~ and NTNC public water systems will receive capacity assessments conducted by or with the assistance of the Authority.¶
(a) The capacity assessment consists of a written report identifying deficiencies in technical, managerial, and financial capacity, and a letter listing recommendations to correct the deficiencies. The findings of the capacity assessment and recommendations for correction will be presented to the management of the water system at a regular or special meeting.¶
(b) The frequency of capacity assessments for a public water system, as described in this subsection, is dependent on the risk to human health as determined by the Authority.¶
(c) The recommendations for correction of deficiencies identified in capacity assessments are, or, become requirements for any public water system, as described in this subsection, with multiple violations of the drinking water standards, in significant non-compliance with the drinking water standards, or an Administrative Order issued by the Authority.
Statutory/Other Authority: ORS 448.131
Statutes/Other Implemented: ORS 448.131, 448.150, 448.273

AMEND: 333-061-0076

RULE SUMMARY: Amend OAR 333-061-0076: The Sanitary Surveys rule will be amended to focus the significant deficiencies that can be cited during a sanitary survey toward only direct pathways for contamination to enter a water system. This amendment changes rule text to better align with the Oregon Health Authority's practices and there is no substantive effect upon public water suppliers as a result of these changes.

CHANGES TO RULE:

333-061-0076
Sanitary Surveys ¶

(1) All sanitary surveys described by this rule and defined ~~by~~in OAR 333-061-0020~~(117)~~ shall be conducted by the ~~Authority.¶~~
~~(2) Every community,~~ Oregon Health Authority (Authority).¶
(2) Every community, non-transient non-community (NTNC) and transient non-community (TNC) water system must undergo a sanitary survey at least every five years at a frequency determined by the Authority. Water suppliers must provide the Authority, upon request:¶
(a) Any existing information that will enable the Authority to conduct the sanitary survey, including but not limited to, records relating to: monitoring, reporting and data verification; water system management and operations; and operator certification.¶
(b) Access to the entirety of the public water system, including but not limited to: source of supply; treatment; distribution system; finished water storage; pumps; and pump facilities and controls.¶
(3) Every sanitary survey shall be recorded and a report sent to the water supplier following the site visit. The sanitary survey report shall include, at a minimum, the following components of a water system: source of supply; treatment; distribution system; finished water storage; pumps, pump facilities and controls; monitoring, reporting and data verification; system management and operations; and operator certification compliance.¶
(4) The sanitary survey report will identify any significant deficiency specified in this section or any ~~violation of~~unmet drinking water regulations discovered during the site visit. Significant deficiencies ~~for all water systems~~ include, but are not limited to:¶
(a) ~~Surface Water Treatment:¶~~
~~(A) Incorrect location for compliance turbidity monitoring;¶~~
~~(B) For systems serving more than 3,300 people, no auto-dial, call-out alarm or auto-plant shutoff for low chlorine residual~~Groundwater sources:¶
(A) Well sanitary seal and casing not watertight;¶
(B) Unscreened well vent exists;¶
(C) Spring box not constructed of impervious, durable material;¶
(D) Spring box access hatch not watertight;¶
(E) Spring box access hatch not secured;¶
(~~C~~F) ~~For conventional or direct filtration, no auto-dial, call-out alarm or auto-plant shutoff for high turbidity when no oper~~Spring collection does not exclude surface water; or¶
(G) Spring overflow not screened.¶
(b) Wat~~o~~er ~~is on-site;~~Treatment:¶
(~~D~~A) ~~For conventional fil~~No physical separation between trea~~tion, settl~~ed and untreated water~~t~~;¶
(B) Turbidity ~~not measured daily~~standards not met;¶
(~~E~~C) ~~For conventional or direct filtration, turbidity profile not conducted on individual filters at least quarterly;¶~~
~~(F) For cartridge filtration,~~Incorrect location for compliance turbidity monitoring;¶
(D) For membrane filtration, direct integrity testing not ~~pressure gauges before and after cartridge filter~~erformed as required;¶
(~~G~~E) For cartridge filtration, filters not changed according to manufacturer's recommended pressure differential; ~~and~~¶
(~~H~~F) For diatomaceous earth filtration, body feed not added with influent flow~~.~~;¶
(~~b~~G) ~~Groundwater Well Construction:~~For disinfection, unable to demonstrate CTs are met; or¶
(~~A~~H) ~~Sanitary seal and casing not watertight;~~For ultraviolet light, no auto-alarm or shutoff for inadequate intensity.¶
(~~B~~c) D~~oes not meet setbacks from hazards;~~istribution system:¶
(~~C~~A) ~~Wellhead not protected from flooding;¶~~
~~(D) No raw water sample tap;¶~~
~~(E) No treated sample tap, if applicable; and~~20 pounds per square inch (psi) not maintained at all service

connections at all times; or¶
(FB) If well vent exists, not screenedPumps drawing from mainline with no cutoff switch if upstream pressure drops below 20 psi.¶
(cd) Groundwater Springbox Construction:¶
(A) Not constructed of impervious, durable material;¶
(B) No watertight access hatch/entry;¶
(C) No screened overflow;¶
(D) Does not meet setbacks from hazards;¶
(E) No raw water sample tap; andFinished water storage:¶
(A) Roof and access hatch not adequately secured;¶
(B) Roof and access hatch not watertight;¶
(C) No flap-valve, screen, or equivalent over drain and overflow; or¶
(FD) No treated sample tap, if applicablescreened vent.¶
(de) Disinfection:¶
(A) No means to adequately determine flow rate on contact chamber effluent line;Maximum contaminant level violations not addressed.¶
(Bf) Failure to calculate CT values correctly; andCompliance schedule deadlines not met.¶
(Cg) No means to adequately determoperator ine disinfection contact time under peak flow and minimum storage conditionsrect responsible charge at the required certification level.¶
(eh) Finished water storage:¶
(A) Hatch not locked;¶
(B) Roof and hatch not watertight;¶
(C) No flap-valve or equivalent over drain/overflow; and¶
(D) No screened ventOther situations presenting an immediate public health risk, as determined by the Authority.¶
(5) Response required when significant deficiencies are identified:¶
(a) For water systems that use surface water sources or groundwater under the direct influence of surface water (GWUDI) sources, water suppliers must respond in writing to the Authority within 45 days of receiving the sanitary survey report.¶
(A) The water supplier's response must include:¶
(i) The plan the water supplier will follow to resolve or correct the identified significant deficiencies;¶
(ii) The plan the water supplier will follow to resolve or correct any violations ofunmet drinking water regulations identified during the sanitary survey or at any other time; and¶
(iii) The schedule the water supplier will follow to execute the plan.¶
(B) The plans and schedules identified above in subparagraphs (5)(a)(A)(i) through (iii) of this rule must be approved by the Authority.¶
(b) For water systems that use only groundwater sources, water suppliers must consult with the Authority within 30 days of receiving written notice of a significant deficiency or a violation of these rules identified during the sanitary survey. Within 120 days of receiving written notice of a significant deficiency or violation of aan unmet drinking water regulation, water suppliers must:¶
(A) Have corrected the significant deficiency or rule violationunmet rule requirement; or¶
(B) Be in compliance with an Authority approved corrective action plan.¶
(6) Water suppliers that fail to respond to the Authority regarding correction of significant deficiencies within the timeframes specified in section (5) of this rule, are required to issue a tier 2 public notice as prescribed in OAR 333-061-0042(2)(b)(D).¶
(7) Water suppliers must correct the deficiencies or violations identified in the sanitary survey according to an Authority-approved schedule as described in section (5) of this rule. Failure to do so constitutes a violation of this rule.
Statutory/Other Authority: ORS 448.131, 448.150
Statutes/Other Implemented: ORS 448.131, 448.150

AMEND: 333-061-0220

RULE SUMMARY: Amend OAR 333-061-0220: The Classification of Water Treatment Plants and Water Distribution Systems rule will be amended to process a housekeeping correction in Table 51, after water treatment plant rating criteria was erroneously changed in 2024. No changes are being made to the rule text.

CHANGES TO RULE:

333-061-0220
Classification of Water Treatment Plants and Water Distribution Systems ¶

Water treatment plants and distribution systems at community and non-transient non-community public water systems are classified based on the size and complexity of the water system facility. Classification of a water system or water system facility determines the level of certification required for operators in direct responsible charge of a water system or water system facility as prescribed by OAR 333-061-0225.¶
(1) Small water system classification applies when a water system serves fewer than 151 service connections and:¶
(a) Uses only groundwater as its source; or¶
(b) Purchases finished water from another public water system.¶
(2) Water distribution classification applies when a water system is not classified as small in accordance with section (1) of this rule, and is based on the population served by the water system as specified in Table 50.¶
(3) Water treatment classification applies to water treatment plants when:¶
(a) A water system is not classified as small in accordance with section (1) of this rule; and¶
(b) Treatment is provided for contaminants identified in OAR 333-061-0030(1) through (5) and (7) by that water treatment plant.¶
(c) Water treatment classification is based on a point system that reflects the complexity of water treatment present. Points are assigned as specified in Table 51. For the purposes of operator certification, water treatment plants are classified as identified in Table 52, based on the cumulative score of components identified in Table 51.¶
(4) Filtration endorsement is an additional classification that applies when a water treatment plant is classified as Water Treatment 2 and uses conventional or direct filtration treatment to treat surface water or groundwater under the influence of surface water. Filtration endorsement certification, as prescribed by OAR 333-061-0235, is required for operators designated in direct responsible charge of a water treatment plant receiving the filtration endorsement classification, except for those operators already certified at Water Treatment Level 3 or higher.
Statutory/Other Authority: ORS 448.131
Statutes/Other Implemented: ORS 448.450, 448.455

RULE ATTACHMENTS MAY NOT SHOW CHANGES. PLEASE CONTACT AGENCY REGARDING CHANGES.

333-061-0220
Classification of Water Treatment Plants and Water Distribution Systems

Table 50	
Classification	Population Served
Water Distribution 1	1 to 1,500
Water Distribution 2	1,501 to 15,000
Water Distribution 3	15,001 to 50,000
Water Distribution 4	50,001 or more

Table 51	
Treatment or Water System Characteristic	**Points**
Treatment System Size (population served or flow whichever is greater)	
Population served	1/10,000 (max 30)
Average daily flow	1/1 million gallons per day (max 30)
Treatment Facility Source Type	
Groundwater	3
Surface water or GWUDI	5
Disinfection	
Ammonia/chloramination	3
Chlorination	5
Disinfectant residual maintenance	0
Ultraviolet light	2
On-site generated chlorine or mixed oxidants	7
Ozonation (on-site generation)	10
Ultraviolet light with chlorine residual	5
pH Adjustment	
Hydrated lime (calcium hydroxide)	4
Slaked-quicklime (calcium oxide)	5
All others (hydrochloric acid, sodium hydroxide, sulfuric acid, sodium carbonate)	1
Coagulation & Flocculation Processes	
Chemical addition (1 point for each type of chemical coagulant or polymer added, maximum 5 points)	1-5
Rapid Mix Units	
Mechanical mixers	3
Injection mixers	2
In-line blender mixers	2
Flocculation Units	
Hydraulic flocculators	2
Mechanical flocculators	3
Clarification and Sedimentation Processes	
Adsorption clarifier	10
Dissolved air flotation	10
Horizontal-flow (rectangular basins)	5

Horizontal-flow (round basins)	7
Inclined-plate sedimentation	10
Tube sedimentation	10
Up-flow solid contact sedimentation	15
Filtration Processes	
Cartridge/bag filtration	5
Diatomaceous earth	12
Direct filtration	5
Dual or mixed media filtration	5~~3~~
Membrane filtration/microscreens	5
Pressure or greensand filtration	10
Single/mono media filtration	3
Slow sand filtration	5
Water Quality Stability or Corrosion Control	
Aeration: packed tower, diffusers	3
Calcite	2
Caustic soda (sodium hydroxide)	6
Hydrated Lime (calcium hydroxide)	8
Orthophosphate	5
Slaked-Quicklime (calcium oxide)	10
Soda ash (sodium carbonate)	4
Others: sodium bicarbonate, silicates	4
Other Treatment Processes	
Aeration	3
Copper sulfate treatment	5
Fluoridation	5
Ion exchange/softening	5
Lime-soda ash softening	20
Packed tower aeration	5
Potassium permanganate	5
Powdered activated carbon	5
Sequestering (polyphosphates)	3
Special processes (reverse osmosis, activated alumina, other)	15
Residuals Disposal	
Discharge to lagoons	5
Discharge to lagoons and then raw water source	8
Discharge to raw water	10
Disposal to sanitary sewer	3
Land application	5
Mechanical dewatering	5
On-site disposal	5
Solids composting	5
Facility Characteristics or Instrumentation	
The use of SCADA or similar instrumentation systems to provide data with no process control	1
The use of SCADA or similar instrumentation systems to provide data with partial process control	3

The use of SCADA or similar instrumentation systems to provide data with complete process control	5
Clear well size less than average day design flow	5

Table 52	
Classification of Water Treatment Plants	
Classification	Points
Water Treatment 1	1 to 30
Water Treatment 2	31 to 55
Water Treatment 3	56 to 75
Water Treatment 4	76 or more